BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

BOARD OF DIRECTORS' REGULAR MEETING

December 21, 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**
DECEMBER 21, 2005 **7TH FLOOR**

9:45 A.M.

CALL TO ORDER

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

CLOSED SESSION

Significant Exposure to Litigation:

Pursuant to Government Code Section 54956.9(b), a need exists to meet in closed session to discuss one potential litigation matter against the District.

OPEN SESSION

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 December 7, 2005 Meeting — **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 November, 2005.

5. Consider Approval of Amendment to the Memorandum of Understanding, Section 7.13, Regarding Acting Appointments — **J. Broadbent/5052** jbroadbent@baaqmd.gov

   The Board of Directors will consider approval of *an amendment to Section 7.13 of the current Memorandum of Understanding between the Air District and the Employees' Association to replace "Acting Appointments" with "Acting Assignments."*

6. Consider Approval of Air District's Proposed 2006 Regulatory Calendar **H. Hilken/4642**
hhilken@baaqmd.gov

*State law requires each Air District to publish a list of potential regulatory measures for the upcoming year. No regulatory measures can be brought before the Board that are not on the list, with specified exceptions. Consequently, the list contains all measures that **may** come before the Board in 2006.*

COMMITTEE REPORTS AND RECOMMENDATIONS

7. Report of the **Ad Hoc Committee on Climate Protection** Meeting of December 14, 2005

CHAIR: M. TOWNSEND **J. Broadbent/5052**
jbroadbent@baaqmd.gov

8. Report of the **Personnel Committee Meeting** of December 15, 2005

CHAIR: H. BROWN **J. Broadbent/5052**
jbroadbent@baaqmd.gov

Action(s): The Committee may recommend approval of the following;

A) Reappointments to the Advisory Council;

B) Appointment of Applicant to fill an unexpired term in the Public Health Member Category on the Advisory Council.

PUBLIC HEARINGS

9. Continued Public Hearing to Consider Approval of Proposed Amendments to Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices in Petroleum Refineries and Chemical Plants and approval of a California Environmental Quality Act (CEQA) Negative Declaration **J. Broadbent/5052**
jbroadbent@baaqmd.gov

The proposed amendments to Regulation 8, Rule 28 require that monitoring equipment be installed on each PRD, that a demonstration be made that this monitoring equipment is capable of detecting releases as defined by the rule, and that the required monitoring data be kept for two years and made available to District staff.

10. Public Hearing to Consider Report on Further Study Measure 8: Atmospheric Blowdown Systems **J. Broadbent/5052**
jbroadbent@baaqmd.gov

Staff has examined atmospheric blowdown systems at Tesoro Refinery and regulations applicable to various types of emissions and recommends no amendments to District regulations at this time.

PROCLAMATION/COMMENDATION

11. *The Board of Directors will recognize Advisory Council Chairperson, Brian Zamora for his outstanding service to the Council this past year.*

The Board of Directors will recognize Stan Bunger, Morning Anchor, KCBS All News 740, for his participation in moderating the Air District's 50th Anniversary Symposium.

The Board of Directors will recognize Air District employees who have completed milestone levels of twenty-five (25), and thirty-five (35) years of service during the last

half of this year with certificates and pins.

OTHER BUSINESS

12. Report of the Executive Officer/APCO

13. Chairperson's Report

14. 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)

15. Time and Place of Next Meeting – 9:45 a.m. Wednesday, January 4, 2006 - 939 Ellis Street, San Francisco, CA 94109

16. 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: December 13, 2005

Re: Board of Directors' Draft Meeting Minutes

RECOMMENDED ACTION:

Approve attached draft minutes of the Board of Directors meeting of December 7, 2005.

DISCUSSION

Attached for your review and approval are the draft minutes of the December 7, 2005 Board of Directors' meeting.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

AGENDA: 1

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

939 ELLIS STREET – SAN FRANCISCO, CA 94109

Draft Minutes: Board of Directors' Regular Meeting – December 7, 2005

Call To Order

Opening Comments: Chairperson Marland Townsend called the meeting to order at 9:47 a.m.

Roll Call: Present: Marland Townsend, Chair, Roberta Cooper, Chris Daly (9:56 a.m.), Mark DeSaulnier, Dan Dunnigan, Erin Garner, Scott Haggerty (10:52 a.m.), Jerry Hill, Liz Kniss (10:07 a.m.), Patrick Kwok, Jake McGoldrick (9:49 a.m.), Julia Miller, Mark Ross, Michael Shimansky, John Silva, Tim Smith, Pam Torliatt, Gayle B. Uilkema, Brad Wagenknecht, Shelia Young.

Absent: Harold Brown, Nate Miley.

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

Commendations/Proclamation: There were none.

Director Jake McGoldrick arrived at 9:49 a.m.

Public Comment Period: There were no speakers.

Consent Calendar (Items 1 – 4)

1. Minutes of November 16, 2005 Meeting

2. Communications. Correspondence addressed to the Board of Directors

3. Notice of Total Liabilities for Workers' Compensation reported for Fiscal Year 2004-2005 and Compliance with Government Accounting Standards for Self Funded Workers' Compensation Program

   Pursuant to Labor Code Section 3702.6(b), the District is required to notify its governing Board of the total liabilities reported and whether current funding of those liabilities is in compliance with the requirements of Government Accounting Standards Board Publication 10 (GASB 10).

4. Considered Approval of Agreement with Employees' Association and Recommendation that Allows Employees to Sell-Back Leave for Donations to Victims of Hurricane Katrina

The Board of Directors considered approval of a recommendation to allow employees on a voluntary basis to sell-back leave for donations to victims of Hurricane Katrina.

Board Action: Director Wagenknecht moved approval of the Consent Calendar; seconded by Director Silva; carried unanimously without objection.

Committee Reports and Recommendations

5. Report of the Nominating Committee Meeting of November 16, 2005

Action(s): The Committee recommended that the Board of Directors approve the Board of Director Slate of Officers for 2006

Director Young presented the report and stated that the Committee met on Wednesday, November 16, 2005 and recommends the Board of Directors approve the following slate of Board Officers for the 2006 term of office: Gayle B. Uilkema, Chairperson; Mark Ross, Vice-Chairperson; and Jerry Hill, Secretary.

Board Action: Director Young moved that the Board of Directors approve the recommendations of the Nominating Committee; seconded by Director Garner; carried unanimously without objection.

6. Report of the Joint Policy Committee Meeting of November 23, 2005

Chairperson Townsend presented the report and stated that the Joint Policy Committee (JPC) met on Wednesday, November 23, 2005. District staff provided an overview of the 2005 Ozone Strategy, and discussed linkages between the Ozone Strategy and other regional planning efforts the JPC has discussed. The JPC voted unanimously to endorse the 2005 Ozone Strategy.

Also at the November 23rd meeting, Metropolitan Transportation Commission (MTC) staff reported on their analysis of travel behavior at transit oriented development projects, and the JPC discussed the role of the JPC in implementing and refining the regional smart growth vision.

The next meeting is scheduled for 10:00 a.m., Friday, January 20, 2006.

Board Action: Chairperson Townsend moved that the Board of Directors accept the report; seconded by Director Torliatt; carried unanimously without objection.

7. Report of the Stationary Source Committee Meeting of November 28, 2005

Director DeSaulnier presented the report and stated that the Committee met on Monday, November 28, 2005.

The Committee received a status report on Regulation 12, Rule 12: Flares at petroleum refineries. The report included a summary of the Board's previous direction to staff and work conducted by staff, including analysis and modeling of flare emissions. Staff also presented a comparison of the Bay Area AQMD and South Coast AQMD flare control rules.

Based on these analyses, staff recommended and the Committee concurred that a rule development process should be initiated to amend the rule to require a causal analysis for events where 500 pounds or more of sulfur dioxide are released on the same schedule as those events where more than 500,000 standard cubic feet per day of vent gas is flared.

Staff presented a status report on scheduled 2005 refinery rule development efforts for Further Study Measure 11 regarding Marine Tank Vessels and Further Study Measure 8 regarding Atmospheric Blowdown Systems and Pressure Relief Devices. Public hearings on these items are scheduled for the December 7th Board meeting.

The Committee provided general direction to staff on several discussion items. The next meeting of the Committee is scheduled for Monday, March 27, 2006.

Board Action: Director DeSaulnier moved that the Board of Directors approve the report of the Stationary Source Committee; seconded by Director Miller; carried unanimously without objection.

8. Report of the Executive Committee Meeting of November 30, 2005

Action(s): The Committee recommended Board of Director approval of pursuing the creation of a self-insured retiree life insurance program.

Director Chris Daly arrived at 9:56 a.m.

Chairperson Townsend presented the report and stated that the Committee met on Wednesday, November 30, 2005 and received and filed the Report of the Hearing Board.

Brian Zamora, Advisory Council Chairperson, presented the Report of the Advisory Council and announced that Kraig Kurucz is the Council Chairperson for 2006. Mr. Zamora summarized three key accomplishments of the Council this year: 1) a Resolution on Climate Change; 2) Indoor Air Pollution; and 3) the establishment of a Code of Conduct for the Advisory Council.

Ted Droettboom, Regional Planning Program Director of the Joint Policy Committee provided an update on the JPC.

Staff presented a report on the possibility of self-insuring the existing retiree life insurance benefit. The Committee directed staff to take preliminary steps to remove obstacles to self-insuring the retiree life insurance benefit. The Committee recommended Board of Director approval of staff moving forward with further exploring the implementation of a self-insured retiree life insurance benefit. In addition, direction was given to staff to provide additional information, at a future meeting, relating to the retiree life insurance benefit.

A status report was provided to the Committee on the progress being made regarding the installation of teleconferencing equipment in the 4th floor conference room. Installation will begin in December.

Staff presented an update on the ongoing work on the Production System replacement. The next meeting of the Executive Committee will be at the Call of the Chair.

Board Action: Chairperson Townsend moved that the Board of Directors approve the report and recommendation of the Executive Committee; seconded by Director Uilkema; carried unanimously without objection.

9. Report of the Budget and Finance Committee Meeting of December 5, 2005

Action(s): The Committee recommended Board of Director approval of the following:

A) Amend the FY 2005/2006 Budget by transferring $102,000 from the Reserves for Contingencies to the Payroll Budget (Program 106) and authorize the Executive Officer/APCO to issue a purchase order not to exceed $102,000 to Ceridian Corporation to replace the District's current payroll system; and

B) Amend the FY 2005/2006 Budget by accepting a $278,935 EPA Grant from the National Environmental Information Exchange Network (NEIEN), and awarding a $278,935 contract to Sonoma Technology, Inc. for Phase II Development of a new Data Management System for Ambient Air Quality and Meteorological Data.

Director Miller presented the report and stated that the Committee met on Monday, December 5, 2005.

Staff presented reports on and the Committee recommended that the Board of Directors approve an:

A) Amendment of the fiscal year 2005/2006 Budget by transferring $102,000 from the Reserves for Contingencies to the Payroll Budget (Program 106) and authorize the Executive Officer/APCO to issue a purchase order not to exceed $102,000 to Ceridian Corporation to replace the District's current payroll system; and also

B) Amend the fiscal year 2005/2006 Budget by accepting a $278,935 EPA Grant from the National Environment Information Exchange Network, and awarding a $278,935 contract to Sonoma Technology, Inc. for Phase II development of a new data management system for ambient air quality and meteorological data.

The next meeting of the Committee is scheduled for 9:45 a.m., Wednesday, January 25, 2006.

Board Action: Director Miller moved that the Board of Directors approve the recommendations and report of the Budget and Finance Committee; seconded by Deputy Director Dunnigan; carried unanimously without objection.

Public Hearings

10. Public Hearing to Consider Approval of Proposed Amendments to Regulation 8, Rule 44: Marine Vessel Loading Terminals; Rule 46: Marine Vessel to Marine Vessel Loading; District Manual of Procedures, Volume IV: Source Test Policy and Procedures, ST-34: Bulk and Marine Loading Terminals-Vapor Recovery Units; and approval of a California Environmental Quality Act (CEQA) Negative Declaration

The proposed amendments to Regulation 8, Rule 44 would reduce the standard allowable for organic vapor leaks for equipment and connections associated with loading activities, expand the applicability of the rule to include additional organic chemicals, require control of organic vapors during cleaning, purging and gas freeing of cargo tanks on vessels.

Julian Elliot, Senior Air Quality Engineer, presented the report and stated that the rule was adopted in 1989 and is being amended for the first time.

Mr. Elliot discussed the following:

- Background information on marine loading operations.
- The proposed amendments, which include consolidating Rule 44 and Rule 46 requirements into Rule 44 and amending source test method ST-34.
- The rule development process, which included six meetings of the Technical Working Group; public workshops in 2002, 2003, and 2005; and numerous meetings with interested parties.

Mr. Elliot stated that the staff recommends that the Board of Directors adopt amendments to Regulation 8, Rule 44 and Rule 46; adopt amendments to Source Test Method ST-34; and adopt a CEQA Negative Declaration.

There was discussion on the District's access to vessels and it was noted that the District will participate in outreach and education to the affected parties.

Director Liz Kniss arrived at 10:07 a.m.

The Board requested staff provide an update in six months on the District's ability to enforce the regulation. In response to a question from Director Shimansky, Mr. Elliot stated that every marine terminal within the Air District's jurisdiction is considered a large facility.

Chairperson Townsend opened the Public Hearing at 10:13 a.m.

Speakers: The following individuals spoke on this agenda item:

Dennis Bolt
WSPA
Concord, CA 94518

John Showalter
International Longshore & Warehouse Union
San Francisco, CA 94109

Julia May
Oakland, CA 94609

There was discussion regarding the flash point as the appropriate surrogate; on accountability if venting should occur; safety issues; and the applicability of vessels reporting on the root cause if venting occurs.

Board Action: Director Uilkema moved the staff recommendations and requested that staff review the data required to be provided under the rule and to report back to the Board with any recommendation to modify the rule, if appropriate; seconded by Director McGoldrick.

Jack Broadbent, Executive Officer/APCO, confirmed that the District staff will look at the reports and then bring that information back to the Board with a recommendation to amend the regulation if necessary. Mr. Elliott noted that all of the monitoring requirements are not in effect until a year from now.

Chairperson Townsend closed the Public Hearing at 10:37 a.m.

The motion then carried unanimously with the following Board members voting:

AYES: Cooper, Daly, DeSaulnier, Dunnigan, Garner, Hill, Kniss, Kwok, McGoldrick, Miller, Ross, Shimansky, Silva, Smith, Torliatt, Uilkema, Wagenknecht, Young, Townsend.

NOES: None.

ABSENT: Brown, Haggerty, Miley.

Adopted Resolution No. 2005-15: A Resolution of the Board of Directors of the Bay Area Air Quality Management District

Amending: District Regulation 8, Rule 44: Marine Vessel Loading Terminals; District Manual of Procedures, Volume IV, ST-34: Bulk and Marine Loading Terminals, Vapor Recovery Units;

Deleting: District Regulation 8, Rule 46: Marine Tank Vessel to Marine Tank Vessel Loading; and

Adopting a CEQA Negative Declaration for this Project.

11. Public Hearing to Consider Approval of Proposed Amendments to Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices in Petroleum Refineries and Chemical Plants and approval of a California Environmental Quality Act (CEQA) Negative Declaration

The proposed amendments to Regulation 8, Rule 28 clarify the equipment subject to the rule and require that monitoring equipment be installed on each PRD, that a demonstration be made that this monitoring equipment is capable of detecting releases as defined by the rule, and that the required monitoring data be kept for two years and made available to District staff.

Mr. Broadbent presented a summary of the issues, including clarifying language defining process units and three key concerns of the refiners. Mr. Broadbent reviewed slides that illustrated the difference in interpretation of process unit between the Air District and the refiners. The refineries have until March 1, 2006 to determine what they consider a process unit.

Mr. Broadbent stated that these episodic releases are sporadic and non-routine. Mr. Broadbent stated that the proposed rule amendments regarding process unit merely clarify the intent of the current rule, and added that staff will re-examine the current approach

through a separate rule-making process. District staff will provide the Stationary Source Committee with a time line for conducting this separate rule making process for PRDs.

Director Scott Haggerty arrived at 10:52 a.m.

There was discussion on the direction give by the Stationary Source Committee, and Mr. Broadbent stated that the proposed amendments regarding the definition of process unit clarify the rule and reiterated that the Board would not be adopting any additional requirements on this point. There was also discussion on cost effectiveness.

Victor Douglas, Senior Air Quality Engineer, presented the remainder of the report and provided information on the following:

- Background information on PRDs.
- Current Rule 8-28 requirements
- Release events and emissions since July 1998.
- Rule 8-28 evaluation.
- The proposed amendments.
- The issues (blanket control for all PRDs, catastrophic releases, and definition of "Process Unit").
- The regulatory process.

Mr. Douglas stated that staff recommends that the Board of Directors' adopt the proposed amendments to Regulation 8, Rule 28 and adopt the CEQA Negative Declaration.

Chairperson Townsend opened the Public Hearing at 11:23 a.m.

Speakers: The following individuals spoke on this agenda item:

Adrienne Bloch
CBE
Oakland, CA 94612

Carla Perez
CBE
Oakland, CA 94612

Julia May
Plumbers & Steamfitters 342 &
Electrical Workers 303
Oakland, CA 94609

Ahmadia Thomas
West County Toxics Coalition
Richmond, CA 94804

Allison Vogel
CBE
Crockett, CA

David Farabee
WSPA
San Francisco, CA 94105

Wanna Wright
CBA
Emeryville/Richmond, CA

At 11:41 a.m., Chairperson Townsend continued the Public Hearing on agenda item 11 to the Board of Directors' Regular Meeting of December 21, 2005.

Brian Bunger, District Counsel, noted that there is a December 31, 2005 deadline to complete the public hearing for these regulations. Director Uilkema requested a copy of the legal cite that indicates the December 31st date.

12. Public Hearing to Consider Report on Further Study Measure 8: Atmospheric Blowdown Systems

Staff has examined atmospheric blowdown systems at Tesoro Refinery and regulations applicable to various types of emission and recommends no amendments to District regulations at this time.

The Public Hearing on this matter has been rescheduled to the Board of Directors' Regular Meeting of Wednesday, December 21, 2005.

Other Business

13. Report of the Executive Officer/APCO – Mr. Broadbent deferred his report to the next meeting.

14. Chairperson's Report: Chairperson Townsend stated that he had no report.

15. Board Members' Comments – Director Kniss expressed her concerns about having three Public Hearings on the same day.

16. Time and Place of Next Meeting –9:45 a.m., Wednesday, December 21, 2005 - 939 Ellis Street, San Francisco, CA 94109.

17. Adjournment – The meeting adjourned at 11:49 a.m.

Mary Romaidis
Clerk of the Boards

AGENDA: 3

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Townsend and Members of the Board of Directors

From: Brian Zamora, Chairperson, Advisory Council

Date: December 5, 2005

Re: Report of Advisory Council – November 9 – December 21, 2005

RECOMMENDED ACTION:

Receive and file.

DISCUSSION:

Attached for your review are the minutes of the following Advisory Council meetings:

a) Executive Committee Meeting of November 9, 2005.

The Committee reviewed the work of its Standing Committees during 2005 and nominated a slate of Officers for the Advisory Council for 2006.

b) Regular Meeting of November 9, 2005.

The Council adopted a Code of Conduct for its members, received and discussed the reports of its Standing Committees and of the Executive Officer/APCO, and elected Officers for 2006. The Code of Conduct is attached to this report.

Respectfully submitted,

Brian Zamora
Advisory Council Chairperson

Prepared by: James N. Corazza
Reviewed by: Mary Romaidis

FORWARDED BY:_____

G:acreports/2005

AGENDA: 3a

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

DRAFT MINUTES

Advisory Council Executive Committee Meeting
9:00 a.m., Wednesday, November 9, 2005

1. **Call to Order – Roll Call.** 9:07 a.m. Present: Brian Zamora, Chairperson, Fred Glueck, Stan Hayes, John Holtzclaw, Ph.D., Kraig Kurucz. Absent: Victor Torreano.

2. **Public Comment Period.** There were no public comments.

3. **Approval of Minutes of September 14, 2005.** Dr. Holtzclaw moved approval of the minutes; seconded by Mr. Hayes; carried unanimously, with Mr. Glueck abstaining.

4. **Review of Work Plan Accomplishments with Committee Chairs.** Dr. Holtzclaw stated the Air Quality Planning & Technical Committees met jointly on October 12, 2005 to review the Community Air Risk Evaluation (CARE) program. The presentations addressed mapping and toxic and criteria emission inventories. The first iteration of exposure assessment has been completed. Staff and the consultant, Sonoma Technologies, plan to conduct further analyses. Mr. Glueck noted that the analysis showed that the emission inventory data when applied to the gridded map framework did not match well with the ambient measurements in the areas identified as having concentrations of particulate matter. Mr. Kurucz noted that the analysis has lead to the discovery of the need for further refinement of the emission factors that have been used in the analysis. Dr. Holtzclaw observed that the AQPC has largely completed its work plan and has conducted much of its work jointly with the Technical Committee.

   Mr. Hayes stated that in addition to the CARE program, the Technical Committee has reviewed the issue of global warming. A conference was recently held on global warming in San Francisco and another one is planned for March 7-9 of 2006.

   Chairperson Zamora stated he presented the Council's report on Indoor Air Quality, which the Public Health Committee worked on for much of 2006, to the Board Executive Committee at its meeting of October 12, 2005. The Executive Committee accepted the report and forwarded it for further consideration to one of the Standing Committees of the Governing Board.

5. **Proposal of Slate of Officers for 2006.** Chairperson Zamora nominated the following individuals for the slate of Officers for calendar year 2006: Chairperson – Kraig Kurucz; Vice-Chair – Fred Glueck; and Secretary – Louise Bedsworth, Ph.D. Mr. Hayes moved the Committee accept these nominations for Council Officers for 2006 and forwarding to the full Council for consideration; seconded by Dr. Holtzclaw; carried unanimously.

6. **Committee Member Comments.** Chairperson Zamora thanked the Standing Committee Chairs for their careful attentiveness to, and accomplishment of, their work plans. The Committee members thanked Chairperson Zamora for his excellent leadership this year.

7. **Time and Place of Next Meeting.** At the call of the Chair, 939 Ellis Street, San Francisco, CA 94109.

8. **Adjournment.** 9:28 a.m.

James N. Corazza
Deputy Clerk of the Boards

AGENDA: 3b

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

939 ELLIS STREET - SAN FRANCISCO, CALIFORNIA 94109

Draft Minutes: Advisory Council Regular Meeting – November 9, 2005

CALL TO ORDER

Opening Comments: Chairperson Zamora called the meeting to order at 10:05 a.m.

Roll Call:	Present:	Brian Zamora, Chair, Sam Altshuler, P.E., Louise Bedsworth, Ph.D., Ken Blonski, Jeffrey Bramlett, Harold M. Brazil, Irvin Dawid, Emily Drennen, Fred Glueck, Stan Hayes, John Holtzclaw, Ph.D., Kraig Kurucz.
	Absent:	Cassandra Adams, Diane Bailey, Bob Bornstein, Ph.D., William Hanna, Kevin Shanahan, Victor Torreano, Linda Weiner.
Introduction of New Advisory Council Member:		Chairperson Zamora introduced Ken Blonski, the new Advisory Council member in the "Regional Park District" category.

PUBLIC COMMENT PERIOD: Chairperson Zamora introduced Marland Townsend, Chairperson of the District's Board of Directors. Mr. Townsend thanked the Council for its advice to the District staff and Governing Board. He noted that he will be leaving political office in February of 2006 and stated that working at the District has been a memorable experience. In reply to questions, Mr. Townsend stated:

a) the information contained in the Council's minutes is important to the Board, and the process by which the Board receives and reviews Council minutes is currently under review.

b) the Council's recent recommendation on climate change was the driving force behind the Governing Board's adoption of a resolution on this matter.

c) the Council's expertise is best applied to broad policy subject areas rather than to internal District processes.

CONSENT CALENDAR:

1. **Approval of Minutes of September 14, 2005.** Dr. Bedsworth requested that on page three, item (a) the phrase "on that day" be added to the end of the sentence. Mr. Dawid moved approval of the minutes as corrected; seconded by Dr. Holtzclaw; carried unanimously.

ADOPTION OF CODE OF CONDUCT FOR ADVISORY COUNCIL:

2. **Code of Conduct.** Chairperson Zamora briefly reviewed the proposed Code of Conduct, noting it was edited through the course of several Council Executive Committee meetings held this year, and highlighted the sections and key areas of background. In discussion, Mr. Dawid inquired if Council-members can speak for themselves at a Board meeting by noting that that they are members of the Advisory Council but are not speaking on behalf of the Council. Chairperson Zamora stated that stating an association with the Council is not advisable because it infers the Council's sanction of a given view. It is preferable instead to note one's professional affiliation in speaking to the Board.

Dr. Holtzclaw suggested that the articles in the Code be renumbered sequentially. Mr. Altshuler requested that his personal information on the membership roster be inaccessible to an Internet search engine. Dr. Bedsworth requested that presentations given to the Council be identified at the meeting at which they are given as being either in the public domain or proprietary. Mr. Altshuler moved adoption of the Code of Conduct, as modified; seconded by Mr. Glueck; carried unanimously.

AIR DISTRICT OVERVIEW:

3. **Report of the Executive Officer/APCO.** Jack P. Broadbent, Executive Officer/Air Pollution Control Officer (EO/APCO) stated that this year's ozone season has registered no excesses of the national 1-hour standard; one excess of the national 8-hour standard; nine excesses of the state 1-hour standard; and eight excesses of the state 8-hour standard. The proportion of exceedances in other major California air basins is similar, though the numbers are different in each basin. The dialogue between the District and its neighboring air districts continues on the issue of pollutant transport.

   In reply to questions, Mr. Broadbent stated that, regarding the District's Spare the Air program, an increase of about 7% in ridership was measured on the one Spare the Air day called during this ozone season. The District has proposed that the funds allocated for free transit on Spare the Air days this summer, but not yet allocated, be encumbered to the next ozone season. The governing board of the Metropolitan Transportation Commission (MTC) will consider this proposal in the near future. Mr. Dawid requested that Houston be included in charts comparing ozone excesses in other California air districts. Ms. Drennen recommended that the free transit be extended to the morning and evening commutes. Jean Roggenkamp, Deputy APCO, replied that this is also under discussion. Mr. Broadbent added that the 2005 Ozone Strategy will be presented to the Governing Board for adoption on December 21, 2005. The remaining rules in the 2001 Ozone Plan—on marine loading operations and pressure relief devices—will be heard by the Governing Board later this month.

   Regarding particulate matter (PM), Mr. Broadbent stated that the District is concerned about potential increases in wood smoke in light of recent petroleum fuel cost increases. Ms. Roggenkamp noted that PM derives from on-and off-road vehicles and equipment, wood burning, power plants, industrial facilities and fugitive dust, as well as from secondary formation from precursor pollutants. Adverse PM health effects include aggravated asthma, coughing and painful breathing, decreased lung function, chronic bronchitis, and aggravated cardiac symptoms. The District has attained the national but not the state PM_{10} and $PM_{2.5}$ standards. The highest PM levels are recorded in the winter due to temperature inversions, ammonium nitrate and emissions from wood burning. Major sources of PM in the Bay Area include mobile sources, wood burning, power plants, industrial facilities, and fugitive dust.

   District PM reduction activities include Regulation 5 – Open Burning; Regulation 6 – Particulate Matter and Visible Emissions, Regulations 8, 9 and 12 on Volatile Organic Compounds (VOCs), Nitrogen Oxide (NOx), and Sulfur Oxide, respectively. Mobile Source Incentive programs include Carl Moyer, Transportation Fund for Clean Air (TFCA), Vehicle Incentive Program, Vehicle Buy-Back program, Low Emission School Bus, and Solid Waste Collection Vehicles.

   Other PM reduction efforts include wood burning mitigation with the Spare the Air Tonight program, a model wood burning ordinance, and various incentives to replace high polluting wood burning appliances. The Community Air Risk Evaluation (CARE) program addresses on a region-wide basis the concentration of toxic air contaminant in an effort to identify areas of high concentrations, as well as to mitigate diesel PM and develop emission reduction strategies.

New PM control measures are being proposed by the District. These arise out of SB 656 which directs the California Air Resources Board (CARB) to assemble a list of PM control measures in the state, and then to direct each air district in the state to review the list, identify the measures not implemented or planned to be implemented and then consider a PM regulatory implementation schedule. The District will also lower the threshold for calling a Spare the Air Tonight advisory. The District will also work closely with cities and counties on the model wood smoke ordinance, as well as sponsor radio and television ads, op-ed pieces and promotional events. A pilot project to collect data on PM levels in areas where wood burning is likely to accumulate will take place this year. District staff will utilize hand held monitors for this purpose. The District will also analyze PM filters to identify PM sources and enhance the District's understanding of the PM problem. A wood burning survey will also be conducted this winter in order to improve the accuracy of the emissions inventory. Although residential fires for heating and cooking are exempt from regulation, inspectors can respond to complaints by providing educational materials to both to complainants and neighbors.

Mr. Broadbent encouraged the Council to consider the foregoing subject area at the January 2006 Retreat. Mr. Glueck suggested providing incentives for wood burning mitigation, such as free transit passes, particularly with the recent increases in gasoline prices. Mr. Altshuler noted that in the last six months parking spaces at BART have increased and seating on BART trains decreased, suggesting impacts from petroleum fuel cost increases have indicators in the public transit sector. Mr. Dawid stated that he would forward to the Council some newspaper articles that address this issue.

Mr. Altshuler encouraged the District to take the lead on reviewing the health effects of ammonium nitrate, as there is little or no literature in this field. Mr. Broadbent responded that ammonium nitrate is a pervasive problem chiefly in the Central Valley. Mr. Dawid inquired if there were consequences for air districts that fail to attain the national PM standards. Ms. Roggenkamp responded that the same penalties would apply to an air district that fails to attain the national ozone standard.

Chairperson Zamora suggested that the District consider partnering with communities wishing to self-police emissions from wood burning. He offered to look into obtaining county funding to assist with such a project. Mr. Broadbent added that a similar idea has been proposed by groups in Marin and Sonoma counties, in which community members would go to the door of a residence and place a hanger on the door knob with data on the health effects of wood smoke. Chairperson Zamora opined that the pressure of neighborhood groups can prove to be stronger than a regulation. Ms. Roggen-kamp added that staff is developing protocols for inspectors investigating wood burning complaints as part of the District's wintertime pilot program on wood smoke abatement.

Mr. Broadbent noted that the District is celebrating its 50th anniversary year, and held a symposium in the summer. On November 10, a dinner celebrating the District's 50 years of success will be held in the East Bay for employees, Board, Advisory Council and Hearing Board members.

COMMITEE REPORTS AND RECOMMENDATIONS

4. **Joint Technical & Air Quality Planning Committee Meeting of October 12, 2005.** Dr. Holtzclaw stated that the two Committees received presentations on the Community Air Risk Evaluation (CARE) program regarding the first application of emission inventory data to a gridded map of the counties in the District's jurisdiction. Further refinement of the data will take place in order to obtain a more accurate picture of areas of exposure to toxic air contaminants. Mr. Hayes noted that 2x2 kilometer resolution can be potentially too coarse for evaluating facility concentrations, and that the chrome speciation issue deserves more attention as most chrome is trivalent rather than hexavalent.

5. **Public Health Committee Meeting of October 24, 2005.** There was no report.

6. **Executive Committee Meeting of November 9, 2005.** Chairperson Zamora noted that this morning the Committee met and unanimously proposed the following slate of Officers for the Advisory Council Officers in 2006: Kraig Kurucz – Chairperson; Fred Glueck – Vice-Chairperson; Louise Bedsworth, Ph.D. – Secretary. Dr. Holtzclaw moved adoption of the slate of Officers, as proposed; seconded by Mr. Hayes; carried unanimously.

OTHER BUSINESS

7. **Report of Advisory Council Chair.** Chairperson Zamora stated that at the October 19, 2005 Regular Meeting of the Board, "Regional Park District" category member Ken Blonski was appointed to the Council. At the October 12, 2005 meeting of the Board of Directors Executive Committee, the Council's report on Indoor Air Quality was favorably received and will be forwarded to the Board's Public Outreach Committee. The Board was also interested in the Council's work on its Code of Conduct. Interviews for the "Public Health Agency" vacancy on the Council will take place on November 17th. An additional vacancy in the "Transportation" category has been created by Kevin Shanahan who has indicated he intends to resign but will remain on the Council until his successor is appointed.

8. **Council Member Comments/Other Business**. The Council members thanked Chairperson Zamora for his leadership of the Council in 2005. Mr. Broadbent expressed his concurrence on behalf of staff.

   Mr. Hayes announced that a speciality conference on global warming will be held at the San Francisco Sheraton Hotel from March 7-9, 2006. The District will be a co-sponsor for this event.

9. **Time and Place of Next Meeting.** 10:00 a.m., Wednesday, January 11, 2006, 939 Ellis Street, San Francisco, CA 94109.

10. **Adjournment.** The meeting was adjourned at 11:46 a.m.

James N. Corazza
Deputy Clerk of the Boards

Code of Conduct for the Advisory Council

Interpretation and application

Article 1

1. This Code applies to all Advisory Council members.

2. For the purpose of this Code "members" means a person appointed to the Advisory Council(Council), Bay Area Air Quality Management District (District)

Article 2

1. On the coming into effect of this Code, the District Executive Officer or his designee shall inform members about its provisions.

2. This Code shall form part of the provisions governing the appointment of members from the moment they certify that they have been informed about it.

3. Every member has the duty to take all necessary action to comply with the provisions of this Code.

Article 3 – Object of the Code

The purpose of this Code is to specify the standards of integrity and conduct to be observed by members, to help them meet those standards and to inform the public of the conduct it is entitled to expect of public officials.

General principles

Article 4

1. The member shall carry out his or her duties in accordance with the law, and with those lawful instructions and ethical standards which relate to his or her functions.

2. The member shall act in a politically appropriate manner and shall not attempt to frustrate the lawful policies, decisions or actions of the Council.

Article 5

1. The member has the duty to serve the Council loyally.

2. The member is expected to be honest, appropriate, courteous and efficient and to perform his or her duties to the best of his or her ability with skill, fairness and

understanding, having regard for the District's mission and the relevant circumstances of the case.

Article 6

In the performance of his or her duties, the member shall not act arbitrarily to the detriment of any person, group or body and shall have due regard for the rights, duties and proper interests of all others.

Article 7

1. The member shall not allow his or her private interest to conflict with his or her public position. It is his or her responsibility to avoid such conflicts of interest.

2. The member shall never take undue advantage of his or her position for his or her private interest.

Article 8

The member has a duty to conduct himself or herself in a way that the public's confidence and trust in the integrity, impartiality and effectiveness of the public service are preserved and enhanced.

Article 9

The member is accountable to the Council Chairperson. A member shall not represent or speak for the Council without the authorization of the Chairperson on behalf of the Council.

Article 10 – Conflict of interest

1. Conflict of interest arises from a situation in which the member has a private interest which is such as to influence, or appear to influence, the impartial and objective performance of his or her official duties.

2. The member's private interest includes any advantage to himself or herself, to his or her family, close relatives, friends and persons or organizations with whom he or she has or has had business or political relations. It includes also any liability, whether financial or civil, relating thereto.

3. Since the member is usually the only person who knows whether he or she is in that situation, the member has a personal responsibility to:

- be alert to any actual or potential conflict of interest;
- take steps to avoid such conflict, including but not necessarily limited to recusal;

- disclose to the Council Chairperson any such conflict as soon as he or she becomes aware of it;
- comply with any final decision to withdraw from the situation or to divest himself or herself of the advantage causing the conflict.

4. Whenever required to do so, the member shall declare whether or not he or she has a conflict of interest.

5. Any conflict of interest declared by a candidate for Council membership shall be resolved before appointment.

Article 11 – Protection of the member's privacy

All necessary steps shall be taken to ensure that the member's privacy is appropriately respected; accordingly, declarations provided for in this Code are to be kept confidential unless otherwise provided for by law.

Article 12 – Misuse of official position

1. The member shall not offer or give any advantage in any way connected with his or her position as a public official, unless lawfully authorized to do so.

2. The member shall not seek to influence for private purposes any person or body, including other public officials, by using his or her official position or by offering them personal advantages.

Article 13 – Public and official resources

The member shall ensure that the public property, facilities, services and financial resources with which he or she is entrusted are managed and used effectively, efficiently and economically. They shall not be used for private purposes except when permission is lawfully given.

Article 14 – Observance of this Code and sanctions

1. This Code is issued under the authority of the Executive Officer of the District. The member has a duty to conduct himself or herself in accordance with this Code and therefore to keep himself or herself informed of its provisions and any amendments. He or she shall seek advice from an appropriate source when he or she is unsure of how to proceed.

2. Subject to Article 2, paragraph 2, the provisions of this Code form part of the terms of appointment to the Council of the member. Breach of them may result in removal from the Council by the Board.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT AGENDA: 4

Memorandum

To: Chairperson Townsend and Members of the Board of Directors

From: Jack P. Broadbent Executive Officer/APCO

Date: December 21, 2005

Re: Report of Division Activities for the Month of November 2005

FINANCE, ADMINISTRATION AND INFORMATION SERVICES DIVISION – J. McKAY, DIRECTOR

The Budget and Finance Committee has recommended that the Board approve funds to replace the District's current payroll system. The District's current payroll system must be replaced because ADP has announced that it will stop supporting our payroll system as of June 30, 2006. Replacing this system will be a significant effort and the Project Management issues associated with this work may have repercussions on other projects (including the Production System) that require senior management oversight.

The District has contracted with Caporicci and Larson to perform our 2004-2005 audit. Their initial testing work imitated on November 28.

Projects in process:

	Started	% Complete	Completion
Phase III Fire Alarm System	Aug. 05, 2005	100	Nov. 30, 2005
Phase IV HVAC Upgrade	Aug. 05, 2005	80	Dec. 30, 2005
ADA upgrades for 7th, 4th floor	Aug. 05, 2005	95	Dec. 19, 2005
Replace fire doors	Oct. 15, 2005	95	Dec. 15, 2005
7th and 4th floor lighting	Oct. 01, 2005	50	Feb. 30, 2005
All electrical closets up to code:	Oct. 15, 2005	100	Dec. 01, 2005
Garage pedestrian early warning:	Aug. 29, 2005	100	Sept. 15, 2005
Emergency generator lights	Oct. 15, 2005	60	Dec. 30, 2005

COMPLIANCE & ENFORCEMENT DIVISION – K. WEE, DIRECTOR

Enforcement Program

On November 2, 2005, the Berkeley Police Department gave a presentation to field staff on personal safety training while on the job. Staff issued Shell Refinery, Martinez a Public Nuisance Notice of Violation on November 9, 2005. Shell experienced a leak in the heavy oil system in the Catalytic Cracking Unit on November 8, 2005. The leak resulted in oil droplet fallout on vehicles and property in Martinez. Subsequent analysis of the material and computer air dispersion modeling confirmed earlier conclusions by Shell representatives and Contra Costa County Health Services staff that there were no adverse effects expected from this incident. Staff met with members of the San Francisco Huntersview Association on November 15, 2005 to discuss concerns and answer questions about two facilities, Pan-Glo and Darling International; both facilities are located near Bay View Hunters Point, San Francisco. Staff met with Pacific Steel Casting representatives on November 29, 2005 to discuss compliance issues related to the Berkeley foundry**.** Staff attended the Contra Costa Health Services Safety Summit on November 16, 2005. Representatives from the Chemical Safety Board presented findings on the recent British Petroleum explosion in Texas City that killed 15.

Compliance Assurance Program

On November 3, 2005, staff met with representatives from Tesoro Refining, Martinez regarding their blowdown systems. On November 11, 2005, staff participated in a conference call with members of CARB and CAPCOA Vapor Recovery Committee on the protocol for the 18-months In Station Diagnostics (ISD) Evaluation Study. Staff attended a meeting with the District's Legal Division on November 22, 2005 regarding pressure relief valve (PRD) regulation applicability. Staff attended the Interagency Air and Smoke Council meeting in Oakhurst. Presentations included: forecasting, fire growth modeling and particulate matter monitoring prior and during prescribed burning. Staff continues to regularly meet with the External Flare Workgroup (refineries, WSPA, CBE) to discuss reporting requirements under Reg. 12-12, including the Flare Minimization Plans and other required reporting.

Compliance Assistance Program

Staff met with representatives from the City of Mill Valley to discuss their recently adopted model wood smoke ordinance. City staff discussed the problems of enforcement of the ordinance and the challenges of providing education and outreach on woodburning issues. A Reg. 8-18 Advisory reminding affected facilities of non-repairable equipment list reporting requirements was mailed and also posted to the District website. Green Business Compliance Certifications were completed for seven businesses in Santa Clara County and one in Alameda County. Staff has obtained checklists to determine the requirements for District Office compliance with the City of San Francisco's Green Business certification program. Over-the-Phone Interpretation (OPI) for District callers utilized Cantonese translation during the month of October.

Staff met to develop the Pilot Wood Smoke Data Collection program. During the winter season, staff will be conducting night-time air sampling in an attempt to collect information about particulate matter associated with residential woodburning.

Training

Staff received either new 40 hour Hazardous Materials Operation (HAZWOPER) certifications or 8-hour re-certifications. Staff attended training given by the California Air Resources Board (CARB) on implementation of the Visible Emissions Evaluation (VEE) Certification program. This training will allow District staff to certify inspectors to read plumes instead of CARB. Staff has selected an outside trainer to conduct two one-day, non-technical "Introduction to Refinery Operations" classes in December. These classes will be open to selected staff.

(See Attachment for Activities by County)

ENGINEERING DIVISION – B. BATEMAN, DIRECTOR

Toxics Program

The Toxic Evaluation Section completed 30 risk screens during November for new/modified source permit applications. The majority of these risk screens were for diesel engine emergency generators and gasoline dispensing facilities. A modeling analysis of sulfur dioxide emissions from a flare event at Chevron was also completed in support of the District's rule development efforts. Staff participated in a CARB workshop for possible revision to the statewide Airborne Toxic Control Measure for dry cleaners, conducted a meeting with the Bay Area Dry Cleaning Industry Workgroup, and began work in conjunction with the District's contractor, Occidental College, on the Environmental Garment Care Demonstration Project.

Title V Program

Work continued in developing revisions to the refinery Title V permits and associated Statement of Basis' resulting from comments received from the public and EPA. A meeting was held with EPA to discuss outstanding issues.

Permit Evaluation Program

Staff participated in a monthly STAPPA/ALAPCO Permitting Committee meeting, and a second STAPPA/ALAPCO meeting with EPA to discuss implementation of the $PM_{2.5}$ standard with respect to New Source Review requirements. Staff participated in CAPCOA meetings on permitting of barges and ships, and on implementation of federal NSR Reform requirements.

Engineering Special Projects Program

Staff participated in several meetings with the District's contractor, CH2M Hill, to develop and recommend changes to work flow for the permitting process. Discussions also continued with diesel engine manufacturers to obtain necessary emissions data to determine compliance with the state Airborne Toxic Control Measure for diesel engines. Staff visited the United Airlines Maintenance Operations facility to review thermal spraying operations and compliance with the new Airborne Toxic Control Measure. A project involving cataloging existing policies and procedures was completed. This is the first stage in developing a unified Division Policies & Procedures Document.

Community Air Risk Evaluation (CARE) Program

Staff continued investigations of sources of toxic particulate matter and review of the preliminary toxic air contaminants emissions inventory prepared by the District's contractor, Sonoma Technologies, Inc.

INFORMATION SYSTEMS DIVISION – J. McKAY, DIRECTOR

Toolsets for Permits/Enforcement/Legal

The Engineering Division is wrapping up the business process analysis for the Authority to Construct process. This work forms the basis for the RFP that will result in two Pilot implementations at the District.

LEGAL DIVISION – B. BUNGER, DISTRICT COUNSEL

The District Counsel's Office received 84 Violations reflected in Notices of Violation ("NOVs") for processing.

Mutual Settlement Program staff initiated settlement discussions regarding civil penalties for 41 Violations reflected in NOVs. In addition, Mutual Settlement Program staff sent one Final 30 Day Letter regarding civil penalties for one Violation reflected in an NOV. Finally, settlement negotiations by Mutual Settlement Program staff resulted in collection of $16,950 in civil penalties for 34 Violations reflected in NOVs.

Counsel in the District Counsel's Office initiated settlement discussions regarding civil penalties for Violations reflected in NOVs. Settlement negotiations by counsel in the District Counsel's Office resulted in collection of $16,000 in civil penalties for seven Violations.

(See Attachment for Penalties by County)

PLANNING DIVISION – H. HILKEN, DIRECTOR

Grant Programs

The Board of Directors approved staff's recommendations for the Transportation Fund for Clean Air Regional Fund (TFCA) grant awards for fiscal year 2005/2006. Staff has begun sending award letters to grant recipients. Staff conducted four public workshops to provide information regarding the call for grant applications for the current funding cycle (Year 7) of the Carl Moyer Program. A total of 525 eligible light-duty vehicles were purchased and scrapped by the three Vehicle Buy Back Program contractors.

Air Quality Planning Program

The Board of Directors approved the Particulate Matter Implementation Schedule (prepared per SB 656) at the November 16, 2005 Board meeting. The public comment period closed on the 2005 Ozone Strategy and DEIR; staff is preparing responses to comments. Staff attended a meeting with representatives of the City of Mill Valley to discuss Mill Valley's Wood Smoke Ordinance, including enforcement issues and collaboration on public education regarding wood burning. Staff sent three letters regarding the air quality impacts of development projects and plans in the Bay Area: Oakley – Dutch Slough Properties; South San Francisco – 249 East Grand Project; Oakland – East 12th Street Residential Project.

Rule Development Program

Staff presented a report on refinery wastewater treatment systems (2001 Ozone Plan, Further Study Measure 9) to the Board of Directors on November 16, 2005; the Board approved staff's recommendation that no further rule making on this source is warranted at this time. Staff presented a status report on the District's refinery flare control rule (Reg. 12, Rule 12) and a comparison with the South Coast flare control rule, and an overview of refinery rules remaining in 2005 to the Stationary Source Committee. Staff met with Contra Costa County Health Services to discuss the Contra Costa Industrial Safety Ordinance. Staff also prepared draft rules, staff reports and legal notices for three public hearings scheduled for the December 7, 2005 Board of Directors meeting concerning marine vessel loading, pressure relief devices and atmospheric blowdown systems.

Research and Modeling

Staff participated in the Central California Ozone Study (CCOS) Technical and Policy Committee meetings and conference calls to discuss the progress of CCOS projects. Staff also participated in the Northern California Ozone SIP and Transport Workgroup meetings and conference calls to follow ARB's modeling activities. Staff prepared three technical papers and submitted them to a Joint Conference by the American Meteorological Society and the Air & Waste Management Association.

PUBLIC INFORMATION & OUTREACH

Media

The Spare the Air Tonight program kicked off on November 14, 2005 with several live and recorded media interviews. Several AM radio stations covered the story including: KGO, KCBS, and KLIV. Ethnic media included KTSF Chinese radio, KDTV Univision, and KTVN Vietnamese TV. Print articles appeared in the Bay City News, San Jose Mercury News, and the Oakland Tribune.

On Wednesday, November 16, 2005, the Contra Costa Times and several newspaper affiliates published a front page article, written by reporter Dennis Cuff, on the 50 year history of the Air District. A number of historic photographs accompanied the article. On Sunday, November 20, 2005 an editorial entitled "Bay Area air quality is a success story" was also featured.

CBS 5 HealthWatch aired a segment concerning the dangers of wood smoke to Bay Area residents, especially children. Medical reporter Dr. Kim Mulvihill interviewed the Executive Officer, Dr. Harold Farber of the Vallejo Medical Center, and Bay Area resident Robyn Bowen and her three children.

A six minute public affairs interview on wintertime pollution was taped for the program "Encuentro en la Bahia" on the Univision Spanish station featuring a Spanish speaking District staff person. The Chinese language station KTSF Channel 26 also ran a wintertime pollution interview with Mandarin speaker and District staffer Dr. Steve Soong.

Woodsmoke

Woodsmoke Ordinance - On November 22, 2005 the Solano County Board of Supervisors voted in favor of the District's woodsmoke ordinance. A second hearing will be held later in December.

Woodsmoke Rebate - The Santa Clara Woodsmoke Rebate bill insert began distribution on November 3, 2005. Approximately 400,000 inserts will be mailed to City of San Jose residents over two billing cycles beginning in November and extending through February. Weekly display ads in the San Jose Mercury News and all eight community newspapers of the Silicon Valley Community Newspaper group will appear at the same time.

Staff developed wood smoke outreach materials, including a PM bookmark and updated Woodburning Handbook for posting on the web site.

Events

During November the District had booths at the following events: Environmental Fair at the Bank of America (San Francisco), Cal Berkeley Football game & Cal Berkeley Men's Basketball game. E-mail sign-ups were collected.

TECHNICAL DIVISION – G. KENDALL, DIRECTOR

Air Quality

Air quality in the Bay Area remained in the Good category from November 1, 2005 through November 16, 2005 due to the passage of weak weather systems every few days. $PM_{2.5}$ concentrations then increased to the Moderate category from November 17, 2005 through November 22, 2005 due to high pressure that caused offshore winds. Air quality reached the Unhealthful for Sensitive Groups category on November 23, 2005 in San Jose (102 AQI), the day before Thanksgiving. $PM_{2.5}$ levels dropped to the Moderate category on November 24, 2005, Thanksgiving, when onshore westerly winds returned to the Bay Area. Air quality stayed in the Good or Moderate category the remainder of the month as two storms moved across the Bay Area bringing periods of strong winds and rain.

Air Monitoring

Thirty-two of the thirty-three air monitoring stations operated during the month of November 2005. The Crockett station, located at East Bay MUD's water district facility, is shut down for seismic upgrades. The increased wintertime sampling schedule for $PM_{2.5}$ began at designated stations on October 1, 2005. Beginning December 1, 2005, ozone monitors will be shut down at eight satellite stations during the low ozone season, as allowed under a waiver granted by the EPA.

Meteorology and Forecasting

August 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 attended the two day, semi-annual Interagency Air and Smoke Council meeting in Oakhurst, CA.

Quality Assurance

The Quality Assurance (QA) group conducted regular, mandated performance audits of 18 monitors at 13 Air District air monitoring stations. QA Staff observed performance audits conducted by California Air Resources Board (CARB) staff at five Air District air monitoring stations. CARB audit results showed that all Air District monitors were operating within allowable limits. QA staff also conducted performance audits of the SO_2 and H_2S monitors at the four Ground Level Monitoring stations at the ConocoPhillips Refinery in Rodeo.

Laboratory

In addition to ongoing, routine analyses, two wipe samples of a petroleum product taken from vehicles in Martinez, as a result of fallout during a release at the Shell Oil Products U.S. – Martinez Refinery, were examined microscopically, and one sample was analyzed for hydrocarbons by gas chromatography. Four $PM_{2.5}$ filter samples from 12/25/04 that contained elevated particulate levels were analyzed for ammonium, potassium, chloride, nitrate, and sulfate to better understand the relative compositions of those samples, and possible sources of high PM.

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 October 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: November 1, 2005 – November 30, 2005

Alameda County

Status Date	Site #	Site Name	City	Regulation Title
11/28/2005	A0703	Pacific Steel Casting Co-Plant #2	Berkeley	Failure to Meet Permit Conditions
11/21/2005	A9994	Crow Canyon Dry Cleaners	Dublin	Petroleum Dry Cleaning Operations
11/16/2005	B6779	Western Truck Fabrication	Hayward	Aeration of Contaminated Soil & Removal of Underground Storage Tanks
11/02/2005	P7059	TJC Const. dba CRC Environmental	San Leandro	Asbestos Demolition, Renovation & Mfg.
11/09/2005	C8767	Deol's Shell #136198	Union City	Gasoline Dispensing Facilities
11/29/2005	Q1642	Felardo Construction	Union City	Asbestos Demolition, Renovation & Mfg.

Contra Costa County

Status Date	Site #	Site Name	City	Regulation Title
11/16/2005	A1295	West Cleaners	Antioch	Petroleum Dry Cleaning Operations
11/17/2005	B1395	B Wood Cabinet Painting, Inc	Brentwood	Wood Products Coatings
11/16/2005	A1472	Unimin Corporation	Byron	Failure to Meet Permit Conditions
11/08/2005	A0011	Shell Martinez Refinery	Martinez	Failure to Meet Permit Conditions; Sulfur Dioxide
11/3/2005	B2758	Tesoro Refining and Marketing Co.	Martinez	Failure to Meet Permit Conditions; Major Facility Review (Title V); Particulate Matter & Visible Emissions; Storage of Organic Liquids
11/03/2005	A0010	Chevron Products Company	Richmond	Sulfur Dioxide
11/09/2005	A1840	West Contra Costa County Landfill	Richmond	Authority to Construct; Solid Waste Disposal Sites
11/03/2005	A0016	ConocoPhillips - San Francisco Refinery	Rodeo	Failure to Meet Permit Conditions; Storage of Organic Liquid
11/03/2005	A0016	ConocoPhillips - San Francisco Refinery	Rodeo	Process Vessel Depressurization
11/16/2005	B0409	Fashion Cleaners	Walnut Creek	Petroleum Dry Cleaning Operations
11/03/2005	Q9219	Jeff Figone	Walnut Creek	Asbestos Demolition, Renovation & Mfg.
11/16/2005	A2528	Varella Cleaners	Walnut Creek	Petroleum Dry Cleaning Operations

Marin County

Status Date	Site #	Site Name	City	Regulation Title
11/28/2005	Q9062	Leon Blum	San Rafael	Asbestos Demolition, Renovation & Mfg.

Napa County

Status Date	Site #	Site Name	City	Regulation Title
NONE				

San Francisco County

Received Date	Site #	Site Name	City	Regulation Title
11/09/2005	B2233	California Model & Design Group Inc	San Francisco	Surface Coating of Plastic Parts & Products
11/07/2005	B3041	First Quality Cleaners	San Francisco	Failure to Meet Permit Conditions
11/16/2005	C8759	Golden Gate Park Shell	San Francisco	Gasoline Dispensing Facilities
11/16/2005	A0026	Mirant Potrero, LLC	San Francisco	Continuous Emission Monitoring & Recordkeeping Procedures
11/9/2005	A9185	Pacific Gas & Electric	San Francisco	Aeration of Contaminated Soil & Removal of Underground Storage Tanks;

San Mateo County

Received Date	Site #	Site Name	City	Regulation Title
11/02/2005	A0556	Stanford Linear Accelerator	Menlo Park	Failure to Meet Permit Conditions
11/15/2005	C8831	Hickey-Gateway Shell-Shell Oil Products	Pacifica	Failure to Meet Permit Conditions
11/02/2005	B7379	Carpentry Service	Redwood City	Authority to Construct; Permit to Operate
11/15/2005	C6830	Chevron USA Products #9-7016	Redwood City	Gasoline Dispensing Facilities
11/16/2005	C9024	El Camino Martco	Redwood City	Permit to Operate
11/02/2005	A0265	RMC Pacific Materials Inc	Redwood City	Failure to Meet Permit Conditions
11/15/2005	C9415	Unocal #0109	San Bruno	Gasoline Dispensing Facilities
11/15/2005	C9938	San Mateo Auto Care	San Mateo	Gasoline Dispensing Facilities
11/15/2005	R1549	Double AA Transportation, Inc	So San Francisco	Gasoline Dispensing Facilities
11/28/2005	R0856	TEC Accutite	So San Francisco	Gasoline Dispensing Facilities

Santa Clara County

Received Date	Site #	Site Name	City	Regulation Title
11/15/2005	C3952	Delta Queen Car Wash	Campbell	Gasoline Dispensing Facilities
11/15/2005	G3777	Alpha Geo Services	San Jose	Gasoline Dispensing Facilities
11/09/2005	A0049	Chevron Products Company	San Jose	Failure to Meet Permit Conditions
11/28/2005	C0402	City Gas	San Jose	Gasoline Dispensing Facilities
11/15/2005	C9779	Palisade Gas and Wash	San Jose	Gasoline Dispensing Facilities
11/15/2005	C9066	Pete's Stop Gas & Auto Service	San Jose	Gasoline Dispensing Facilities
11/14/2005	A0041	Owens Corning	Santa Clara	Failure to Meet Permit Conditions
11/14/2005	A5079	S J Valley Plating Inc	Santa Clara	Failure to Meet Permit Conditions

Solano County

Received Date	Site #	Site Name	City	Regulation Title
11/17/2005	B6939	Golden Cabinetry	Fairfield	Public Nuisance
11/28/2005	B7402	Norcal Countertops Inc dba Granite Transformations	Fairfield	Authority to Construct; Permit to Operate
11/17/2005	A2039	Potrero Hills Landfill, Inc	Suisun City	Solid Waste Disposal Sites

Sonoma County

Received Date	Site #	Site Name	City	Regulation Title
11/28/2005	B7421	Innovative Design Group, Inc	Rohnert Park	Authority to Construct; Permit to Operate
11/28/2005	B1823	Stony Point Rock Quarry Inc	Sonoma	Authority to Construct; Permit to Operate
11/28/2005	R1773	Wedekinds Nursery	Sonoma	Open Burning
11/28/2005	B6089	Brunsing Associates, Inc	Windsor	Failure to Meet Permit Conditions

Outside Bay Area

Received Date	Site #	Site Name	City	Regulation Title
11/01/2005	R1339	California Track and Engineering, Inc	Fresno	Architectural Coatings
11/01/2005	R1340	Advanced Polymer Technology	Harmony	Architectural Coatings
11/03/2005	R0860	Sabek	King City	Gasoline Bulk Terminals & Gasoline Delivery Vehicles

November 2005 Closed NOVs with Penalties by County

Alameda

Site Name	Site Occurrence	City	Penalty	# of Violations Closed
Alameda Gas & Mart	D0476	Alameda	$2,000	2
Camino Press	A8637	Livermore	$100	1
Grafco Station	C8260	Livermore	$1,250	2
Leland Pong	Q3491	Pleasanton	$1,750	3

Total Violations Closed: 8

Contra Costa

Site Name	Site Occurrence	City	Penalty	# of Violations Closed
Brentwood American Station	C1164	Brentwood	$250	1

Total Violations Closed: 1

Marin

Site Name	Site Occurrence	City	Penalty	# of Violations Closed
L Lofrano and Son Inc	A3758	San Rafael	$500	4

Total Violations Closed: 4

Site Name	Site Occurrence	City	Penalty	# of Violations Closed
Daiv Abreu Vineyard Management	P7974	Rutherford	$1,500	1

Total Violations Closed: 1

San Francisco

Site Name	Site Occurrence	City	Penalty	# of Violations Closed
Clean N' Save	A5203	San Francisco	$500	1
Golden Gate Park Shell	C8759	San Francisco	$500	2
Norcal Printing Inc	B5113	San Francisco	$500	1
Sunshine Cleaners	B0436	San Francisco	$500	1
Unocal #3605	C9656	San Francisco	$500	1

Total Violations Closed: 6

San Mateo

Site Name	Site Occurrence	City	Penalty	# of Violations Closed
H N Lockwood Inc	B1443	Redwood City	$500	1
Royal Airline Linen of San Francisco	B2243	Burlingame	$400	2

Total Violations Closed: 3

Santa Clara

Site Name	Site Occurrence	City	Penalty	# of Violations Closed
BFI - The Recyclery	A5472	Milpitas	$7,500	2
J. Lentz Construction	Q7248	San Jose	$1,000	1
Matos Development and Painting	N9963	San Jose	$8,000	4
S J Valley Plating Inc	A5079	Santa Clara	$1,150	1
Tosco Northwest Company	C9323	Cupertino	$400	1
Valero Refining Co SS#7445	D0365	San Jose	$300	1
West San Carlos Gas	D0021	San Jose	$750	2

Total Violations Closed: 12

Solano

Site Name	Site Occurrence	City	Penalty	# of Violations Closed
Ferrari Brothers	Q3174	Fairfield	$1,000	1
Freeway Shell Service	C9678	Fairfield	$500	1

Total Violations Closed: 2

Sonoma

Site Name	Site Occurrence	City	Penalty	# of Violations Closed
Deerfield Ranch Winery	Q6138	Kenwood	$850	2
Hampton Tires	Q7809	Santa Rosa	$250	1
Winzler-Kelly Consultants	C7625	Santa Rosa	$500	1

Total Violations Closed: 4

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 MANGEMENT DISTRICT
Memorandum

To: Chairperson Marland Townsend and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: December 12, 2005

Re: Consider Approving Amendment to the Memorandum of Understanding, Section 7.13, Regarding Acting Appointments

RECOMMENDATION

Approve an amendment to Section 7.13 of the current Memorandum of Understanding between the District and the Employees' Association to replace Acting Appointments with Acting Assignments as set forth in the attached proposed amendment.

BACKGROUND

The District and Employees Association met and mutually agreed to amend the Memorandum of Understanding to provide premium pay to represented employees who are assigned to temporarily perform all of the day-to-day duties of a higher job classification. The existing language requires employees to actually be appointed to a higher job classification in order to receive premium pay for temporarily assuming the duties of a higher job classification. District employees occasionally take on the duties of a higher job classification to backfill for another employee who is on leave, or to temporarily backfill a vacant position until a permanent replacement is selected. The existing provision in the MOU is administratively cumbersome and also raised representation issues in instances where an employee represented by the Employees' Association is appointed on a temporary basis to act in a management position.

DISCUSSION

Amending the MOU as described above resolves a concern raised by the Employees' Association relative to the representation status of represented employees who may be appointed to a management position on a temporary basis. The amended language provides essentially the same ability to provide premium pay to an employee who temporarily assumes the duties of a higher classification in a manner that is less burdensome administratively and does not raise issues relative to representation. The amendment agreed upon by the District and the Employees' Association is contingent upon the approval of the Board of Directors.

BUDGET CONSIDERATION/FINANCIAL IMPACT

There is no fiscal impact from approving the attached resolution, as the amendment to the MOU would not change the amount of premium pay for acting assignments.

Respectfully Submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Michael K. Rich

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Resolution No. 2005-___

A Resolution to Approve an Amendment to Section 7.13 of the Memorandum of Understanding Regarding Acting Assignments

WHEREAS, the District and the Employees Association desire to formalize an amendment to Section 7.13 of the Memorandum of Understanding;

WHEREAS, the parties have met and conferred in good faith pursuant to California Government Code Section 3505 and MOU Section 17.04, Interim Bargaining and reached agreement subject to the approval of the Board of Directors;

WHEREAS, there is no fiscal impact resulting from approval of the amendment to Section 7.13 of the Memorandum of Understanding;

WHEREAS, amending Section 7.13 of the Memorandum of Understanding addresses concerns of the Employees' Association regarding the existing language in Section 7.13 and reduces the administrative burden of complying with the existing language;

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors hereby approves an amendment to Section 7.13 of the Memorandum of Understanding to replace acting appointments with acting assignments as set forth in Exhibit A to this resolution.

The foregoing resolution was duly and regularly introduced, passed and adopted at a regular meeting of the Board of Directors of the Bay Area Air Quality Management District on the Motion of Director_____, seconded by Director _____, on the _____ day of _____ 2005 by the following vote of the Board:

AYES:

NOES:

ABSENT:

_____
Marland Townsend
Chairperson of the Board of Directors

ATTEST: _____
Mark Ross, Secretary of the Board of Directors

AGENDA: 6

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: December 14, 2005

Re: Consider Approval of Proposed 2006 Regulatory Calendar

RECOMMENDED ACTION:

Approve Proposed 2006 Regulatory Calendar.

DISCUSSION

Each year, the District is required by Health and Safety Code section 40923 to publish a list of regulatory measures scheduled or tentatively scheduled for consideration during the next calendar year. If a measure is not on this list, it may not be brought before the Board unless it is necessary (1) to satisfy federal requirements, (2) to abate a substantial endangerment to public health or welfare, (3) to comply with state toxic air contaminant requirements, (4) to comply with an ARB requirement that the District adopt contingency measures due to inadequate progress towards attainment, (5) to preserve an existing rule's "original intent," or (6) to allow for alternative compliance under an existing rule.

The attached list includes all measures that may come before the Board in 2006. Some of the measures fall within exceptions listed above but are nevertheless included for completeness. Control measures from the 2005 Ozone Strategy and the Particulate Matter Implementation Schedule are included. There is no expectation that all of the measures on the list will be enacted during the calendar year. Rules are listed in numerical order as they appear in the District Rules and Regulations.

All new rules and rule amendments must be adopted at a public hearing conducted by the District's Board of Directors. Public comment is accepted at these hearings. Public notice of hearings is provided as required by law. In addition, the District conducts public workshops and provides opportunities for oral and written comments before scheduling a rule for public hearing. Information on workshops, hearings, and other rule development issues may be obtained from the District website at www.baaqmd.gov/pln/ruledev/index.asp or by calling the Planning, Rules and Research Division at (415) 749-4664.

BUDGET CONSIDERATION/FINANCIAL IMPACTS

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer / Air Pollution Control Officer

Prepared by: Daniel Belik
Approved by: Henry Hilken

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
2006 REGULATORY MEASURES LIST

Control Measure [1]	Regulation, Rule	Title	Objective [2]
	Reg. 1	General Provisions and Definitions	Clarifications, State law, reporting requirements
	Reg. 2, Rule 1	General Requirements (Permits)	EPA, CARB policy; State law, clarifications
	Reg. 2, Rule 2	New Source Review	EPA policy, State law
	Reg. 2, Rule 4	Emissions Banking	Clarifications
	Reg. 2, Rule 5	New Source Review for Toxic Air Contaminants	Codify existing policy, Community Air Risk Evaluation
	Reg. 2, Rule 6	Major Facility Review (Title V)	EPA policy, clarifications
	Reg. 2, Rule 9	Interchangeable Emission Reduction Credits	Clarifications
	Reg. 2, Rule TBD	Confined Animal Feeding Operations	State law, reduce emissions
	Reg. 3	Fees	Cost recovery, mitigate impacts of indirect and federal sources
	Reg. 5	Open Burning	Clarifications, reduce emissions
	Reg. 7	Odorous Substances	Clarifications
	Reg. 8, All	General Provisions	Applicability, VOC definition
	Reg. 8, Rule 2	Miscellaneous Operations	Clarifications
	Reg. 8, Rule 3	Architectural Coatings	Clarifications, reduce organic emissions
	Reg. 8, Rule 4	General Solvent and Surface Coating Operations	Reduce organic emissions
SS-9	Reg. 8, Rule 5	Storage of Organic Liquids	Clarifications, reduce organic emissions
	Reg. 8, Rule 6	Organic Liquid Bulk Terminals and Bulk Plants	Reduce organic emissions
	Reg. 8, Rule 7	Gasoline Dispensing Facilities	Reduce organic emissions
	Reg. 8, Rule 10	Process Vessel Depressurization	Clarifications, flexibility
	Reg. 8, Rule 16	Solvent Cleaning Operations	Clarifications
	Reg. 8, Rule 17	Petroleum Dry Cleaning Operations	Reduce organic emissions
	Reg. 8, Rule 18	Equipment Leaks	Reduce organic emissions
SS-2	Reg. 8, Rule 20	Graphic Arts Operations	Clarifications, reduce organic emissions
SS-10	Reg. 8, Rule 28	Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants	Reduce organic emissions, flexibility
SS-5	Reg. 8, Rule 32	Wood Products Coatings	Reduce organic emissions
SS-7	Reg. 8, Rule 33	Gasoline Bulk Terminals and Gasoline Delivery Vehicles	Clarifications, reduce organic emissions
SS-7	Reg. 8, Rule 39	Gasoline Bulk Plants and Gasoline Delivery Vehicles	Reduce organic emissions
	Reg. 8, Rule 40	Aeration of Contaminated Soil and Removal of Underground Storage Tanks	Clarifications
SS-8	Reg. 8, Rule 44	Marine Vessel Loading Terminals	Clarifications

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
2006 REGULATORY MEASURES LIST

Control Measure [1]	Regulation, Rule	Title	Objective [2]
SS-1	Reg. 8, Rule 45	Motor Vehicle and Mobile Equipment Coating Operations	Reduce organic emissions
	Reg. 8, Rule 49	Aerosol Paint Products	Consider deletion of rule due to ARB standards
SS-4	Reg. 8, Rule 50	Polyester Resin Operations	Reduce organic emissions
	Reg. 8, Rule 51	Adhesive and Sealant Products	Reduce organic emissions
	Reg. 8, Rule 52	Polystyrene, Polypropylene and Polyethylene Foam Product Mfg Ops.	Clarifications
SS-3	Reg. 8, Rule TBD	High Emitting Spray Booths	Reduce organic emissions
	Reg. 8, Rule TBD	Commercial Charbroiling	Reduce organic emissions
	Reg. 8, Rule TBD	Composting Operations	Reduce organic emissions
	Reg. 8, Rule TBD	Food Product Manufacturing Operations	Reduce organic emissions
	Reg. 8, Rule TBD	Livestock Waste	Reduce organic emissions
	Reg. 8, Rule TBD	Episodic Controls	Reduce organic emissions
	Reg. 8, Rule TBD	Cooling Towers	Reduce organic emissions
	Reg. 8, Rule TBD	Vacuum Trucks	Reduce organic emissions
	Reg. 8, Rule TBD	Wastewater from Coke Cutting	Reduce organic emissions
	Reg. 9, Rule 1	Sulfur Dioxide	Monitoring, recording requirements
	Reg. 9, Rule 2	Hydrogen Sulfide	Monitoring, recording requirements
SS-13	Reg. 9, Rule 6	NOx from Natural Gas-Fired Water Heaters	Reduce NOx emissions
SS-12	Reg. 9, Rule 7	NOx and CO from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters	Clarifications; reduce NOx emissions
	Reg. 9, Rule 8	NOx and CO From Stationary Internal Combustion Engines	Reduce NOx emissions
SS-14	Reg. 9, Rule 9	NOx From Stationary Gas Turbines	Change averaging time; reduce NOx emissions
	Reg. 9, Rule 10	NOx and CO From Boilers, Steam Generators And Process Heaters in Petroleum Refineries	Clarifications, reduce NOx emissions
	Reg. 11	Hazardous Air Pollutants	Reference federal standards
	Reg. 11, Rule 2	Asbestos Demolition, Renovation and Manufacturing	Clarifications
	Reg. 11, Rule 14	Asbestos-Containing Serpentine	Clarifications
	Reg. 11, Rule 16	Perchloroethylene Dry Cleaning	State ATCM revisions
	Reg. 12, Rule 7	Motor Vehicle Air Conditioners	Clarifications
	Reg. 12, Rule 11	Flare Monitoring at Petroleum Refineries	Clarifications
SS-6	Reg. 12, Rule 12	Flares at Petroleum Refineries	Refine analysis threshold
	MOP, Volume I	Enforcement Procedures	Clarification, improve data submittals
	MOP, Volume II	Engineering Permitting Procedures	Consistency with EPA requirements, clarifications
	MOP, Volume III	Laboratory Methods	New and improved analytical procedures

Control Measure [1]	Regulation, Rule	Title	Objective [2]
	MOP, Volume IV	Source Test Methods	New and improved analytical procedures
	MOP, Volume V	Continuous Emission Monitoring	New and improved analytical procedures
	MOP, Volume VI	Ground Level Monitoring	Consistency with EPA requirements

[1] Control measure numbers given are from the draft 2005 Ozone Control Strategy. SS = stationary source control measure.

[2] Objectives are listed for information only and are subject to change. Rule development efforts for a rule are not limited to listed objectives.

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: December 14, 2005

Re: Report of the December 14, 2005 Meeting of the Ad Hoc Committee on Climate Protection

RECOMMENDED ACTION

Receive and file.

BACKGROUND

The Ad Hoc Committee on Climate Protection met on Wednesday, December 14, 2005.

The Committee received a report on previous actions taken by the Board of Directors on climate change and staff provided the Committee with an update on recent staff activities. Those activities included outreach and education, collaboration with and participation in local efforts, and the development of a regional emissions inventory of greenhouse gases. In addition, representatives of the Climate Action Campaign provided an overview of their two-part report prepared for the District entitled: 1) Greenhouse Gas Emission Inventory for all Sectors of Sonoma County, California; and 2) Report on the Integration of Air Quality Management and Climate Protection.

Staff provided a report on the integration of air quality management and climate change. Staff is dedicating resources to the following:

- Conferences and workshops, including a regional summit;
- Collaboration with local governments, stakeholders, and the state;
- Planning;
- Public education and outreach.

Staff is evaluating, and sought Committee input on, additional activities, including the following:

- Grants;
- Emissions tracking; and
- In-house energy efficiency.

Attached are the staff reports presented to the Committee for your review.

Chairperson Townsend will give an oral report of the meeting.

BUDGET CONSIDERATION/FINANCIAL IMPACT

Staff time necessary to evaluate and develop the District's Climate Protection Leadership Program is included in existing staff resources. Some additional funds have been budgeted for outreach and educational activities. These costs are included in the District's fiscal year 2005/2006 budget.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Mary Romaidis
Reviewed by Henry Hilken

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Townsend and Members
of the Ad Hoc Committee on Climate Change

From: Jack P. Broadbent
Executive Officer/APCO

Date: December 8, 2005

Re: Update on Staff Activities Regarding Climate Change

RECOMMENDED ACTION

None. For information only.

BACKGROUND

On June 1, 2005, the Board of Directors adopted a resolution establishing a Bay Area Climate Protection Leadership Program. This resolution states that the District will address climate change and climate protection through District activities such as outreach and education campaigns, data collection and analysis, technical assistance, a regional conference on climate protection, and support and leadership for local efforts in the Bay Area to reduce emissions that contribute to climate change. Since the adoption of this resolution, staff has been actively developing a Climate Protection Leadership Program.

DISCUSSION

In developing a Climate Protection Leadership Program, staff assessed the extent of ongoing efforts to address climate change by federal, State, and local government agencies, other nongovernmental and international organizations, and private businesses. In the process of gathering a wide range of climate change information, staff has met with numerous stakeholders, attended conferences and lectures, and participated in various climate change events. Staff has also evaluated the integration of climate protection activities within existing District programs.

Recent staff activities in developing the Climate Protection Leadership Program are described below and will be discussed in further detail at the Ad Hoc Committee meeting.

Outreach and Education
As part of the outreach and education for the District Climate Protection Leadership Program, staff has developed a web site and made educational presentations to outside organizations, as well as to District staff.

Website: Staff began outreach and education efforts for the Climate Protection Leadership Program by establishing a web site focusing on climate change issues. The web site provides an overview of climate change, describes the pollutants that contribute to it, summarizes potential impacts of climate change on California and the Bay Area, and discusses linkages between current District programs and climate change and climate protection (see www.baaqmd.gov/pln/climatechange.htm).

Speaking Engagements: Staff made presentations about the District's Climate Protection Leadership Program at the California Biodiesel Symposium in San Diego, at World Environment Day workshops in San Francisco, and at the National Association of Regional Councils Conference in Monterey.

Internal Education: The District is conducting an internal education campaign on climate change. Staff has made presentations on climate change to the Advisory Council, and the Advisory Council and staff have presented information on climate change to the Executive Committee. Diane Wittenberg, President of the California Climate Action Registry, addressed a joint meeting of the Advisory Council, Air Quality Planning and Technical Committees. Presentations have also been made to District staff in various divisions.

Climate Change Summit: Staff is preparing to host a regional climate change summit in the spring or summer of 2006. Staff is currently bringing together regional stakeholders to form a steering committee to design a summit that will be informative to local stakeholders, promote collaboration, and that will be effective in addressing climate change issues in the Bay Area. Staff intends for the steering committee and regional summit to foster continuing dialogue and networking after the summit's conclusion.

Collaboration with and Participation in Local Efforts
District staff has already been active in collaborating with local efforts by participating in conferences and with local organizations.

Conferences: Staff has participated in the following conferences on climate change;

- California Biodiesel Symposium, San Diego, November 2005
- First Scientific Conference West Coast Governors' Global Warming Initiative Conference, Sacramento, September 2005
- Bioneers Conference, San Rafael, October 2005
- National Association of Regional Councils Conference, Monterey, June 2005
- World Environment Day, June 2005
- Green City Visions Conference, May 2005
- California Climate Action Registry Conference, April 2005
- Climate Protection Conference, Santa Rosa, March 2005
- CPUC Climate Change Policy En Banc, San Francisco, February 2005

In addition, Board members Shelia Young and Roberta Cooper attended the Mayors' Summit in Sundance, Utah in July 2005.

California Climate Action Registry: The District is a member of the California Climate Action Registry, a voluntary registry that promotes actions among member organizations to reduce greenhouse gas emissions. As a member of the registry, the District prepared an in-house inventory of the greenhouse gases generated by District activities. This will allow the District to set emission reduction goals for the agency and track progress.

Sustainable Silicon Valley: The District is a member of Sustainable Silicon Valley, a group of businesses, local governments, and nongovernmental organizations in San Mateo, Santa Clara, northern Santa Cruz, and southern Alameda Counties that are addressing environmental issues, such as climate change. This organization meets monthly and hosts regular educational sessions on topics like greenhouse gas emission reduction and renewable energy. On November 16, 2005 Sustainable Silicon Valley held a media event to release their First Annual Report of CO_2 Reductions. Jack Colbourn, Interim Director of Outreach and Incentives, spoke at this event on behalf of the District.

Sonoma County: The District funded a study prepared by the Climate Protection Campaign and the Community Clean Water Institute entitled *Report on the Integration of Air Quality Management and Climate Protection, June 2005*. This two part study developed a detailed greenhouse gas emission inventory for Sonoma County and analyzed potential integration of air quality management and climate protection efforts throughout the District. Ann Hancock, Coordinator for the Sonoma County Climate Protection Campaign will make a presentation summarizing this work at the Ad Hoc Committee meeting.

International Council for Local Environment Initiatives (ICLEI): Currently 17 Bay Area counties and cities participate in the Cities for Climate Protection Campaign led by ICLEI. Through this program ICLEI enlists local governments to adopt policies and implement measures to reduce local greenhouse gas emissions. District staff keeps in contact with participants. Most recently it was announced that ICLEI and the Berkeley-based Kyoto USA, will be assisting the Alameda County Conference of Mayors in creating a greenhouse gas emissions reduction plan.

Regional Emissions Inventory:
In order to establish an understanding of the magnitude and sources of greenhouse gas emissions in the Bay Area and to assist in developing emission reduction programs, staff is developing a region wide emissions inventory of greenhouse gas emissions from stationary, area, and mobile sources. The inventory will be useful in integrating climate protection activities into current air quality programs and to provide a baseline for comparison with future emission reduction efforts. Additionally, the inventory will assist Bay Area stakeholders in determining the sources of greenhouse gas emissions in their jurisdictions and in setting targets for emissions reductions.

BUDGET CONSIDERATION / FINANCIAL IMPACT:

Staff time necessary to evaluate and develop the District's Climate Protection Leadership Program is included in existing staff resources. Some additional funds have been budgeted for outreach and educational activities. These costs are included in the District's FY 2005/06 budget.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Ana Sandoval
Reviewed by: Dave Vintze

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Townsend and Members of the Ad Hoc Committee on Climate Change

From: Jack P. Broadbent
Executive Officer/APCO

Date: December 8, 2005

Re: Integration of Air Quality Management and Climate Protection

RECOMMENDED ACTION

None. For information only.

BACKGROUND

Since the June 1, 2005 adoption of the Board resolution establishing the District's Climate Protection Leadership Program, staff has been evaluating how to integrate the activities associated with this new program with existing District activities. The extent of the integration will depend on the scope of activities that the District will eventually pursue in the Climate Protection Leadership Program, which continues to be evaluated. The previous Agenda item provided the most recent summary of District actions to date in developing the Climate Protection Leadership Program and integration into existing District programs.

DISCUSSION

The District has the capacity to integrate a climate protection program with many of its current functions. Opportunities for such integration are summarized below and will be discussed in more detail at the Ad Hoc Committee meeting.

Below are activities to which the District is committed and to which staff is dedicating resources.

Conferences and Workshops
Because of the many separate and ongoing local climate protection efforts in the Bay Area, the District can play an important role in aiding collaboration in these efforts. Staff is organizing a regional summit intended to bring together local stakeholders, including public agencies, nongovernmental organizations, and the business sector to learn from one another's experiences in developing climate change programs and to encourage additional activities for local and regional efforts. As an important step leading up to this conference, staff is convening a regional committee of key stakeholders and local experts

to obtain input in creating the most informative and effective summit possible. Staff intends for the steering committee and regional summit to foster continuing dialogue and networking after the summit's conclusion and may host follow up workshops and forums to that effect.

In addition, the District is cosponsoring the Air and Waste Management Association's International Conference on Climate Change to be held in San Francisco in early March 2006.

Collaboration with Local Governments, Stakeholders, and the State
The District could develop model ordinances or guidance documents for adoption or use by local jurisdictions that address sources of greenhouse gas emissions. These could include energy efficiency standards and programs, diesel engine idling restrictions, green contracting and procurement practices, urban heat island prevention standards, and other strategies.

District staff will continue working with local organizations in ongoing efforts that address climate protection, such as Sustainable Silicon Valley and the California Climate Action Registry. Additionally, staff will keep abreast of policy changes and will work with State agencies as they develop guidelines for climate protection programs, including requirements for developing and maintaining emissions inventories.

Planning
Climate protection is already being included in the District's activities. The District's climate protection efforts are summarized in the Draft 2005 Ozone Strategy, and a majority of the control measures in the 2005 Ozone Strategy will also reduce greenhouse gas emissions.

The District is preparing to update its CEQA guidelines, which presents an opportunity to integrate climate protection impact analysis and mitigation in the CEQA process. This could address greenhouse gas emissions from both project construction and project operation.

Public Education and Outreach
The outreach programs administered by the District are naturally suited to educate the public on climate change and climate protection. Staff will develop printed material, brochures, and fact sheets on climate change and climate protection. These materials on climate change will be distributed not only at numerous public events, but also by other staff when they contact the public.

District staff will expand the information available through the District web site. Staff will continue to track efforts in emissions reductions and energy efficiency, and will publish information on best practices in energy efficiency by governments, businesses, and other organizations. In addition, staff is currently evaluating the development of an information clearinghouse that will contain facts on local, statewide and international initiatives, area contacts, sources for climate news, and other helpful information.

In the future, District staff may partner with other agencies and organizations in public outreach efforts. These partnerships would allow the District additional venues and resources for public education on climate change. One opportunity under consideration is the development of educational material and a curriculum for local schools that will be used to educate the students on climate change. The District is also considering developing public outreach literature on climate change for distribution to employers and their employees that are already a part of the Spare the Air notification program. The information provided through these outreach programs would be designed to educate the public on how to reduce their own personal impact on climate change.

Other potential activities under consideration include grants programs, emissions tracking and in-house energy efficiency, all described below in further detail.

Grants

The District could create an incentive program to encourage greenhouse gas emission reduction projects. This program may be administered solely by the District or in partnership with other organizations. The program may target greenhouse gas emissions from older, less energy efficient appliances, vehicle fleets, off-road equipment, and other sources. The District could also consider grants for planning studies that target or include energy efficiency and greenhouse gas emissions reduction goals, policies or programs. The District has already issued a few grants related to energy efficiency and climate change: an energy efficiency program in Bayview Hunters Point, an alternate energy project at the Pleasant Hill BART station, and a climate protection study in Sonoma County.

The District's TFCA grant program already tracks carbon dioxide emissions savings for funded projects. The District could examine ways to incorporate climate protection into existing grant programs.

Emissions Tracking

The District's permitting process affords an opportunity to track greenhouse gas emissions by individual permitted stationary sources. Including greenhouse gas emissions estimates by source as part of the permitting process would help the District compile and track a more accurate emission inventory and identify where emissions reductions could be targeted. Maintaining a greenhouse gas emissions inventory could also have the additional benefit of tracking emission reductions of criteria pollutants from activities that are not normally easy to track, such as emission reductions from energy efficiency, smart growth and other land use policies.

In-House Energy Efficiency

The District will review its in-house greenhouse gas emissions inventory, conducted as part of its membership in the California Climate Action Registry. Staff is already investigating energy use of building appliances and brainstorming on ways to reduce the energy demand of the building. As part of this work, staff may develop an internal

energy efficiency plan to reduce greenhouse gas emissions, implement energy savings measures and track our progress.

District staff will continue to look at additional opportunities for integrating climate protection with existing District activities. Staff may expand on the efforts described above and may consider integration with activities in enforcement, air monitoring and stationary source testing, or other sections.

BUDGET CONSIDERATION / FINANCIAL IMPACT:

Staff time necessary to evaluate and develop the District's Climate Protection Leadership Program is included in existing staff resources. Some additional funds have been budgeted for outreach and educational activities. These costs are included in the District's FY 2005/06 budget.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Ana Sandoval
Reviewed by: Dave Vintze

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: December 14, 2005

Re: Report of the Personnel Committee Meeting of December 15, 2005

RECOMMENDED ACTION:

The Committee may recommend approval of Reappointments to the Advisory Council and an Appointment of Applicant to the Public Health member category on the Advisory Council.

DISCUSSION:

The Personnel Committee will meet on Thursday, December 15, 2005 to discuss and consider the following:

A) The Committee's role relative to the Applicant Selection Working Group of the Advisory Council;

B) Recommendations on reappointments to the Advisory Council; and

C) Appointment of an applicant to fill the Public Health Member Category on the Advisory Council.

Attached are the staff reports submitted to the Personnel Committee for the December 15, 2005 meeting.

Chairperson Brown will provide an oral report of the meeting, including any recommendations for consideration by the Board of Directors.

BUDGET CONSIDERATION/FINANCIAL IMPACTS:

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

AGENDA: 4

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Office Memorandum

To: Chairperson Brown and
Members of the Personnel Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: December 5, 2005

Re: Discussion of Personnel Committee's Role in Recommending Appointees to the Advisory Council

RECOMMENDED ACTION:

The Personnel Committee will discuss and consider its role relative to the Advisory Council Applicant Selection Working Group and may recommend that the Board of Directors alter its current practice with respect to the recommendations of the Working Group.

BACKGROUND:

Pursuant to Division I, Section 6.6 of the Administrative Code the Personnel Committee of the Board of Directors has the function, among other things, of recommending selection of Advisory Council members for Board approval whenever a vacancy exists. Prior to 1995, recommendations were made to the full Board of Directors after the Personnel Committee interviewed applicants. In 1988 the Personnel Committee recommended and the Board of Directors approved creation of an "Applicant Resource Pool" in order to promptly fill vacancies from a pool of applicants who had previously been interviewed but not recommended for appointment. On September 23, 1994, several interviewees for an Advisory Council vacancy did not appear for their interview with the Personnel Committee. As a result, the Personnel Committee recommended that an ad hoc committee of the Advisory Council take on the role of screening applications, interviewing applicants and making recommendations to the Personnel Committee on which applicants should be appointed to the Advisory Council. This Ad Hoc Screening Committee (subsequently named the Applicant Selection Working Group) was created and held its first meeting in September 1995. Since then, the Applicant Selection Working Group has received and screened applications, interviewed candidates, and provided a selection recommendation to the Board's Personnel Committee, and, more recently, to the Board's Executive Committee.

DISCUSSION:

Sections 40260 et seq. of the California Health and Safety Code establishes the Advisory Council. The Health and Safety Code provides that the Council consist of 20 members, appointed by the Board of Directors, and that the Chairman of the Board serves as an ex officio member. The District's Administrative Code provides that the Personnel Committee of the Board is to recommend appointees for Board approval to fill vacancies on the Advisory Council. Recently, such recommendations have been made, instead, by the Executive Committee of the Board.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

AGENDA: 5

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Brown and Members of the Board Personnel Committee

From: Brian Zamora, Advisory Council Chairperson

Date: November 18, 2005

Re: Consider Recommendations on Re-appointments of Ten (10) Advisory Council Members to an Unexpired Term Ending January 1, 2006

RECOMMENDED ACTION:

Consider recommendations to the Board of Directors on the reappointment of 10 Advisory Council members to a two-year term beginning January 1, 2006 and ending December 31, 2007.

BACKGROUND:

Pursuant to Section 40261 through 40263 of the California Health and Safety Code the District is required to maintain an Advisory Council consisting of 20 members who serve two year terms. The terms are staggered such that the terms of 10 members expire each calendar year. The Board of Directors has a practice of reviewing the attendance records of those members whose two-year terms have expired and who request re-appointment.

DISCUSSION:

Ten members have requested reappointment to a two-year term beginning January 1, 2006 and ending December 31, 2007. The chart below shows the total Regular and Committee meetings that the members were assigned, how many they attended, and the total attendance percentage of each member.

The attendance data covers the two-year term beginning January 1, 2004 and ending December 31, 2005, with attendance calculated through November 17, 2005, after the final meeting of the full Advisory Council and subsequent Applicant Selection Working Group. The newest member, Ken Blonski, was appointed by the Board on October 19, 2005 to fill an unexpired two-year term in the "Regional Park District" category that concludes on December 31, 2005. He will only have attended one meeting in the unexpired term following his appointment.

Name	Category	Assigned/Attended	Percentage
Diane Bailey	Conservation Organization	23/15	65%
Jeffrey Bramlett	Public Health Agency	25/23	92%
Harold Brazil	Transportation	32/26	81%
Emily Drennen	Conservation Organization	22/18	81%
Fred Glueck	General Contractor	27/25	96%
William Hanna	Agriculture	30/20	67%
Kraig Kurucz	Industry	32/24	75%
Ken Blonski	Regional Park District	1/1	100%
Victor Torreano	Organized Labor	28/26	93%
Brian Zamora	Public Health Agency	30/24	80%

All of the above Council members have exceeded the 50% attendance threshold that the Board of Directors has identified as a minimum standard for attendance.

I will be present at the December 15, 2005 meeting of the Personnel Committee to answer any questions that you may have.

Respectfully submitted,

Brian Zamora
Chairperson
Advisory Council

Prepared by: James N. Corazza

FORWARDED BY:_____

BZ:jc

AGENDA: 6

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Brown and Members of the Personnel Committee

From: Bill Hanna, Chairperson, Applicant Selection Working Group

Date: November 28, 2005

Re: Consider Recommendation for Appointment of Member to "Public Health Agency" Category on the Advisory Council

RECOMMENDED ACTION:

Consider recommending that the Board of Directors appoint Steven Kmucha, M.D., to the "Public Health Agency" category on the Advisory Council to complete an unexpired term beginning January 1, 2005 and ending December 31, 2006.

BACKGROUND:

Elinor Blake tendered her resignation from the Advisory Council in the "Public Health Agency" category effective October 1, 2005. Her term was set to expire on December 31, 2006.

DISCUSSION:

A Press Release soliciting applications for vacancies on the Advisory Council was issued in the Fall of 2005. It was posted on the District's website, forwarded to the Board of Directors, Advisory Council and Hearing Board, and transmitted via fax to the District's list of newsprint, radio and television recipients. At the conclusion of the application period, the Applicant Selection Working Group received and reviewed five applications, of which three were selected for an interview. Shortly before the date on which interviews were to be held, one of the three candidates withdrew from consideration but requested that his application be retained on file in the event future vacancies arise. On November 17, two candidates were interviewed by the Applicant Selection Working Group, which recommends that Steven Kmucha, M.D., be recommended by the Personnel Committee to the full Board of Directors for appointment to the "Public Health Agency" category vacancy. Dr. Kmucha is presently an alternate member of the District's Hearing Board in the "Medical Professional" category. He has indicated that he will resign from that position if appointed to the Advisory Council.

I will attend the Personnel Committee meeting to answer any questions that you may have.

Respectfully submitted,

William Hanna
Chairperson
Applicant Selection Working Group

Prepared by: James N. Corazza

FORWARDED BY:_____

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: December 14, 2005

Re: Continued Public Hearing to Consider Adoption of Proposed Amendments to Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants, and adoption of a CEQA Negative Declaration

RECOMMENDED ACTION:

Staff recommends that the Board take the following actions:

- Adopt proposed amendments to Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants; and
- Adopt a Negative Declaration pursuant to the California Environmental Quality Act (CEQA) for this rule-making activity.

DISCUSSION

On December 7, 2005, the Board of Directors initiated a public hearing to consider adoption of proposed amendments to Regulation 8, Rule 28. The Board heard the staff presentation, initiated public testimony and continued the hearing to December 21, 2005.

Respectfully submitted,

Jack P. Broadbent
Executive Officer / Air Pollution Control Officer

Prepared by: Victor Douglas
Reviewed by: Henry Hilken

Attachments:

1. Board Memorandum of December 7, 2005
2. Proposed Amendments to Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants
3. Staff Report
4. Socioeconomic Analysis
5. CEQA Initial Study and Negative Declaration

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: November 30, 2005

Re: Public Hearing to Consider Adoption of Proposed Amendments to Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants, and adoption of a CEQA Negative Declaration

---

RECOMMENDED ACTION:

Staff is proposing amendments to the District's regulation on Pressure Relief Devices (i) to specify the type of monitoring that is required to ensure compliance with the rule, and (ii) to clarify the definition of the equipment subject to the rule, which has been the subject of confusion under the rule as currently written. Staff recommends that the Board take the following actions:

- Adopt proposed amendments to Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants; and
- Adopt a Negative Declaration pursuant to the California Environmental Quality Act (CEQA) for this rule-making activity.

BACKGROUND

Pressure relief devices, or "PRDs", are safety devices used to protect pressurized equipment at refineries and chemical plants. PRDs work like the pressure release valve on top of a home water heater: they protect equipment from overpressures caused by upset conditions by venting excess pressure before it can build up and cause a rupture, explosion, or other catastrophic failure of the equipment. Some PRDs at refineries and chemical plants vent directly to the atmosphere. These devices are the subject of Regulation 8, Rule 28 and the proposed amendments.

The current version of Rule 8-28 was adopted in 1997 (with minor amendments in 1998). It is designed to phase out atmospheric PRDs by requiring refineries to vent them to a control system (*e.g.*, a safety flare or a vapor recovery system) whenever they install new equipment or modify existing equipment. For PRDs on existing equipment, the rule also targets the "bad actors" among the existing equipment population by requiring any process unit that experiences two releases within a five year period have its PRDs vented to a control system without waiting for an equipment modification. Finally, the rule also aims to prevent or minimize releases from all PRDs by requiring each refinery to adopt certain "Prevention Measures" for each PRD.

The rule has resulted in a significant reduction in PRD emissions. When the current Rule was adopted in 1997, emissions from PRDs were estimated to range between 27 to 150 tons per year. Since the current rule has been in place, emissions have averaged 20.5 tons per year. Furthermore, since the requirement to implement Prevention Measures took effect, emissions have averaged only 12.4 tons per year.

In the 2001 Ozone Attainment Plan, the District committed as part of Further Study Measure 8 to examine PRDs to determine if hydrocarbon emissions from petroleum refineries could be further reduced by requiring additional controls on refinery PRDs. During this rulemaking effort, staff hosted two technical workgroup meetings, as well as a public workshop on September 14, 2005, in Rodeo, a community adjacent to a refinery. Staff also met informally with representatives of refineries, chemical plants, community and environmental groups, the Western States Petroleum Association, labor unions, and Contra Costa County Health Services. Staff has considered this public input and has incorporated it into the proposed amendments, where appropriate.

In addition to the public outreach efforts, staff presented updates to the Stationary Source Committee of the Board of Directors on the progress of refinery rulemaking efforts on September 26 and November 28, 2005. At the November 28 meeting, staff presented a summary of the proposed amendments to Reg. 8-28 and heard public comments.

DISCUSSION

Staff's review of Regulation 8, Rule 28 found that although the rule has been successful in reducing emissions from PRD releases, there are several areas in which it could be improved. The rule requires that facilities report releases over ten pounds, but it does not explicitly require emissions monitoring, set standards for monitoring equipment, nor require monitoring data to be retained. Consequently, there is the potential for some releases to go undetected and there exists an inability to review the emission history of the PRDs. In addition, the rule refers to the term "source" but the term is undefined, creating the potential for confusion over how it is to be implemented, and the rule has some other undefined terms and unclear language.

In order to address these issues, the proposed amendments to Regulation 8, Rule 28 would:

- Require facilities to demonstrate that they have the capability to detect and quantify all release events, including small releases of ten pounds (the reporting threshold);
- Require data records of ventings for emissions verification;
- Clearly define the equipment subject to the rule as the process unit to ensure that the original intent of the rule – to regulate all PRDs on an individual source (i.e., process unit) in the same manner – is clarified;
- Require facilities to report to the District their analysis of the root causes of and potential corrective actions after each PRD release event;
- Make minor, non-substantive changes to the rule such as deleting obsolete references to "turnarounds," moving requirements where appropriate, and clarifying various sections of the rule.

ISSUES

During the review of the proposed amendments, two major issues emerged.

Control of all PRDs: A number of parties that participated in the rulemaking process maintain that the District should require all atmospheric PRDs to be vented to a control system. Staff examined whether a blanket requirement that all PRDs be controlled would be appropriate from two different perspectives. First, staff examined whether it would be advisable to require all PRDs to be controlled as a means of reducing emissions of VOC. Staff found that such a requirement would be prohibitively costly, with refineries having to incur costs of over $1 million per ton of emissions prevented. This cost is orders of magnitude greater than what the District normally considers cost-effective. Second, even though Further Study Measure 8 was directed at ozone issues, staff also examined whether a blanket control requirement would be advisable as a safety measure to prevent accidental releases of hazardous materials that could impact refinery workers or neighboring communities. Staff found that there already exists a comprehensive overlapping web of federal, state and local laws and regulations that require each refinery to take whatever steps are necessary to render their operations safe. These regulations include Contra Costa County's landmark Industrial Safety Ordinance. Staff therefore concluded that additional District regulation in the area of process safety would be unnecessarily duplicative of these existing provisions. In addition, staff concluded that consideration of industrial safety requirements extends far beyond the relatively narrow focus of limiting releases of ozone precursors from PRDs. In an effort to review and possibly enhance industrial safety ordinances over a broad spectrum, including District rules, staff has met with the Contra Costa County Health Services Department. Staff's goal is to hold joint meetings in refinery communities to explore whether the Contra Costa County Industrial Safety Ordinance or other rules can be improved. Although staff is not recommending additional controls beyond those already required in the rule at this time, staff will recommend any improvements to District rules that come out of this process.

Process Unit: As noted above, the current version of the rule describes the equipment subject to the rule using the ambiguous term "source". When the current rule was adopted in 1997, "source" was intended to refer to an entire "Process Unit," a grouping of multiple pieces of equipment that are operated together to produce a particular product. The proposed amendments would clarify this intent by replacing the term "source" with the term "Process Unit". The refineries contend that the definition of "source" should be narrowed to cover only the particular pieces of equipment within a Process Unit that make up a pressure-related system. They argue that this narrower definition is more appropriate because the upsets that cause the overpressures that lead to PRD releases are necessarily limited to individual pressure-related systems. But a review of the record of PRD releases since the current rule was adopted shows that this is not the case. There are a number of situations where an upset can affect multiple pressure-related systems within a process unit. Adopting this narrower definition would inappropriately change and restrict the scope of the rule, as it would excuse "bad actor" process units that have experienced multiple releases simply because the releases happened to occur on separate pressure systems.

CHANGES TO THE RULE SINCE PUBLICATION

Since the proposed amendments were circulated for public review, staff has proposed two minor revisions. Under the current rule, most refineries have implemented three or more Prevention Measures for each PRD. However, the current rule contains an exception that allows facilities to

implement fewer than three prevention measures for a particular PRD on the condition that the control requirements are triggered after a single release rather than after two releases. The proposed amendments that were published for public review delete the option of having fewer than three prevention measures, but do not provide a future compliance date, meaning that in some cases facilities may be out of compliance immediately upon adoption. Staff has made a minor change to the proposed amendments to correct this oversight, which would provide a six month period to allow facilities to implement three prevention measures for each PRD.

In addition, two provisions in the proposed amendments (Sections 8-28-502.2 and 8-28-602) cross-reference other regulatory provisions, but do not cite the correct section number being cross-referenced. Staff has made a change to the proposed amendments to correct these errors.

These changes are shown in double underline format. The revisions are not a substantive change, and they will not necessitate a continuation of the public hearing to adopt.

BUDGET CONSIDERATION/FINANCIAL IMPACTS

None

Respectfully submitted,

Jack P. Broadbent
Executive Officer / Air Pollution Control Officer

Prepared by: Victor Douglas
Reviewed by: Henry Hilken

Attachments:

1. Proposed Amendments to Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants
2. Staff Report
3. Socioeconomic Analysis
4. CEQA Initial Study and Negative Declaration

REGULATION 8
ORGANIC COMPOUNDS
RULE 28
EPISODIC RELEASES FROM PRESSURE RELIEF DEVICES AT PETROLEUM REFINERIES AND CHEMICAL PLANTS

INDEX

8-28-500 MONITORING AND RECORDS

8-28-501 Deleted December 17, 1997
8-28-502 Records
8-28-503 Monitoring

8-28-600 MANUAL OF PROCEDURES

8-28-601 Deleted December 17, 1997
8-28-602 Determination of Control Efficiency
8-28-603 Deleted December 17, 1997

REGULATION 8
ORGANIC COMPOUNDS
RULE 28
EPISODIC RELEASES FROM PRESSURE RELIEF DEVICES AT PETROLEUM REFINERIES AND CHEMICAL PLANTS

(Adopted July 16, 1980)

8-28-100 GENERAL

8-28-101 Description: The purpose of this Rule is to prevent the episodic emissions of organic compounds from pressure relief devices on ~~any~~ equipment handling gaseous organic compounds at petroleum refineries, and to collect information on episodic organic and inorganic compound emissions from pressure relief devices at petroleum refineries and chemical plants.

(Amended March 17, 1982, July 20, 1983, December 17, 1997)

8-28-110 Deleted September 6, 1989

8-28-111 Exemption, Evaporation Point: The provisions of this rule shall not apply to pressure relief ~~valves which~~ devices that exclusively handle organic compounds exhibiting a 10% evaporation point greater than 150 degrees Celsius (302 degrees Fahrenheit) when using ASTM D-86 and/or inorganic compounds not listed in Section 8-28-401.5. ~~The provisions of this rule shall also not apply to thermal relief valves that are vented to process drains or back to the pipeline.~~

(Amended September 6, 1989, December 17, 1997, March 18, 1998)

8-28-112 Exemption, Storage Tanks: The requirements of this rule shall not apply to any pressure relief devices on storage tanks. (Amended December 17, 1997)

8-28-113 Exemptions, Research and Development Facilities: The provisions of this Rule shall not apply to research or development facilities ~~which~~ that produce only non-commercial products for research and development purposes.

(Adopted June 1, 1994)

8-28-114 Limited Exemption, Small Refineries: Section 8-28-304.2 shall not apply to petroleum refineries processing less than 20,000 barrels per stream day of crude, unless the District's evaluation of the Process Hazards Analysis in Section 8-28-~~303.1~~406 determines that it is cost-effective and technologically feasible for the refinery to control the pressure relief devices.

(Adopted December 17, 1997)

8-28-115 Exemption, Thermal Relief Valves: The provisions of this rule shall not apply to thermal relief valves that are vented to process drains or back to the pipeline.

8-28-200 DEFINITIONS

8-28-201 Chemical Plant: Any facility engaged in producing organic or inorganic chemicals and/or manufacturing products by chemical processes. Any facility or operation that has ~~28~~ 325 as the first ~~two~~ three digits in the~~ir Standard Industrial Classification Code as determined from the Standard Industrial Classification Manual published in 1972 by the Executive Office of the President, Office of Management and Budget~~ North American Industrial Classification Standard (NAICS) Code. Chemical plants may include, but are not limited to the manufacture of: industrial inorganic and organic chemicals; plastic and synthetic resins, synthetic rubber, synthetic and other man-made fibers; drugs; soap, detergents and cleaning preparations, perfumes, cosmetics and other toilet preparations; paints, varnishes, lacquers, enamels and allied products; agricultural chemicals; safflower and sunflower oil extracts; and re-refining, not including petroleum refineries.

(Adopted July 20, 1983, Amended December 17, 1997)

8-28-202 Pressure Relief Valve: The automatic pressure-relieving device actuated by the static pressure upstream of the valve. (Renumbered July 20, 1983)

8-28-203 Rupture Disk: The thin metal diaphragm held between flanges.

(Renumbered July 20, 1983)

8-28-204 **Deleted December 17, 1997**

8-28-205 **Deleted December 17, 1997**

8-28-206 **Deleted December 17, 1997**

8-28-207 **Modified Source:** The same definition contained in District Regulation 2~~-2-223~~, Rule 1.

(Adopted December 17, 1997)

~~**8-28-208 Parallel Service:** Additional pressure relief devices which protect a common piece or pieces of equipment. These additional pressure relief devices may be installed as spares to facilitate maintenance or because the design relieving capacity cannot be obtained with a single pressure relieving device. The pressure relieving devices do not need to have the same pressure setting to be considered parallel.~~

~~(Adopted December 17, 1997)~~

8-28-209 **Petroleum Refinery:** Any facility that processes ~~products~~petroleum as defined in ~~Standard Industrial Classification Manual as Industry No. 2911, Petroleum Refining~~the North American Industrial Classification Standard No. 32411 (1997).

(Adopted December 17, 1997)

8-28-210 **Pressure Relief Device:** The automatic pressure-relieving device for discharges of ~~organic compounds~~ material ~~which~~ that prevents safety hazards, prevents pressures from exceeding the maximum allowable working pressure of the operating process equipment, or prevents equipment damage. Such devices include, but are not limited to, pressure relief valves, emergency de-pressuring vents ~~or~~ and rupture disks.

(Adopted December 17, 1997)

8-28-211 **Prevention Measure:** A reliable component, system, or program that will prevent ~~a Release Event~~releases from pressure relief devices. Examples of prevention measures include, but are not limited to: (1) flow, temperature, level and pressure indicators with interlocks, deadman switches, monitors, or automatic actuators, (2) documented and verified routine inspection and maintenance programs, (3) inherently safer designs, (4) deluge systems. Operator training and documented and verified routine inspection and maintenance programs may count as only one of the 3 Prevention Measures required by Section 8-28-405 ~~302.2, 8-28-303.2, and 8-28-304.1~~. A component, system or program with a high probability for failure shall not be considered a Prevention Measure.

(Adopted December 17, 1997)

8-28-212 **Process Hazards Analysis (PHA):** A ~~PHA is a~~n organized effort to identify and analyze the significance of hazardous scenarios associated with a process or activity. For the purposes of this rule, PHA's are used to pinpoint weaknesses in the design and operation of facilities that could lead to ~~a Release Event~~ releases from pressure relief devices and to provide the facility with information to aid in making decisions for preventing such ~~events~~ releases.

(Adopted December 17, 1997)

8-28-213 **Qualified Person:** An APCO-approved person who is qualified to attest to the validity of the ~~Prevention Measures Procedures~~ Process Safety Requirements and who is a registered professional engineer in the State of California with expertise in chemical, mechanical or safety engineering.

(Adopted December 17, 1997)

8-28-214 **Release Event:** Any release of organic or inorganic pollutants greater than 10 pounds ~~resulting~~ from a pressure relief~~ving~~ device, subject to this Rule, ~~opening~~ to the atmosphere. These events do not include releases that are vented to a vapor recovery or disposal system with at least 95% by weight organic compound control efficiency.

(Adopted December 17, 1997)

8-28-215 **Responsible Manager:** A person who is an employee of the facility or ~~corporation~~ business entity that owns or operates the facility who possesses sufficient ~~corporate~~ authority ~~and who is responsible for the management of the facility~~ to ensure the implementation of Process Safety Requirements.

(Adopted December 17, 1997)

8-28-216 **Process Unit:** A functionally independent processing plant located at a petroleum refinery that is comprised of various equipment (such as distillation and fractionating columns, process reaction vessels, boilers, heat exchangers, piping, pumps, compressors and valves) that operate interdependently to refine a feed stock and/or produce a certain product or products.

8-28-217 Tell-tale Indicator: A physical non-electronic device installed on a pressure relief device that can visually indicate whether or not that pressure relief device has had a release. Tell-tale indicators include, but are not limited to, socks, rupture disks, and flags.

8-28-300 STANDARDS

8-28-301 Deleted December 17, 1997

8-28-302 Pressure Relief Devices at New or Modified Sources at Petroleum Refineries: Any person installing a new refinery source or modifying an existing refinery source, that is equipped with at least one pressure relief device in organic compound service, shall meet all ~~of the following conditions:~~

~~302.1 Meet the~~ applicable requirements of Regulation 2, Rule 2, including Best Available Control Technology~~, and~~

~~302.2 Meet the Prevention Measures Procedures specified in Section 8-28-405~~.

(Adopted December 17, 1997)

8-28-303 Existing Pressure Relief Devices ~~at Existing Sources~~ at Petroleum Refineries: ~~After the next scheduled turnaround following July 1, 1998, use~~ Use of a pressure relief device in organic compound service on any equipment at a Petroleum Refinery is prohibited, except when the device meets at least one of the following conditions ~~prior to the equipment startup~~:

303.1 ~~Vent all~~ The pressure relief device~~s~~ is vented ~~from the source~~ to a vapor recovery or disposal system with at least a 95 percent by weight organic compounds control efficiency, and the control system ~~shall be~~ is properly sized per manufacturer's recommendations to handle the material from all devices it is intended to serve, or

303.2 ~~Meet~~ The facility has implemented the ~~Prevention Measures Procedures~~ Process Safety Requirements specified in Section 8-28-405~~,~~ for the pressure relief device.

(Adopted December 17, 1997; Amended March 18, 1998)

8-28-304 Repeat Release – Pressure Relief Devices at Petroleum Refineries: ~~After the next scheduled turnaround following July 1, 1998, any~~ Any petroleum refinery ~~source~~ process unit equipped with at least one atmospheric ~~that has at least one reportable Release Event from a~~ pressure relief device in organic compound service~~, including those in parallel service, in any consecutive five calendar year period~~ shall meet the following conditions:

304.1 ~~Within 90 days of the first Release Event from a pressure relief device, the facility shall conduct an additional, separate Process Hazard Analysis and meet the Prevention Measures Procedures specified in Section 8-28-405; and conduct a failure analysis of the incident, to prevent recurrence of similar incidents.~~ Within 120 days of ~~the first~~ a Release Event from any pressure relief device on the process unit, the facility shall either (i) equip each pressure relief device of that ~~source~~ process unit with a ~~tamperproof~~ tell-tale indicator that will show whether ~~that~~ a release has occurred since the last inspection; or (ii) equip each pressure relief device of that process unit with a monitoring system that complies with the requirements of Sections 8-28-503.1 through 503.3, and demonstrate to the APCO that each pressure relief device is so equipped in a report that complies with the requirements of Sections 8-28-407.1 through 407.6. ~~The Process Hazard Analysis shall include an evaluation of the cost-effectiveness and technical feasibility of control devices to remedy the incident. This evaluation of control devices shall include, but shall not be limited to, the following: (1) installing additional flare gas compressor recovery capacity and (2) venting the pressure relief device that caused the Release Event to existing vapor recovery or disposal systems, and~~

304.2 If, within five years of a first Release Event, a second Release Event occurs on the same process unit, ~~Within~~ within one year of the second Release Event ~~from a pressure relief device in organic compound service on the same source, including those in parallel service~~, the facility shall vent all the pressure relief devices from the process unit ~~that vent the second Release Event, including those in parallel service,~~ to a vapor recovery or disposal system with at least 95 percent by weight organic compounds control efficiency, and shall ensure that the control system ~~shall be~~ is properly sized per manufacturer's recommendations to handle the material from all devices it is intended to serve.

~~The five calendar year period of this section shall begin at the time that the District receives a Prevention Measure Plan as specified in Section 8-28-304.1~~.

(Adopted December 17, 1997; Amended March 18, 1998)

8-28-400 ADMINISTRATIVE REQUIREMENTS

8-28-401 Reporting at Petroleum Refineries and Chemical Plants: ~~A~~ Any indication of a Release Event at a petroleum refinery or chemical plant ~~from a pressure relief device at petroleum refineries and chemical plants~~ shall be reported to the APCO ~~on~~ no later than the next working day following the venting. In addition, the following information shall be submitted in writing to the APCO within 30 days following the Release Event:

401.1 Date, time, and duration of the Release Event in minutes.

401.2 The ~~Identification of the~~ pressure relief device involved, identified by its unique number as required in Section 8-28-404 as well as its name and service commonly referred to by the facility.

401.3 ~~Identification of t~~ The incident number assigned by the APCO for the Release Event ~~when the event is reported within one working day~~.

401.4 Type and size of device.

401.5 Type and amount of material released in pounds, accurate to two significant digits. Reportable materials are: total organic compounds, ammonia, hydrogen sulfide, chlorine, sulfur dioxide, sulfur trioxide, hydrofluoric acid, and difluoroethane.

401.6 ~~Necessary i~~Information and assumptions used to report the duration and amount released during the event.

401.7 Cause of the event.

401.8 A schedule for action to prevent re-occurrence of the event.

401.9 Results of fugitive emission inspection of the device done in accordance with the requirements of section 8-28-402.2.

(Amended February 18, 1981; December 17, 1997; March 18, 1998)

8-28-402 Inspection: Any person subject to this Rule shall comply with the following inspection requirements:

402.1 Any pressure relief device subject to this Rule that is equipped with a telltale indicator shall be inspected at least once per day to determine if a release has been indicated, unless and until the pressure relief device has been equipped with a monitoring system pursuant to Section 8-28-503 and the facility has submitted a monitoring system demonstration report pursuant to Section 8-28-407.

402.2 Any pressure relief device in organic compound service ~~which~~ that has a Release Event and is subject to this Rule shall be inspected within 5 working days after ~~actuation~~ the release to confirm compliance with Regulation 8, Rule 18 and the results reported in accordance with Regulation 8-28-401.9.

(Amended September 6, 1989, June 1, 1994, December 17, 1997)

8-28-403 ~~Records~~: ~~Any person subject to this Rule shall comply with the following recordkeeping requirements:~~

~~403.1 Prevention measure records to demonstrate compliance with the standards in sections 8-28-302, 8-28-303, 8-28-304, and 8-28-405~~.

~~(Adopted September 6, 1989, amended June 1, 1994, December 17, 1997)~~

8-28-404 Identification: ~~Any person subject to this rule shall comply with the following identification requirements:~~

~~404.1 All~~ Any pressure relief ~~valves~~ device subject to this rule shall be identified with a unique permanent identification code approved by the APCO. This identification code shall be used to refer to the pressure relief ~~valve~~ device location. Records and reports for each pressure relief ~~valve~~ device shall refer to this identification code.

(Adopted June 1, 1994; Amended December 17, 1997)

8-28-405 ~~Prevention Measures Procedures~~Process Safety Requirements: All facilities using pressure relief devices in organic compound service ~~which~~ that are subject to the standards in Section 8-28-300 ~~and which~~ that have a potential for a Release Event shall comply with the following process safety requirements:

405.1 Explicitly establish training, equipment, inspection, maintenance and monitoring ~~levels~~ requirements such that the pressure relief device releases are minimized ~~and~~;

405.2 Using a Process Hazards Analysis, ~~predict, plan and~~ implement ~~either:~~

~~2.1~~ ~~A~~at least 3 ~~consecutive~~ redundant Prevention Measures ~~for the Release Event~~ before a ~~pressure relief device will~~ release~~:~~. ~~or~~

~~2.2 At least one Prevention Measure for the Release Event before a pressure relief device will release. For single Prevention Measure pressure relief devices that vent a Release Event, within one year of the Release Event, the facility shall vent these pressure relief devices, including those in parallel service, to a vapor recovery or disposal system with at least 95% by weight organic compound efficiency;~~

Until July 1, 2006, as an alternative method of complying with this Section 8-28-405.2, a facility may operate a pressure relief device with only one or two Prevention Measures in place, but if such a device experiences a Release Event then the facility shall vent all devices on the Process Unit served by the device to a vapor recovery or disposal system with at least 95% by weight organic compound control efficiency. By July 1, 2007, all atmospheric pressure relief devices must be equipped with at least three redundant Prevention Measures.

405.3 The Process Safety Requirements m~~M~~ust be approved and signed by a Qualified Person and a Responsible Manager; and

405.4 The Process Safety Requirements m~~M~~ust be submitted for review to the APCO to determine if the plan meets the requirements of subsections 8-28-405.1 through 405.3. The APCO shall provide a 30-day public comment period and will consider all comments received during this period prior to approval or disapproval of the procedures.

(Adopted December 17, 1997; Amended March 18, 1998)

8-28-406 Process Hazard Analysis: Within 90 days of the first Release Event from a pressure relief device subject to this Rule at a petroleum refinery, the facility shall conduct an additional, separate Process Hazard Analysis and conduct a failure analysis of the incident to prevent recurrence of similar incidents. The Process Hazard Analysis shall include an evaluation of the cost-effectiveness and technical feasibility of control devices to remedy the incident. This evaluation of control devices shall include, but shall not be limited to, the following: (1) installing additional flare gas compressor recovery capacity and (2) venting the process unit that caused the Release Event to vapor recovery or disposal systems. The owner or operator of the facility shall submit the Process Hazards Analysis to the APCO.

8-28-407 Monitoring System Demonstration Report: No later than June 1, 2007, each facility shall submit to the APCO a Monitoring System Demonstration Report that demonstrates that each pressure relief device subject to this Rule that has the potential to release to the atmosphere is monitored by a monitoring system that satisfies the requirements of Section 8-28-503. The Monitoring System Demonstration Report shall include the following elements:

407.1 A listing of each pressure relief device covered by the report, including the nominal set pressure for each device and the range of pressures over which each device could reasonably be expected to release;

407.2 A description of the monitoring system for each pressure relief device covered by the Report, including a narrative description and diagrams or charts, that clearly identifies all elements of the system and how they operate to monitor releases as required under Section 8-28-503;

407.3 A listing of all operating parameters that are directly monitored by the system (*e.g.* temperature, pressure, flowrates, *etc.*) with a description of (i) the sensitivity and accuracy of the device(s) monitoring each parameter an the frequency with which each parameter is monitored, and (ii) how the sensitivity and frequency of monitoring is sufficient to allow the Monitoring system to detect releases of 10 pounds;

407.4 A listing of any calculations that are used to derive Release Event emissions information from data on operating parameters, including any assumptions on which such calculations are based and the basis for those assumptions;

407.5 A description of the alarms or other indication that the system provides to alert operators that a Release Event has or may have occurred; and

407.6 A description of how the information obtained by the monitoring system is recorded and maintained;

8-28-408 Process Unit Identification Report: No later than March 1, 2006, each petroleum refinery shall submit to the APCO a report listing all process units equipped with atmospheric PRDs, a listing of all associated pressure relief devices subject to this Rule identified in accordance with Section 8-28-404, and the date of the first turnaround following July 1, 1998, for each of the process units.

8-28-500 MONITORING AND RECORDS

8-28-501 Deleted December 17, 1997

8-28-502 Records: Any person subject to this Rule shall maintain the following records for a period of no less than two years and make them available to the APCO upon request:

502.1 Prevention measure records to demonstrate compliance with the standards in Sections 8-28-303 and 8-28-405;

502.2 Records of all of the pressure relief devices in accordance with Section 8-28-404~~.1~~ including a description of all equipment served by those devices;

502.3 Records of daily inspection of pressure relief devices subject to this Rule that are equipped with telltale indicators, including the time of inspection, and the identity of operator conducting the inspection;

502.4 Records of monitoring of any pressure relief device subject to this Rule as required by Section 8-28-503.

(Adopted September 6, 1989; Amended June 1, 1994, December 17, 1997)

8-28-503 Monitoring: Effective June 1, 2007, any person subject to this Rule shall monitor all atmospheric pressure relief devices using a Monitoring System that satisfies the following requirements:

503.1 The Monitoring System shall be designed, installed, maintained, and operated so that it is capable of detecting any Release Event and notifying operators that the Release Event has occurred;

503.2 The Monitoring System shall be designed, installed, maintained and operated so that it is capable of determining the date and time at which a Release Event occurred, the duration of the Release Event and the type and amount of material released.

503.3 The Monitoring System shall include a mechanism for ensuring that all elements of the system are functioning properly by checking the components of the system at least once per day. Such mechanisms may include equipment inspections, instrument calibrations or other means to ensure that equipment, personnel, and systems are operating properly.

8-28-600 MANUAL OF PROCEDURES

8-28-601 Deleted December 17, 1997

8-28-602 Determination of Control Efficiency: The control efficiency as specified in Sections 8-28-214~~302.1~~, 8-28-303.1, 8-28-304.2, and 8-28-405.2~~.2~~ (with the exception of non-enclosed flares) shall be determined as prescribed by any of the following methods: 1) BAAQMD Manual of Procedures, Volume IV, ST-7; 2) EPA Method 25 or 25A; 3) Flare control efficiency calculations approved by the APCO and EPA in writing; or 4) other methods to demonstrate control efficiency approved by the APCO and EPA in writing. 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 June 1, 1994; Amended December 17, 1997)

8-28-603 Deleted December 17, 1997

Bay Area Air Quality Management District

939 Ellis Street
San Francisco, California 94109

Staff Report

Proposed Amendments to Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants

November 2005

Prepared By

Victor Douglas
Senior Air Quality Engineer

Alexander Crockett
Assistant Counsel

TABLE OF CONTENTS

I. EXECUTIVE SUMMARY

This Staff Report outlines the rule development efforts by the Staff of the Bay Area Air Quality Management District with regard to pressure relief devices at petroleum refineries and chemical plants, which are subject to District Regulation 8, Rule 28. The Staff Report provides the technical analysis and policy rationale behind the proposed amendments to Regulation 8, Rule 28.

Pressure relief devices, or "PRDs", are safety devices used to protect pressurized equipment from overpressures caused by upset conditions. If equipment experiences an upset, the PRD will allow any excess pressure to be vented rather than building up and potentially causing a rupture or other catastrophic failure. The District committed in Further Study Measure 8 in the 2001 Ozone Attainment Plan to examining these devices to determine if hydrocarbon emissions from petroleum refineries could be further reduced by requiring additional controls on refinery PRDs.

To fulfill the commitment of Further Study Measure 8, District staff has reviewed the performance of Regulation 8, Rule 28. This review has shown that in general the current rule has been very effective. The Rule aims to phase out all atmospheric PRDs[i] eventually by requiring them to be routed to a control system (such as a safety flare or vapor recovery system) when new equipment is installed or when existing equipment is modified. The Rule also targets existing "bad actor" PRDs that have demonstrated a propensity for repeated releases, and requires them to be controlled immediately. Finally, for all PRDs, the Rule requires facilities to implement Prevention Measures designed to prevent or minimize releases.

The rule has resulted in a significant reduction in PRD emissions. When the current Rule was adopted in 1997, emissions from PRDs were found to be approximately 27 to 150 tons per year. Since the current rule has been in place, emissions have averaged 20.5 tons per year. Furthermore, since the rule's requirement to implement Prevention Measures took effect, emissions have averaged only 12.4 tons per year.

Notwithstanding these successes, staff has identified several areas where the current rule could be improved. The rule requires that facilities report releases over 10 pounds to the District, but it does not explicitly require emissions monitoring or set standards for monitoring equipment. As a result, some facilities are not monitoring their PRDs well, and have the potential for releases to go undetected. In addition, the rule is somewhat ambiguous about what "sources" it covers, and has some other undefined terms and ambiguous or unclear language. Staff is proposing that the Board of Directors adopt amendments to the current rule to address these issues.

[i] Atmospheric pressure relief devices (PRDs) vent directly to the atmosphere. Many PRDs vent to containment and processing such as a gas recovery system, to a thermal oxidizer, or to a flare.

Beyond these proposals, staff also considered whether it would be reasonable and appropriate to require refineries to control all existing atmospheric PRDs now, rather than waiting for them to be phased out over time as equipment is modified or replaced, as the current rule requires. Staff has found that such a requirement be prohibitively costly, with refineries having to incur costs of over $1 million per ton of emissions prevented, which is orders of magnitude greater than what the District normally considers cost-effective. Staff is therefore not recommending additional controls beyond those already required in the rule.

Finally, Staff also examined whether the District should require all PRDs to be vented to control systems as a safety measure to reduce the chance of accidental releases of acutely hazardous materials. Such industrial safety issues were not part of the mandate of Further Study Measure 8, which was aimed at reducing emissions of ozone precursors. Staff nevertheless investigated them because of a strong concern for worker and community safety. Staff found that a comprehensive overlapping web of industrial safety laws and regulations already exists, which requires operators to "design and maintain a safe facility taking such steps as are necessary to prevent releases," in the language of the federal Clean Air Act. Staff believes that additional District regulation in the area of process safety would be duplicative of existing regulations and would not be well directed towards reducing community and worker risks. This conclusion reaffirms the determination of the Board of Directors' Ad Hoc Committee on Accidental Emissions in connection with the adoption of the current rule that additional District requirements aimed at process safety would not be appropriate in Regulation 8, Rule 28. Safety at petroleum refineries and chemical plants is a high priority, however, and the District will continue to consult with local authorities to assure that adequate regulatory safeguards are in place.

Summary of Proposed Amendments:

Based on this review, staff proposes the following amendments to Regulation 8, Rule 28:

1. Require facilities to ensure that they have the capability to detect and quantify all release events, including small releases of 10 pounds (the reporting threshold), and require facilities to demonstrate this capability to the District;
2. Require data recording and recordkeeping for venting and emissions verification;
3. Clearly define the equipment subject to the rule as the process unit to ensure that the original intent of the rule – to regulate all PRDs on an individual source (i.e., process unit) in the same manner – is clarified;
4. Require facilities to report to the District their analysis of the root causes and potential corrective actions after each PRD release event;

5. Make minor, non-substantive changes to the rule such as deleting obsolete references to "turnarounds," moving requirements where appropriate, and clarifying various sections of the rule.

Rule Development Process:

During this rulemaking effort, staff hosted two technical workgroup meetings, as well as a public workshop in Rodeo, a community adjacent to a refinery. Staff also met informally with representatives of refineries, chemical plants, community groups, the Western States Petroleum Association and Contra Costa County Health Services. Staff has considered this public input and has incorporated it into the proposed amendments, where appropriate.

Economic Analysis:

The proposed amendments are aimed primarily at improving the clarity and enforceability of the current rule. They do not add additional substantive requirements or require the addition of new control equipment. The proposed amendments thus will not impose any significant additional costs on affected facilities beyond what is required under the current rule. Some facilities may not currently have adequate monitoring equipment to satisfy the rule's requirements, in part because those requirements are not explicitly spelled out in the current rule. Such facilities may have to install additional monitoring equipment to do so, but these are not costs imposed by the proposed amendments, and in any case they are expected to be minimal.

Environmental Impacts:

Pursuant to the California Environmental Quality Act (CEQA), the District has had an initial study for the proposed amendments prepared by Environmental Audit, Inc. The initial study indicated there are no potential significant adverse environmental impacts associated with the proposed amendments. Staff is proposing that the Board of Directors adopt a CEQA Negative Declaration for the proposed amendments.

Conclusions:

The proposed amendments will ensure that all facilities have the capability to detect PRD releases. They will also clarify the rule so that it can be more easily understood and enforced. Additional costs to affected facilities will be minimal. Staff therefore recommends that the Board of Directors adopt the proposed amendments along with the CEQA Negative Declaration.

II. BACKGROUND

Pressure relief devices are a means to safely relieve excessive pressures to prevent process equipment, piping, and other components from rupturing or causing other safety hazards. PRDs are designed to vent, or "lift", at a prescribed "set pressure" to relieve excess pressure before it can exceed safe

operating and/or equipment design levels. In new refinery construction, PRDs in VOC service must relieve to a control system that recovers the process gases or routes them to a disposal system such as a safety flare or thermal oxidizer. However, many older installations still have PRDs that vent directly to the atmosphere, resulting in the emission of VOCs and/or other material when the PRDs lift or if the valves leak at pressures below the set point. These PRDs are called "atmospheric" PRDs and are the subject of Regulation 8, Rule 28.

A. Types of Pressure Relief Devices

PRDs can be classified into the following general categories:

Pressure Relief Valves: The basic pressure relief valve must open automatically and quickly during a rise in system pressure beyond a specified set pressure, must close with minimal leakage when normal operating pressure is restored, and must be highly reliable. A pressure relief valve typically consists of a valve inlet or nozzle mounted on the pressurized system, a disc held against the nozzle to prevent flow under normal operating conditions, a spring to hold the disc closed, and a body/bonnet to contain the operating elements.[1] The spring load is adjustable to vary the pressure at which the valve will open. This design is illustrated in Figure 2.1.[2] Figure 2.2 is a photo of pressure relief valves.

Figure 2.1
Spring-Loaded Pressure Relief Valve

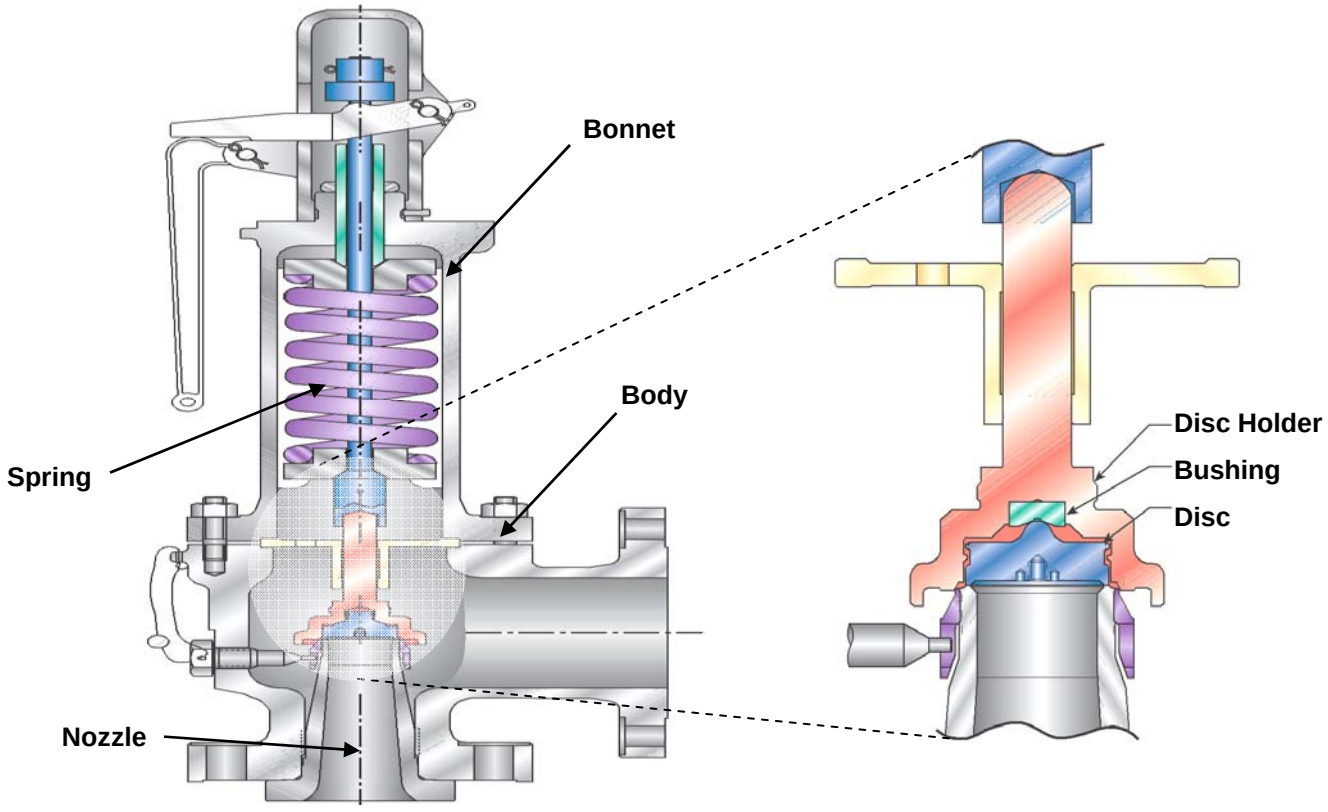


Figure 2.2
Seven 6" Diameter Pressure Relief Devices and Exhaust "Horns"
Valero Refinery

Thermal Relief Valves: Thermal relief valves protect liquid pipelines from over-pressurizing. Since the compressibility of liquid is minor, releases from thermal relief valves are normally small. These valves close as soon as the pressure in the closed system is relieved. These valves are generally vented to process drains, back into a pipeline, or into the atmosphere.

Rupture Disks: A rupture disk is a thin metal disk or diaphragm set between flanges often located on the pressure side of the relief valve or downstream from a block valve. Rupture disks are used to protect relief valves from the process pressure. They are designed to burst at the relief valve setting. Owing to their "one-time" use, rupture disks are applicable for relief devices where the component will be taken out of service after a release, for repairs or retrofits. Because they can only be used once, they are installed with block valves that will ensure that the piping can be closed once the emergency is contained. Rupture disks can also be used in place of relief valves in certain applications.

B. Emissions from PRDs

PRDs emit air pollutants when they "lift" to relieve pressure in the equipment they are serving. Such releases are often referred to as "episodic" releases because they occur only during process upsets when the PRD opens to relieve overpressures. In general, episodic emissions from PRDs can vary greatly, from a few pounds to many tons of material. Also, the duration of releases can vary greatly – from as little as seconds to as much as a day. Emissions may not correlate with the duration of venting because the components equipped with

PRDs process a range of materials and operate under a wide range of pressures.

PRDs can also release material through leaks. Emissions from leaks are often referred to as "fugitive" emissions, and are addressed in District Regulation 8, Rule 18: Equipment Leaks, which requires periodic leak inspections of all PRDs.

C. Detecting and Characterizing Emissions from PRDs

Facility operators rely on a variety of indicators to determine whether or not a PRD has vented and what kind of release was involved.

Telltale Indicators:

A telltale indicator, a physical device placed on the PRD's exhaust outlet in such a way that it will be moved or otherwise impacted if any material is vented out of the PRD, is one method of determining whether a PRD has experienced a release. Operators can readily determine whether there has been a release by simply looking at the device to see whether it has been activated. Some common telltale indicators are:

- Socks – Socks are pieces of cloth or other material placed over the exhaust of a PRD such that when the PRD releases, the sock is blown off by the releasing gas. If the sock is absent, that is a telltale sign that there has been a release.
- Flags – Flags are brightly colored metal tabs that are activated during a venting and become visible and can be easily seen by an operator.
- Rupture Disks – As mentioned above, rupture disks are thin metal diaphragms held between flanges. When the PRD releases, the disk will rupture. A ruptured disk is a telltale sign that there has been a release.

Telltale indicators are very useful in determining whether there has been a release. However, they do not provide any information about the release, such as when it occurred, how long it lasted, how much material was involved, or the nature of the material released.

Other Indicators:

In addition to a telltale indicator, there are other ways to determine whether a PRD has lifted. These include:

- Audible indicators – When PRDs vent, they normally make a loud distinctive sound.
- Pressure indicators – PRDs are pressure relieving devices that are set at a specific pressure. When a process has an overpressure that causes a PRD to lift, it normally leaves a characteristic "pressure signature" that indicates that a release occurred. This pressure signature is marked by rising pressure as the system approaches the PRD's set point, then a leveling off of the pressure as the PRD opens to vent the accumulated gases, and then falling pressure after the PRD closes and the process

returns to a more stable state. Monitoring the pressure within the system can thus provide a good indicator that a release has occurred. Pressure monitoring is most useful when there is a device that measures the actual pressure at the PRD. In many situations, however, the monitoring is in the vessel or equipment protected by the PRD, and the actual pressure experienced by the PRD must be calculated based on engineering calculations.

- Temperature – Temperature can be used as a way to indicate the release of a PRD. As temperature increases, pressure will also increase, triggering a release. A decrease in temperature indicates pressure relief.
- Flowrates – Process flowrate can also indicate the venting of a PRD. An initial increase in a process flowrate from a vessel indicates a pressure increase. A leveling off or decrease in the flowrate would indicate flow being released at another point, such as at a PRD. Although the process flowrate is a surrogate indicator, this information taken along with pressure readings can be used to indicate and quantify a release event.

None of these mechanisms, by itself, provides an ideal record of a release. For example, an audible indicator may be missed if there is nobody in the vicinity to hear it, or if the sound is masked by other noises at the facility. Indications from a pressure, temperature or flowrate monitor may be missed if the operator is not actively watching the monitor at the time of the release or if the monitor is not equipped with an alarm or notification system. Telltale indicators, as mentioned above, do not quantify the type or quantity of a release, and may indicate a release where none has occurred, such as when a sock is blown off in bad weather. Used in combination, however, these mechanisms can create a comprehensive monitoring system that will reliably detect and alert operators of any PRD releases.

Such monitoring systems can also reliably characterize PRD releases and provide the information that must be reported to the District under Rule 8-28 for any release over 10 pounds, such as the type and quantity of the emission.[ii] This information can normally be obtained by reviewing operating data from the equipment involved in the release. For example, a review of operating pressure may reveal a PRD release "pressure signature" described above: pressure increasing at a certain time, then leveling off at the PRD's set point, and then decreasing after a short time. By reviewing the type of material that the equipment was processing at the time, the pressure at which the PRD opened, the size of the PRD opening, the time period over which the PRD was open, and other factors, one can characterize the release fairly accurately.

Leak Detection:

PRDs can easily be inspected for leak-tightness with a portable analyzer that is placed near the PRD to detect any vapors that are leaking out. Using such

[ii] Current requirements of Rule 8-28 are discussed in Section III. B. 2.

equipment, facility staff and District inspectors can determine if any PRDs are leaking, and if so to what extent. Facilities are required by Rule 8-18 to inspect all PRDs regularly, and District inspectors conduct their own inspections to verify compliance.

D. PRDs Currently In Service In The Bay Area

There are 324 atmospheric PRDs located at the five Bay Area refineries. Of the 324 PRDs, approximately 50 are either rupture disks or pressure relief valve / rupture disk combinations, with the remaining being pressure relief valves. Approximately ten of the PRDs are equipped with socks as telltale indicators and the vast majority have some type of pressure monitoring, although some monitoring devices are remotely located and do not directly measure the pressure experienced at the PRD. Table 2.1 summarizes the total number of atmospheric PRDs located at each refinery.

Table 2.1
Population of Atmospheric PRDs at Each Refinery

Refinery	Atmospheric PRDs
Chevron-Texaco	41
ConocoPhillips	12
Shell	107
Tesoro	99
Valero	65
Total	**324**

Chemical Plants in the Bay Area also use PRDs on various process units. These PRDs usually service components containing non-hydrocarbon compounds, and have experienced only five reportable releases (over 10 pounds) since the 1997 amendments to Rule 8-28, involving only 2 tons of material in total. Further Study Measure 8 and the current rule development effort are focused on hydrocarbon emissions from PRDs at refineries.

III. REGULATORY HISTORY

Control of emissions from PRDs has been a focus of the District's regulatory attention for over 25 years. This section provides an overview of how Regulation 8-28 has evolved over the years into its current form, in order to provide some context for the proposed amendments.

A. 1980 – Adoption of a PRD Leak Standard

Rule 8-28 was originally adopted July 16, 1980, and regulated fugitive emissions (leaks). The rule established a leak standard of 10,000 parts per million for PRDs, but it did not place any restrictions on PRD venting as long as the venting was reported and the PRD reseated (closed) after releasing any excess

pressure. The rule also required quarterly leak inspections for accessible PRDs and annual inspections for inaccessible PRDs. Since adoption in 1980, minor amendments were made to the rule in 1981, 1982, 1983, and 1994.

B. 1997 – Addition of Prevention Measures and Targeted PRD Control Requirements

In the 1990s, the District undertook a comprehensive review and overhaul of Rule 8-28, which changed the focus of the rule from fugitive emissions from leaks to episodic emissions from PRDs venting to prevent equipment over-pressurization. District staff spent a considerable amount of time over a number of years on this effort, and the District's Board of Directors convened an ad-hoc committee to look into PRD-related issues and provide direction at the Board level. That process, and the amendments that resulted from it in 1997, are outlined below.

1. The Rulemaking Process

1991 Clean Air Plan Control Measure C1:

The District's efforts to overhaul Rule 8-28 began with Control Measure C1 in the 1991 Clean Air Plan. Measure C1 directed staff to examine Rule 8-28 further in order to determine whether there were any additional opportunities to reduce emissions of ozone precursors (effectively, hydrocarbons). Upon adoption of the 1991 Clean Air Plan, staff began to work on the issue.

Concern Over Acutely Hazardous Materials Releases:

As this process was underway, concern arose over the potential for releases of "Acutely Hazardous Materials" – highly toxic substances such as chlorine and ammonia, and flammable gases that could ignite and cause an explosion – as a result of recent industrial accidents. This concern led the Board of Directors to establish an Ad Hoc Committee on Accidental Emissions ("Ad Hoc Committee").[iii] The charge of the Ad Hoc Committee was to assess the need for any additional District regulation, above and beyond existing laws and regulations addressing environmental impacts from industrial accidents. The charge of the Ad Hoc Committee was set forth in the following "Policy on the Accidental Release of Acutely Hazardous Materials," which was approved by the full Board of Directors on February 16, 1994:

> The District Board will consider adoption of procedures or regulations designed to minimize the possibility of public exposure to accidental releases of Acutely Hazardous Materials by supplementing or supporting, not duplicating, current federal, state and local regulations designed to prevent or minimize such releases.

[iii] Of the current membership of the Board of Directors, Director Harold C. Brown Jr. served on the Ad Hoc Committee.

The creation of the Ad Hoc Committee, and its mission of addressing the potential for industrial accidents, led staff to expand the focus of their ongoing efforts to implement Control Measure C1 from the 1991 Clean Air Plan. District staff, along with members of the public, industry representatives, and other interested persons, participated in a number of Ad Hoc Committee meetings from 1993 through 1996. The Committee looked in great detail at all types of emissions from PRDs, including acutely hazardous materials as well as other materials that may not be considered acutely hazardous but are still of concern from an ambient air quality perspective (*e.g.*, ozone precursors).

The Committee examined existing legal framework covering environmental and public health impacts from industrial accidents. In addition to presentations from District staff, the Committee heard testimony from a large number of agencies with jurisdiction over these issues, including:

- The United States Environmental Protection Agency;
- The California Environmental Protection Agency;
- The Contra Costa County Health Services Department, and in particular the Department's Hazardous Materials Division;
- The San Francisco Bay Regional Water Quality Control Board;
- The California Occupational Safety and Health Administration;
- The United States Coast Guard;
- The California State Lands Commission;
- The California Public Utilities Commission;
- The Contra Costa County Fire Protection Department;
- The Richmond Fire Department; and
- The California State Fire Marshal Association.

These investigations highlighted the comprehensive nature of existing laws and regulations addressing industrial safety and the prevention of accidental releases of acutely hazardous materials. The centerpiece of these legal requirements is Section 112(r) of the federal Clean Air Act (42 U.S.C. § 7412(r)), which requires that owners and operators of industrial facilities handling acutely hazardous materials "design and maintain a safe facility taking such steps as are necessary to prevent releases. . . ." This Clean Air Act requirement complements the requirement in Section 5(a) of the federal Occupational Safety and Health Act (29 U.S.C. § 654(a)) that employers ensure that their workplaces are "free from recognized hazards that are causing or are likely to cause death or serious physical harm" to employees. The Clean Air Act requirement broadens the Occupational Safety and Health Act requirement and forces facilities to address risks to off-site communities in addition to risks to employees of the facility. These authorities establish the basic legal requirements that each facility must take whatever steps necessary to render their operations safe to workers and to neighboring communities.

Clean Air Act Section 112(r) also established a mechanism to ensure that facilities are taking the steps necessary to make their operations safe. Section 112(r) requires that any facility handling acutely hazardous materials above certain threshold quantities must develop a risk management program that includes: (i) an assessment of all hazards associated with a facility's operations, including absolute "worst-case" accidental releases; (ii) an integrated prevention program containing procedures to prevent accidents from occurring; (iii) an emergency response plan setting forth procedures to respond to accidents; and (iv) preparation of a Risk Management Plan ("RMP") document summarizing the program, which must be submitted to the agency with oversight for facility safety (which in the Bay Area is the local city or county hazardous materials agency).

At the state level, the California Accidental Release Prevention ("CalARP") Program imposes similar requirements. The CalARP requirements, which are set forth in Health & Safety Code Sections 25531-25543.3, implement the federal program in California and are intended to further the twin goals of "reducing regulated substances accident risks and eliminating duplication of regulatory programs . . . ." (Health & Safety Code § 25531(e).) To that end, the CalARP Program requires the preparation of a Risk Management Prevention Program ("RMPP") that satisfies the federal RMP requirements as well as certain additional California-specific requirements. The Governor's Office of Emergency Services ("OES") administers the CalARP program and has adopted implementing regulations in Title 19, Division 2, Chapter 4.5 of the California Code of Regulations.

The RMPP process is implemented at the local level by cities and counties. These "administering agencies" (also known as "Certified Unified Program Agencies" or "CUPAs") are specifically directed to coordinate their efforts with the local air quality management district (Health & Safety Code § 25533(b)), and may authorize the local air district to conduct a technical review of a facility's RMP (Health & Safety Code § 25535(a)). In addition, many cities and counties have adopted ordinances imposing their own city- or county-specific requirements. One example the Ad Hoc Committee reviewed in detail was the Santa Clara County Toxic Gas Ordinance (Ordinance No. NS-517.44).

Finally, in addition to the legal framework outlined above, the Ad Hoc Committee also investigated the cooperative efforts of the various agencies with jurisdiction over acutely hazardous materials issues to coordinate their regulatory activities. One prime example was the Contra Costa County Hazardous Materials Interagency Task Force, or "HIT Team." The HIT Team (which continues to operate today) is a coalition of agencies with responsibility for public and environmental health and safety that have joined in a cooperative and voluntary effort to enhance their level of service. The agencies represent federal, state, regional and local governments in the San Francisco Bay Area; local agencies are from Contra Costa County. The Task Force provides members with a continuing forum to coordinate and improve efforts in accident prevention;

emergency response; communication, outreach, and public participation; and efficiency, including the identification of both gaps and overlaps in policies and programs to protect the public's health and safety. District staff participates in the HIT Team and adds their expertise and support to furthering the Team's mission.

Given the level of existing regulation regarding accidental releases of acutely hazardous materials, and mindful of the Committee's charge that the Board did not want to duplicate existing federal, state, and local regulatory efforts unnecessarily, Staff ultimately concluded that no additional District regulation in the are was needed. Staff concluded that additional regulation would be duplicative and would disrupt the existing regulatory system, and that the District's efforts would be better spent in participating with the other agencies to share District staff's knowledge, information, and expertise.[3] Based on these conclusions, the Ad Hoc Committee did not recommend any additional District regulation aimed at preventing industrial accidents, over and above what was already being done by other agencies.

The Ad Hoc Committee process did reaffirm the need for additional regulation on PRD releases to address air quality issues from emissions that are not acutely hazardous. For example, situations where hydrocarbons are emitted at petroleum refineries from the top of a tall stack, where they are not near an ignition source and will dissipate into the atmosphere, do not present acute health hazards to employees and neighbors of the refinery. Such emissions can still be very important from an ambient air quality perspective, however, because they contribute to ozone formation. Hydrocarbons, along with oxides of nitrogen ("NOx"), are the main focus of the District's efforts to control ozone. The Ad Hoc Committee therefore recommended moving forward with efforts to address episodic emissions of hydrocarbons from PRDs, as contemplated by Control Measure C1 from the 1991 Clean Air Plan.

Regulatory Approaches Considered:

Based on this direction from the Ad Hoc Committee, staff then went forward with its rulemaking efforts along those lines. Staff conducted meetings with the regulated community and interested members of the public, prepared a Rule Effectiveness Study and a Technical Assessment Document, and ultimately proposed the current Rule to Board of Directors in December of 1997. During this process staff considered three approaches to controlling episodic PRD emissions (in addition to the option of doing nothing). The approaches considered were the following:

- Prevention Measures Only, With No Controls:

  This approach would have required affected facilities to implement a Process Hazards Analysis to identify and analyze potentially hazardous scenarios. For each hazard identified, the facility would be required to implement at least three "Prevention Measures" designed to minimize the

potential for releases. This approach would not have required any PRDs to be vented to control equipment.

- Blanket Control Requirement:

  This approach would have required all PRDs to be vented to a control system, such as a flare or a vapor recovery system. Affected facilities would have to pipe all of their existing PRDs to a control system, so that if any of them experienced a release, the emissions would either be captured or returned to the refinery's process or be incinerated before they reached the atmosphere.

- Targeted Control Requirement:

  This approach was essentially a hybrid of the prevention measures approach and the blanket control approach. It embodied the goal of eventually eliminating all PRD emissions to the atmosphere, but did not require all existing PRDs to be controlled immediately. Instead, it was designed to phase out atmospheric PRDs over time as the equipment they serve is replaced. It required facilities to vent PRDs on all new equipment to control systems, and to vent PRDs on existing equipment to control systems when the equipment is "modified" – that is, expanded or upgraded. In addition, this approach attempted to target the "bad actors" among the existing PRD population – those in service on potentially unstable processes that have a higher potential for an upset that might lead to over-pressurization and result in a PRD release. The approach required any process unit that experienced a PRD release twice within a five year period to be controlled within a year, without waiting for upgrade or overhaul. These targeted control requirements were in addition to the prevention measures outlined above, which would be required for all PRDs.

Staff evaluated the cost of each of these approaches and the emissions reductions each one could be expected to achieve. Staff found that the blanket control approach would be the most effective at reducing emissions, because it would essentially eliminate all PRD releases to the atmosphere. But staff found that it would be prohibitively expensive given the extensive capital improvements that would be necessary in relation to the amounts of emissions reductions involved. Staff calculated that requiring controls would likely require each affected facility to construct a new flare system, at a total annualized cost of approximately $27 million, or approximately $40,000 per ton of emissions reductions.

By contrast, staff found that the targeted control approach would be far more cost-effective, because it would not require expensive control systems for the bulk of PRDs that have low hydrocarbon emissions potential. Yet it still would obtain significant emissions reduction benefits because it would control the problem PRDs that are the worst contributors of smog-forming emissions, and

would minimize the likelihood of releases from all PRDs. Staff found that this approach could obtain emissions reductions at around half the cost-per-ton of the blanket control approach, and potentially as little as $3,450 per ton. Staff therefore identified the targeted control approach as the preferred alternative, and proposed amendments to the Board of Directors to codify that approach. The Board adopted the amendments on December 9, 1997, and made minor technical amendments in March of 1998.

2. Current Requirements of Regulation 8, Rule 28

The current version of Regulation 8, Rule 28 that the Board adopted in 1997 (with minor subsequent amendments) implements this targeted control approach in the following manner.

New Sources

When a facility installs a new source, Rule 8-28 requires that any PRDs on the equipment must meet District Best Available Control Technology (BACT) requirements, as defined in Regulation 2, Rule 2 and the District BACT Guidelines. BACT requires PRDs to be vented to a fuel gas recovery system, furnace, or flare with a control efficiency of at least 98 percent. This means that no new PRD may vent directly to the atmosphere.

Existing Sources

For existing sources with atmospheric PRDs, Rule 8-28 requires that the facility meet the BACT requirements – *i.e.*, venting all PRDs on the source to a control system – when the equipment undergoes a major modification. This provision means existing atmospheric PRDs will eventually be phased out as existing equipment is upgraded. There is no set timetable for equipment upgrades, and some equipment may remain in service for a long time before it undergoes a "major modification", but ultimately when equipment is upgraded, any atmospheric PRDs will have to be vented to a control system.

The rule also requires existing sources with atmospheric PRDs to implement Prevention Measures designed to prevent or minimize any releases. These Prevention Measures include: enhancing training, equipment, inspection, maintenance and monitoring procedures; installing process flow, temperature, level, and pressure indicators with interlocks; implementing documented and verified routine inspection and maintenance programs; using inherently safer designs; and installing deluge systems to cool and condense emissions before they can reach the atmosphere.

Finally, for existing sources, the rule also targets process units that show a propensity for releases. If a source experiences a release from a PRD over 10 pounds, it must: (1) conduct a failure analysis to discovery the cause of the release; (2) review the prevention measures for the source and address any

deficiencies; (3) evaluate whether it would be technologically feasible and cost-effective to vent the PRDs on the source to a control system; and (4) install telltale indicators on all of the PRDs on that source to ensure that any further releases are detected. If the same source experiences a second release within 5 years, that source must have all of its PRDs vented to a control system within one year. In this manner, the rule requires facilities to target their efforts to control existing PRDs towards sources that demonstrate a propensity for upsets and releases.

Reporting Requirements for Refineries and Chemical Plants

All Release Events (PRD releases over 10 pounds) at petroleum refineries or chemical plants must be reported to the District by the next working day. PRDs must be inspected within five days of a Release Event to ensure that they have re-seated properly and are not leaking. Within 30 days, the facility must report:

- the date, time, and duration of the Release Event;
- the device that experienced the Release Event;
- the District-assigned episode number;
- the type and size of device;
- the type and amount of material released;
- any information used to estimate duration and amount released;
- the cause of the release;
- the schedule for implementation of measures to prevent re-occurrence; and
- the results of the fugitive emission inspection.

The requirement to report this information implies that facilities must monitor PRDs to determine whether a Release Event has occurred and if so, the duration, cause, type and amount of material released must be quantified. There are currently, however, no explicit monitoring requirements in the rule.

C. Other District Regulations Applicable to PRDs

There are three other District regulations that are directly applicable to PRDs: Regulation 8, Rule 5 (Rule 8-5); Regulation 8, Rule 18 (Rule 8-18); and Regulation 8, Rule 22 (Rule 8-22).

Rule 8-5: Storage of Organic Liquids

Rule 8-5 requires the pressure vacuum valves (a type of PRD) on tanks used to store organic liquids be set at a pressure within 10 percent of the maximum working pressure of the tank and that the valves be properly installed and maintained in good working order.

Rule 8-18: Equipment Leaks

Rule 8-18 addresses fugitive emissions of VOCs from various components, including PRDs, at petroleum refineries, chemical plants, gasoline bulk terminals

and bulk plants. Fugitive emissions are those that escape from non-airtight fittings or connections. Rule 8-18 prohibits VOC leaks from PRDs over 500 ppm, subject to certain qualifications.

Rule 8-22: Valves and Flanges at Chemical Plants

Rule 8-22 addresses fugitive emissions of VOCs from small chemical plants. When fugitive emissions rules were amended in 1990, large chemical plants were made subject to the more stringent rules for petroleum refineries. Rule 8-22 was maintained for small (fewer than 100 valves) chemical plants.

IV. RULE EVALUATION

In the San Francisco Bay Area 2001 Ozone Attainment Plan for the One-hour National Ozone Standard, the District committed to study several activities at petroleum refineries to determine if additional reductions in emissions of ozone precursors could be achieved. One commitment, set forth in Further Study Measure 8, was to evaluate the potential for obtaining further ozone-precursor (*i.e.*, hydrocarbon) reductions at refineries by venting more refinery PRDs to control systems.

Staff has evaluated the effectiveness of the current rule and has concluded that overall, Rule 8-28 has been very effective and has resulted in a significant reduction in hydrocarbon emissions from PRDs. As noted above, the Rule is designed to phase out atmospheric PRDs by requiring them to be vented to control systems when new equipment is installed and when existing equipment is modified. For existing atmospheric PRDs that have not yet been phased out, the rule requires operators to implement Prevention Measures designed to prevent or minimize releases. The rule also targets "bad actors" out of the current population of existing atmospheric PRDs – *i.e.*, those demonstrating a high potential to have an upset that leads to a release – by requiring any source that experiences multiple releases to vent all of its PRDs to a control system within one year. In this way, the rule balances the desire to have state-of-the-art equipment in place on all equipment, with the reality that there are very many existing atmospheric PRDs and it would be highly burdensome to require them all to be upgraded immediately.

The merits of this targeted approach in reducing emissions are clearly evident when PRD emissions before prevention measures were required are compared to emissions after the prevention measures were required. The average annual emissions before the requirement became effective were 32.4 tons; average annual emissions after the implementation of the prevention measures is 12.4 tons.[iv] This difference represents an overall reduction in annual average emissions of 61 percent. Further, the average amount of emissions per release

[iv] Annual average emissions values are PRD population weighted. Since July 1, 1998, there have been 31.0 PRD-months before the prevention measures were implemented and 57.9 PRD-months after the prevention measures were implemented.

was 3.4 tons before the prevention measures were required; after the prevention measures requirement went into effect, the average was 3.3 tons. Before the prevention measures, there were six release events with emissions of five tons or more; since were required, there have been only three. (A full emission-reduction analysis is provided in Section VI.)

These successes notwithstanding, staff has concluded that there are several areas where the rule can be improved. Staff has reached this conclusion after several years of rule evaluation efforts. Beginning at the end of 2001 and continuing through mid-2002, District staff conducted an audit of PRDs located at the five Bay Area refineries. Staff reviewed data made available by the refineries that would indicate PRD venting, such as pressure, temperature, and flow data. The goals of the audit included (1) identifying all PRDs that vent directly to the atmosphere at units common to all refineries (*e.g.*, hydrotreaters and hydrocrackers), (2) verifying the PRD set points, and (3) determining to what degree of confidence the District can establish whether the PRDs at the refineries experienced releases during the audit period.

The 2002 Audit concluded that for many PRDs, the refineries do not have a means of adequately monitoring PRD releases. In some cases, the facilities do not have equipment capable of monitoring parameters that would indicate a release has occurred. Often, operators simply rely on sound to detect releases. In other cases, the facilities may have monitoring equipment, but it does not present an accurate picture of whether the PRD released, for example because pressure monitors are remote from the PRD and do not reflect actual pressure conditions at the PRD itself. In still others, the facilities may have monitoring equipment, but it records data in one-minute averages, which may miss short ventings. The Audit further concluded that the refineries do not routinely record data on operating parameters that could be used to indicate releases, and where they do record such data, in some cases they do not retain it for any length of time. The audit also discovered two small PRD releases during the audit period that had not been detected by refinery staff. These were both below the 10 pound reporting threshold and so did not trigger any requirements of the rule. But the existence of undetected small releases raises a concern that the refineries may have failed to detect some larger releases as well.

After completion of the PRD Audit, staff then proceeded to draft a Technical Assessment Document, which was published in December, 2002. The draft Technical Assessment Document reiterated the findings of the PRD Audit report and recommended several actions to improve Rule 8-28, including the addition of an explicit monitoring requirement to ensure that all PRD ventings are detected and addressed.

Based on these investigations and subsequent rule evaluation work, Staff has identified the following areas where Rule 8-28 could be improved.

A. Areas for Improvement of Current Rule

Detecting and Characterizing Releases

Section 8-28-401 of Rule 28 requires that facilities report all releases of over 10 pounds of any air pollutant from a PRD. Facilities must provide detailed information about each release, such as the duration of the release and the type and amount of material released, along with the data and assumptions used in calculating this information. However, there is no explicit requirement that facilities have equipment installed to enable them to detect all such releases and collect the information that must be reported, and there is no standard by which to determine compliance. As a result, facilities are using a variety of different monitoring approaches for their various processes and equipment, which vary greatly in their ability to detect and quantify releases. For example, the vast majority of PRDs have some sort of pressure monitoring of the system being served by the PRD, but few of them actually measure the pressure at the PRD itself. Some monitoring systems are not sensitive enough to detect small releases, and may not be detecting releases near the 10 pound threshold that triggers the reporting requirement. For these reasons, staff believes that facilities need to ensure that they have the capability to detect, characterize, and record all PRD releases, and that they need to demonstrate this capability to the District.

Data Recording and Retention

In cases where facilities do currently have monitoring equipment in place that can detect PRD releases, monitoring data are often not recorded or retained. The lack of data retention for some PRDs makes it difficult for District Enforcement staff to independently verify the pressure and venting history of those devices. Enforcement would be enhanced if measurements and recordings of the pressures experienced by the PRD were maintained for an explicit period of time in the rule. The time period should be long enough to allow a facility and/or District staff to go back and review the details of an incident some time after the fact, in situations where it was not immediately obvious that there were issues of interest to be investigated.

Definition of Equipment Subject to the Rule

Several provisions of Rule 8-28 use the term “source.” These include the provision that requires the installation a telltale indicator on each PRD on a refinery “source” within 120 days following a release event from that source (§ 8-28-304.1); and the provision that requires each PRD on a “source” to be piped to an emissions control device following a second release within five years from any PRD on the “source” (§ 8-28-304.2).

However, the term “source” as it is used in the rule can be interpreted in various ways, which can lead to confusion on how the rule is to be implemented. Typically, petroleum refineries have a vast array of interconnected pieces of process equipment and a large number of pumps, compressors, and piping to move petroleum products between the various stages of refining. Because these

equipment typically do not operate in isolation, various equipment and groups of equipment have been defined as "sources" over time for different regulatory purposes. For example, in one context "source" may be used to refer to an individual piece of equipment, such as a pressure vessel. In other contexts, "source" may be used to refer to an entire process unit, which may be made up of a large number of pressure vessels, piping, and related equipment. The rule does not explicitly indicate which definition should be used in the context of Regulation 8-28, and the general definitions in other regulatory provisions (*e.g.*, Regulation 1, Rule 1) are not specific enough to provide further guidance.

The lack of a clear definition of "source" can lead to confusion in how the rule is applied, given that all PRDs on a "source" need to be fitted with a telltale indicator after a first release event and must be piped to an emissions control device if there is a second release event within five years. If "source" is defined narrowly, for example as an individual pressure vessel, these requirements are triggered only for the PRDs on that particular vessel. If "source" is interpreted broadly, for example as an entire process unit comprised of multiple interconnected vessels, then these requirements will be triggered for all of the PRDs anywhere on that process unit, which would likely be a larger number.[v]

Staff has reviewed the history of the 1997 rule amendments that included these requirements and has determined that the intent of District staff in proposing the amendments, and the intent of the Board in adopting those amendments, was that "source" was to be defined broadly to encompass an entire process unit.[4, 5] The rationale for this definition is that Section 304 is targeted towards the "bad actors" – sources that are identified problems because they have demonstrated a propensity for repeat releases – and it is most appropriate to look to the entire process unit to determine which are the "bad actors." This is true for several reasons. First, a problem that causes a process upset resulting in an overpressure and PRD release will not necessarily be limited to a single pressure vessel. A fire in a process unit, for example, could lead to an upset in any pressure system anywhere on the unit. Second, even problems that arise a single pressure system could subsequently spread to other pressure systems within the process unit, for example as increased process rates in one part of the unit feed higher volumes of material than normal, or material at a higher temperature than normal, into downstream equipment causing a further upset there. Third, many of the Prevention Measures that must be implemented to prevent or minimize releases are implemented on a process-unit basis. If for whatever reason those Prevention Measures are not working as effectively as they should, the entire process unit on which the Prevention Measures are

[v] A "process unit" is generally understood to be a discrete component of the refining process that may contain one or more vessels and other pieces of equipment. Generally, it is physically distinct from other process units and can be isolated from the others process units and shut down if necessary. The equipment making up a process unit is normally closely grouped together physically and controlled from a common control room. The entire process unit is normally shut down as a unit for maintenance turnarounds. District permitting staff often (but not always) assign Source Numbers to refinery sources on a process-unit basis.

implemented should be considered suspect. For all of these reasons, it makes the most sense to look at the entire process unit when assessing which sources are considered problematic as a result of a history of frequent releases. Staff continues to believe that this approach is the most appropriate and that "source" should be explicitly defined to encompass all of the PRDs on an entire process unit. Providing an explicit definition to make the meaning of the rule clear would simply be a clarification of the existing requirements, and would not impose any additional requirements.

Defining "source" for purposes of Rule 8-28 differently than elsewhere in District regulations could cause further confusion, however. The term would have different meanings depending on the context in which it is used. A different term should be substituted for "source" in Rule 8-28 to avoid any potential for confusion. "Process unit" would be appropriate, as it describes the concept involved.

Definition of "Telltale Indicator"

The rule as currently written requires affected facilities to install "telltale indicators" whenever a source experiences a PRD release. Although facilities may have a general concept of what a telltale indicator is, it is not clear that there is a specific definition that is commonly accepted among those affected by this Rule. To ensure that there is a clear understanding of what a telltale indicator is and how to comply with the associated provisions, this term should be explicitly defined.

Reporting of Failure Analyses

Section 8-28-304.1 of the Rule requires affected facilities to undertake a failure analysis after experiencing a release event. This failure analysis must include an additional Process Hazards Analysis in which the facility must review its Prevention Measures for the equipment involved, as well as an analysis of the feasibility and cost-effectiveness of venting the PRDs on the source to a control system. The current rule requires that this failure analysis be completed, but it does not require that the analysis be submitted to the District or be retained for any period of time. Facilities should be required to submit the information to the District, or should be required to retain it and make it available on request, to allow District inspectors to readily verify compliance with this requirement.

Non-Substantive Amendments and Clarifications

Finally, the District's review identified several areas where the current language of the rule has become obsolete or is confusing in some way. These are not areas where the substantive requirements of the rule need to be changed. All that is needed are minor, non-substantive changes to make the rule more clear and workable.

B. Potential For Additional Control of PRD Emissions

The District has long believed that ideally, all atmospheric PRDs should be re-plumbed to control systems, which is the Best Available Control Technology.[vi] This belief was the basis of the targeted control approach that was adopted in 1997, which is intended eventually to phase out all atmospheric PRDs. The District did not require all existing atmospheric PRDs to be controlled immediately only because the large costs involved meant that it would not have been cost-effective compared to the emissions reductions that could be achieved. Instead, the District adopted the current targeted approach, which focuses on the few problem PRDs with a high potential to contribute to ozone formation without requiring control on the bulk of the PRD population that is not a significant ozone concern.

In Further Study Measure 8, the District committed to reevaluating its 1997 determination and examining whether additional reductions in refinery hydrocarbon emissions could be achieved by requiring additional refinery PRDs to be controlled. To do so, staff evaluated the emissions reductions that could be achieved from additional control requirements, as well as the costs that would be associated with such requirements. Staff has determined that requiring affected facilities to install control systems with capacity to handle all 324 existing atmospheric PRDs would likely cost between $1 million and $3.2 million per ton of emissions reductions achieved. These costs are roughly two orders of magnitude greater (*i.e.*, 100 times greater) than what the District normally considers to be cost-effective. Staff has therefore concluded that a blanket rule requiring all PRDs to be controlled would not be a cost-effective means to achieve Further Study Measure 8's goal of reducing emissions of ozone precursors from petroleum refineries. From the perspective of achieving additional reductions in ozone precursors, it would be preferable to maintain the current targeted approach and seek further reductions in other areas where the same level of benefit could be achieved at far less cost. (Full details of Staff's analyses of emissions reductions and associated costs are set forth in detail below in Sections VI and VII.)

Beyond reductions in ozone-precursor emissions, staff also considered the potential benefits of a blanket control rule in preventing or minimizing catastrophic industrial accidents. These issues are beyond the mandate of Further Study Measure 8, which is an ozone control measure from the 2001 Ozone Attainment Plan, an ozone planning document. Staff nevertheless examined catastrophic accidental release issues because of the importance of community and worker safety, and because there was significant public interest in these issues voiced during the rule development process. PRDs are safety devices designed to vent material in a pressure vessel quickly in order to prevent the vessel itself from rupturing or exploding. But by venting the material to

[vi] "Best Available Control Technology," or BACT, is a regulatory term used to refer to the current state of the art in emissions control technology.

relieve the pressure, PRDs can be implicated as the pathway through which acutely hazardous materials inside the vessel can reach the atmosphere. Piping PRDs to a control system could thus potentially help prevent or minimize certain types of impacts from industrial accidents. Staff, therefore, examined whether amendments to Rule 8-28 could help enhance facility safety.

Staff reviewed the existing regulatory environment covering facility safety and the prevention of hazards from accidental releases of acutely hazardous materials. Staff have reached the same conclusion that the Board's Ad Hoc Committee on Accidental Releases reached in connection with the 1997 Amendments: The current system of federal, state, and local laws and regulations provides a robust and comprehensive regulatory safety net designed to ensure that regulated entities "design and maintain a safe facility taking such steps as are necessary to prevent releases," in the words of Clean Air Act section 112(r). Staff found that the system has even been enhanced by further developments beyond what existed in 1997. Notably, Contra Costa County, the home of four of the five Bay Area refineries and multiple chemical plants, adopted a landmark Industrial Safety Ordinance in December of 1998 (with subsequent amendments in 2000).[vii] (*See* Contra Costa County Code, Title 4, Chapter 450-8.) The Industrial Safety Ordinance requires all affected facilities to develop a Safety Program to prevent releases, using inherently safer systems wherever feasible. The Ordinance requires each facility to document its Safety Program in a Safety Plan, which is then reviewed by the County and circulated to the public for comment. If the facility's compliance is determined to be deficient in any way – including with respect to the requirement to use all feasible inherently safer systems – the County can require the facility to revise its Safety Program to comply. In this way the Industrial Safety Ordinance provides yet another mechanism to ensure that facilities conduct their operations in a safe manner. Staff believes that these comprehensive and overlapping mechanisms, taken as a whole, provide a sound framework for preventing accidental releases of acutely hazardous materials, through PRDs or via any other avenue.

Staff has therefore concluded that adding additional control requirements to Rule 8-28 as a process safety measure is not warranted. Adopting Rule 8-28 amendments as a safety requirement, as opposed to a smog-control requirement as was contemplated by Further Study Measure 8, would be duplicative of these comprehensive safety requirements that are already in place. Duplicative regulation would be unwise as a matter of policy, and it is prohibited by Section 40727(b)(5) of the Health & Safety Code, which requires that the Board of Directors make a finding of non-duplication of existing regulations before adopting or amending a District rule.

Furthermore, even if the District were regulating in a vacuum without these existing safety requirements, requiring all PRDs to be controlled as a safety

[vii] District Director Mark DeSaulnier sponsored the Industrial Safety Ordinance in his capacity as Contra Costa County Supervisor for District IV.

measure would not be an advisable regulatory approach. A blanket District rule requiring control of all PRDs would be a crude instrument that would both over-regulate and under-regulate the problem. Such an approach would over-regulate the problem because it would require facilities to control PRDs on all processes, even those that have a very low potential for releases, or that serve low-volatility or low-toxicity substances that present very little acute risk to workers and neighbors should a release occur. There would be little to gain by controlling such low-risk PRDs, and the costs involved would essentially be wasted. By the same token, such an approach would under-regulate the problem because it would address only the potential for harm from air contaminants that are emitted from the operation through PRDs. It would not address safety risks from other categories of accidental releases, such as toxic liquids that could impact surface- or ground-waters. Similarly, it would not address the possibility of accidental air emissions from mechanisms other than PRD lifts, such as ruptures in pipes or other equipment that would allow emissions directly into the atmosphere regardless of whether PRDs were vented to control systems. Staff therefore believes that a blanket requirement that all existing atmospheric PRDs must be controlled would not be the most effective approach to addressing accidental release issues.

For all of these reasons, staff is not proposing that the Board of Directors adopt a blanket requirement that all existing atmospheric PRDs be vented to control systems.

V. PROPOSED AMENDMENTS

The rule review described above illuminated several areas in which the rule could be made more effective. Staff is therefore proposing that the Board of Directors adopt certain amendments to the current rule. The proposed amendments would:

- Explicitly require a monitoring system for all atmospheric PRDs. Section 8-28-503 in the proposed amendments establishes an explicit monitoring requirement. The requirement specifies that any monitoring system shall be designed, installed, operated and maintained so that operators are notified of releases as defined in the rule, and that the system can quantify them. This requirement is proposed to become effective June 1, 2007.
- Require facilities to demonstrate that they have adequate monitoring systems in place for all of their atmospheric PRDs subject to the rule. Section 8-28-407 is proposed to require facilities to submit a monitoring demonstration report that will enable staff to enforce the monitoring requirements. The report will require descriptions of the monitoring equipment, operating parameters and engineering calculations used to quantify releases.
- Require data recording and recordkeeping for venting and emissions verification. Section 8-28-502 is proposed to require that records of

pressure relief devices, prevention measures, equipment served, inspections, and monitoring equipment are kept and made available for inspection. Some of these records were required to be kept under Section 8-28-403, which is proposed for deletion.

- Clearly define the equipment subject to Section 304 of the rule to ensure that the original intent of the rule – to regulate all PRDs on process units that demonstrate a propensity for releases – is preserved. A definition of "process unit" is proposed in Section 8-28-216 and the term replaces the term "source" in Section 8-28-304.
- Add a definition of "telltale indicator." Facilities are required to install telltale indicators after a first release event, but the term is not defined. Defining the term will prevent any confusion over exactly what is required under such circumstances. The definition is in Section 8-28-217.
- Require facilities to identify all process units equipped with atmospheric PRDs and provide an inventory of all PRDs serving them. In order for staff to clearly understand all of the equipment subject to the rule, proposed Section 8-28-408 would require facilities to submit a list of all process units equipped with PRDs, identify all the PRDs on each process unit, and state when the first turnaround occurred at each process unit after 1998. The latter information is necessary to determine when the requirements of Section 304 came into effect for each process unit.
- Make minor, non-substantive changes to the rule, such as, deleting obsolete references to "turnarounds"; moving requirements where appropriate; and clarifying various sections of the rule. Initial compliance dates (the first turnaround after July 1, 1998) have been deleted in the proposed amendments; and the requirement to conduct a Process Hazards Analysis, an administrative requirement, has been moved from Section 8-28-304 to proposed Section 8-28-406.

VI. EMISSIONS

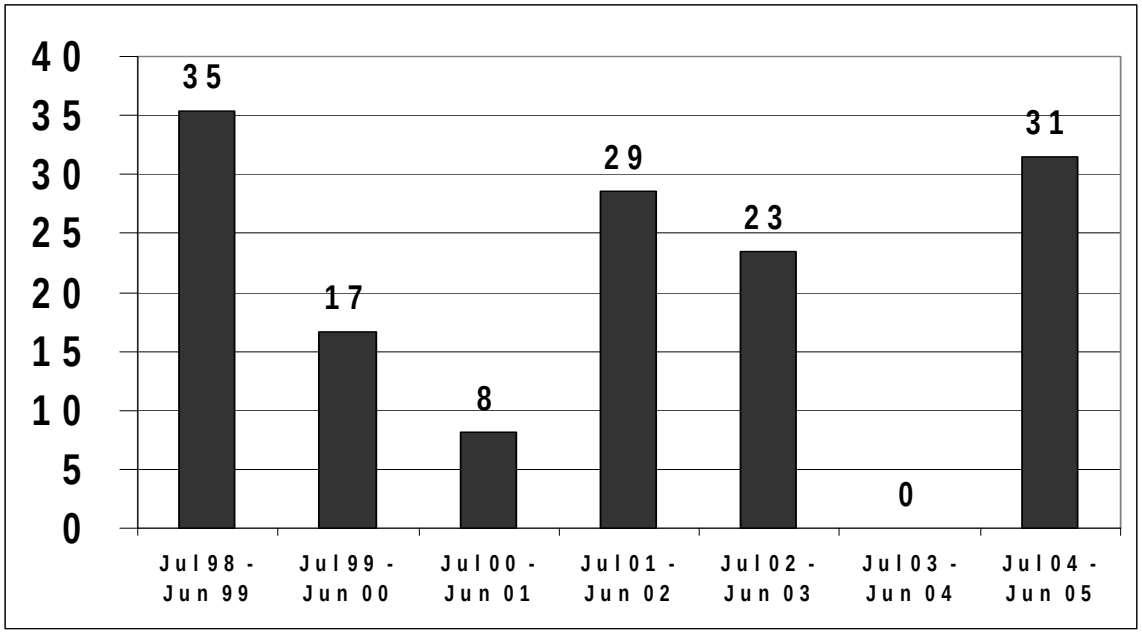
Episodic emissions from excess pressure in facilities' process units occur at the exhaust of the atmospheric PRD. These pressure releases result from problems in the process that could result in catastrophic failure of the process equipment if the pressure is not released in a controlled manner. Smaller amounts of emissions can also occur during normal pressure conditions if a PRD leaks.

A. Current Emissions Summary

1. Episodic Emissions

There have been 43 release events reported by the five Bay Area refineries since the current version of the Rule took effect in 1998 (through September 2005). These 43 release events vented an estimated 144 tons of VOC emissions in total. This record represents an average of 6.1 release events per year over this period, involving an average of 20.5 tons of emissions per year. The average release event involved 3.3 tons of emissions. Emissions during this period are summarized in Table 6.1 on a year-by-year basis.

Table 6.1
Summary of Annual Emissions from PRDs
Total tonnage, 1998-2005
(rounded to the nearest whole number)



In citing annual average emissions figures, it must be noted that although annual averages can provide a useful metric for assessing the scope of PRD releases within the Bay Area in general, they are of more limited value in assessing the amount of emissions to be expected from PRDs on any given day. PRDs normally go for long periods of time without ever opening, interspersed with short periods of significant emissions – sometimes as much as tens or hundreds of tons – when there is a process overpressure. This is the reason that the current rule requires controls on those PRDs with a high propensity for releases, even though control requirements are not cost-effective when looked at from an annual-average-emissions standpoint: A PRD that has one very large release per

year will have low annual average emissions, but it should still be controlled to prevent the significant ozone impact that would occur on the particular day that the release occurs.

It must also be noted that these emissions figures may be somewhat underestimated because of the potential that some releases may not have been discovered and reported to the District. As noted above, when staff audited refineries' current PRD practices they found that some PRDs do not have comprehensive monitoring systems and may have experienced some releases that were never detected. The refineries are confident that they have detected most (if not all) of the releases that have occurred, however. If any releases did go undetected, it is most likely that they were smaller events, as it would be hard not to detect a large release even without a comprehensive monitoring system. In addition, the emissions summaries do not account for emissions of less than 10 pounds because these small releases are not required to be reported to the District. But again, these are small events and the annual total of these emissions is not expected to be significant. Staff, therefore, believes that the data on current levels of PRD emissions are sufficiently reliable.

2. Fugitive Emissions

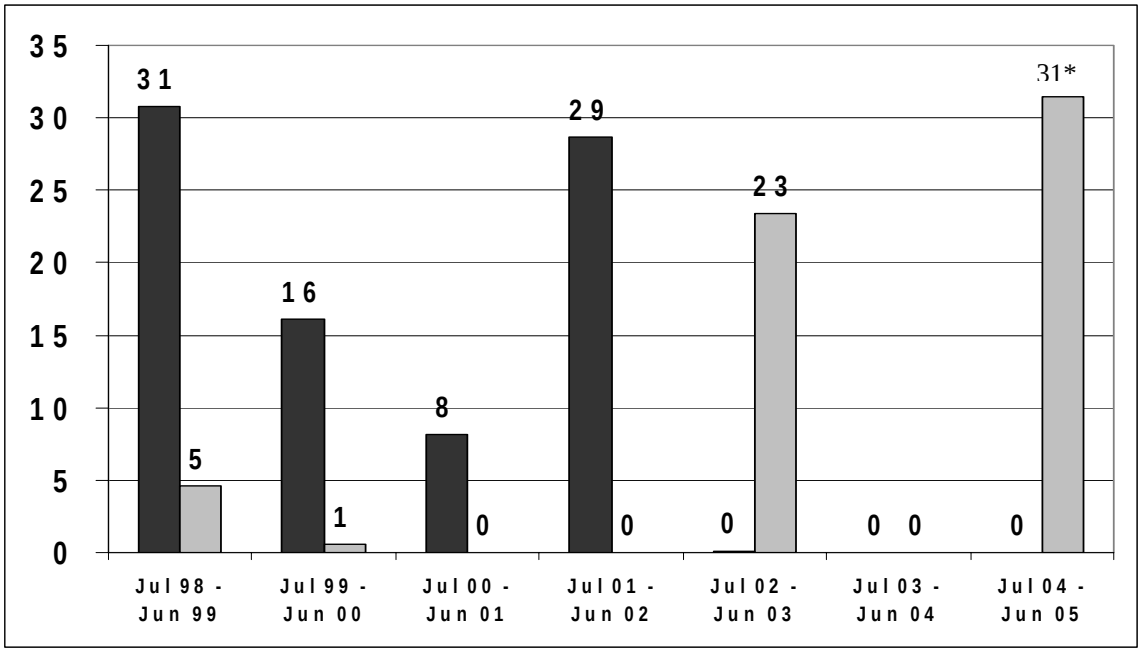
As noted above, the fugitive emissions requirements applicable to PRDs were moved to Rule 8-18 in connection with the 1997 rule amendments. Rule 8-18 currently establishes a very stringent 500 ppm leak standard, and requires periodic inspections to ensure PRDs are complying. Emissions from PRD leaks are currently estimated at approximately 10 pounds per day (as of 2003). This is a very substantial reduction from the 3300 pounds per day that staff estimated from leaks during the 1997 rule development process. The reduction can be attributed to several developments, including the tightening of the Rule 8-18 leak standard to 500 ppm and changes to the EPA method for calculating emissions from leaks. Staff believes that these reductions are further evidence of the success of the District's VOC emission rules, although in this case the success is attributable to Rule 8-18, not Rule 8-28.

B. Emission Reductions Since Adoption of the Current Rule in 1997

In assessing current emissions from PRDs, staff also examined the effect of the requirement that facilities implement Prevention Measures pursuant to Section 8-28-303 of the 1997 amendments. That section required each affected facility to take a number of steps to reduce the chance of PRD releases, such as operator training, improved equipment, inherently safer process designs, enhanced maintenance protocols, and monitoring systems. Affected facilities had to implement these Prevention Measures during the first "turnaround" (scheduled shutdown for routine maintenance) after the amendments took effect in 1998. To assess the effectiveness of this Prevention Measures requirement, staff compared emissions before the Prevention Measures requirement went into

effect (*i.e.*, before the first post-1998 maintenance turnaround for each process unit) and after the requirement was triggered (*i.e.*, after the first post-1998 turnaround).[viii] The results of this evaluation are presented in Table 6.2.

Figure 6.2
Comparison of PRD Release Event Emissions Before and After the Prevention Measures Requirement Took Effect
Total tonnage, 1998 – 2005
(rounded to the nearest whole number)



■ = Emissions before Prevention Measures were required
□ = Emissions after the Prevention Measures requirement took effect

* The large emissions spike shown for 2004-2005 was primarily the result of two large releases at an alkylation unit at the Tesoro Refinery that vented 9.3 tons and 20.4 tons of hydrocarbons, respectively. Under Section 8-28-304.2, the PRDs on that unit will now be required to be vented to controls so that any further releases will not reach the atmosphere.

The results of this comparison show the effectiveness of the Prevention Measures requirement in reducing PRD emissions. Before the Prevention Measures requirement came into effect, emissions averaged 32.4 tons/year from these PRDs; after the Prevention Measures were required, the annual average

[viii] To make this comparison, staff looked at each process unit equipped with atmospheric PRDs and determined when the Prevention Measures requirement went into effect – the date of the process unit's first maintenance turnaround after July 1, 1998. Staff then compared the frequency and size of releases from that process unit before the Prevention Measures requirement took effect with the frequency and size of releases after the Prevention Measures requirement took effect. Staff then aggregated the data for all PRDs District-wide to obtain an overall comparison between emissions before and after the Prevention Measures requirement took effect.

has dropped to 12.4 tons per year. Furthermore, overall amount of material released has decreased; with a total of 83.8 tons released before the prevention measures were required compared with 60.1 tons after the Prevention Measures were required. The number of significant releases has declined. Before prevention measures were required, there were six release events greater than five tons; since the prevention measures requirement became effective, there have been only three. The distribution of release events by size is set forth in Table 6.3, and shows that the most common type of release before the Prevention Measures requirement came into effect was 1,000 to 10,000 pounds, whereas the most common type after the Prevention Measures requirement came into effect has been in the 10- to 100-pound range.

Table 6.3
Release Events Distributed by Amount of VOCs Released

Size of Release (pounds emitted)	Number of Releases Before Prevention Measures	Number of Releases After Prevention Measures
10 – 100	2	6
100 – 1000	6	2
1000 – 10,000	11	7
10,000 – 100,000	6	3

Staff believes that these demonstrated declines in the number of PRD releases, the amount of emissions per release, and overall PRD emissions, demonstrate the effectiveness of the Prevention Measures requirement in the current rule.

Staff also looked back even further and compared recent PRD emissions rates with historical emissions data prepared in connection with the 1997 Amendments. In the process of developing the Amendments, Staff documented 51 reported releases in the three years from 1993 through 1995 totaling an estimated 459 tons of emissions, which included a single very large event in 1993 that involved an estimated 371 tons. These figures represent an average of 17 release events per year during this period. On a mass basis, average emissions were 153 tons per year when the very large 459 ton release is included, or 27.2 tons per year if that single event is treated as an outlier and excluded from the calculation.(6) These historical emissions rates are significantly larger than the rates the region has experience since the 1997 amendments went into effect, both in terms of the number of releases per year and mass of emissions released per year. Release events dropped from an average of 17 per year in 1993-95 to an average of 6 per year since July of 1998. Total annual emissions dropped from an average of 27.2 tons per year or 153 tons per year in 1993-95 (depending on whether the very large 459 ton release is included) to an

average of 17.9 tons per year since July of 1998. These comparisons further highlight Rule 8-28's successful track record in reducing emissions.[ix]

C. Potential Further Emissions Reductions

Staff evaluated the emissions reductions that could be expected in two scenarios: (i) requiring a demonstration that every facility has comprehensive monitoring equipment in place for all PRDs in atmospheric service; and (ii) requiring all atmospheric PRDs to be vented to a control system with a destruction efficiency of 95 percent or greater. For each scenario, staff evaluated emissions reductions based on the 20.5 tons per year average emissions that the region has experienced overall since 1998, and also based on the smaller 12.4 tons per year average emissions that have occurred since the Prevention Measures requirement went into effect.

1. Reductions from Monitoring Demonstration

Establishing explicit standards for monitoring will allow the District to ensure that all facilities are adequately monitoring all atmospheric PRDs. Ensuring that such monitoring is in place will ensure that facilities are fully aware of release events, which will allow operators to better target their release prevention and mitigation efforts and will ensure that repeat-release "bad actors" are identified and subjected to additional control requirements. These effects, in turn, are expected to lead to fewer release events and reduced emissions.

US EPA has estimated from time to time in various rulemakings that enhanced monitoring can result in a ten to twenty percent emissions reduction. Here, staff believes that the proposal to add an explicit monitoring requirement should more appropriately use a five percent emissions reduction factor, because many PRDs are already subject to some form of monitoring and it appears that most releases – and especially the larger ones – are being detected.

Using the 20.5 tons-per-year average emissions figures from the period 1998-2005, a five percent reduction would result in emissions reductions of approximately 1.0 tons per year. Using the 12.4 tons-per-year average from the period after the Prevention Measures requirement came into effect, a five percent reduction would result in emissions reductions of 0.62 tons per year.

[ix] It must be recognized that other factors besides the adoption of the 1997 Amendments likely contributed to some of the observed emission reductions. For example, the Pacific Refining facility closed in 1997, taking a number of PRDs out of service and removing them as potential emissions sources. Any emissions reductions from independent influences such as this would have occurred even if the 1997 Amendments had never been adopted.

2. Reductions from Controlling Additional PRDs

Facilities can achieve a 98 percent reduction in emissions by venting releases to a control system such as a flare or recovery system. Using the 20.5 tons per year overall average annual emissions since 1998, a blanket control requirement could therefore be expected to result in emissions reductions of 20.1 tons per year. Using the 12.4 tons-per-year average since the Prevention Measures requirements came into effect, a blanket control requirement could be expected to result in emissions reductions of 12.2 tons per year.

VII. ECONOMIC IMPACTS

This section presents the economic impacts of the proposed amendments, and also addresses the economic feasibility of a blanket requirement that all atmospheric PRDs be controlled immediately.

A. Costs That Would Be Incurred by Affected Facilities

1. Demonstration Reports

The proposed rule amendments require that each affected refinery prepare and submit to the District a "Monitoring System Demonstration Report." This report would provide information that would demonstrate that the refineries have adequate monitoring systems in place for all of their atmospheric PRDs subject to the rule. Section 8-28-407 is proposed to require facilities to submit a monitoring demonstration report that will enable staff to enforce the monitoring requirements. The report will require descriptions of the monitoring equipment, operating parameters and engineering calculations used to detect and quantify releases. Staff estimates that preparing the needed information for inclusion in the report for each PRD would take about two man-hours per PRD. (Most of this information is already available and must be utilized in the event of a release event and the subsequent report to the District.) The hourly labor cost is estimated to be approximately $100 per hour. Because there are 324 PRDs in total at the five Bay Area refineries, staff estimates the total one time cost of this provision to be about $64,800.

The proposed amendments also require each affected refinery to provide a listing of each process unit equipped with atmospheric PRDs and the associated PRDs. This information is already generally available and would not require any additional man-hours to generate. Preparation of the report for submission should take no longer than one hour for each refinery. Staff, therefore, estimates the cost associated with this provision to be approximately $100 per refinery; this translates to $500 District-wide.

The total costs of the demonstration reporting requirements are therefore expected to be approximately $65,300.

2. Monitoring Equipment

The current rule implicitly requires that facilities monitor their PRDs so that they will know when they have a release that has to be reported in accordance with Section 8-28-401. A requirement to report release information implies a duty to investigate whether releases have occurred, which cannot be done without monitoring. The proposed amendments would simply make the monitoring requirement explicit. Simply making the requirement explicit should not involve any additional costs beyond what is currently required. Indeed, staff has found that most PRDs already have sufficient monitoring equipment to satisfy the requirements being proposed.

Staff recognizes that some facilities do not currently have comprehensive monitoring systems for all PRDs, however. Staff has therefore evaluated the costs of implementing monitoring systems, even though they are not technically additional costs imposed by the proposed amendments, and even though the many PRDs that already have comprehensive monitoring systems in place will not need to incur such costs.

Staff evaluated several types of equipment that could be used to implement a monitoring system that would satisfy the proposed monitoring requirements. Staff's evaluation was based on conversations with refinery personnel and cost quotes from vendors. The cost of installing of a telltale indicator, such as a sock, would range from $500 to $1000 per PRD. Costs for installation of pressure sensing devices to provide pressure monitoring capability would likely range between $1,000 and $1,500 per PRD.[7 8 9 10] Staff does not believe that any facility will be unduly burdened by such costs. Moreover, staff believes that any such costs would be more than justified in situations where facilities are not currently monitoring their PRDs.

3. Controlling Additional PRDs

Staff also examined what it would cost to expand the Rule to require all existing atmospheric PRDs to be retrofitted and vented to control systems. Staff examined costs under two scenarios:

(1) Refineries would have to install additional control systems to handle the PRD emissions (the more likely scenario); and

(2) Refineries would be able to use spare capacity in existing control systems to handle the additional PRD emissions, and would not have to install new equipment (a more conservative but far less likely scenario).

Staff has found that under either scenario, requiring all PRDs to be controlled would not be cost effective. Each scenario is described in more detail below.

Cost of Installing New Control Systems:

Most if not all affected facilities would be required to install a new control system (or multiple systems) if they were required to control all existing atmospheric PRDs. PRDs are designed to vent large amounts of material very quickly in order to protect equipment from overpressures. As a result, control systems handling PRD emissions (safety flares, predominantly) have to be designed to handle large amounts of material from each PRD. Moreover, to accommodate all foreseeable upset conditions that might trigger PRD releases, such systems need to be able to handle emissions from multiple PRDs simultaneously. As a result, requiring all PRDs to be controlled would require a very significant amount of control capacity. Staff does not believe that affected facilities have spare capacity in their existing systems to handle all of their atmospheric PRDs, and would thus have to install new flare systems instead. Staff has concluded that it would cost approximately $192.5 million District-wide to install new flare systems with a capacity great enough to handle all existing atmospheric PRDs.

Staff derived this $192.5 million estimate from two sources: (1) a cost study undertaken Jacobs Engineering, Inc. ("Jacobs Engineering"), a large refinery engineering and construction contractor, in connection with the 1997 Amendments; and (2) a recent cost estimate performed by the Shell refinery in Martinez pursuant to District Regulation 8-28-304.1.

Jacobs Engineering Estimate:

Jacobs Engineering concluded that it would cost approximately $20 million to install a new flare system capable of handling 50 PRDs.[11] This estimate was based on an accuracy range of +/- 30 percent, which translates to a cost range of approximately $14 million to $26 million. A summary of the Jacobs Engineering estimate is set forth in Table 7.1, broken out by line-item.

Table 7.1
Jacobs Engineering Cost Estimate for a Safety Flare Recovery System to Handle 50 PRDs

Component Descriptions	Cost Estimates
50 PRDs and relief lines, ¾" to 8"	$1,180,000
Relief Headers and Knockout Drum	$2,970,500
Flare Gas Recovery system	$4,864,000
Flare	$3,553,000
Pipeway adjustment	$ 662,050
Subtotal	**$13,229,550**
Shipping	$ 123,000
Sales Tax	$ 508,000
Engineering	$2,790,000
Contingency	$3,094,000
Total	**$19,744,550**

Staff updated the Jacobs Engineering estimate to 2005 dollars by adjusting the costs for inflation. Staff looked at a number of annual inflation measures, as set forth in Table 7.2. Staff ultimately used an average of 1.39 percent to convert to 2005 dollars.

Table 7.2
Various Inflation Adjustment Factors: 1993 to 2005

Bureau of Labor Statistics Consumer Price Index [12]	1.38
Solomon & Associates Plant Replacement Value[13]	1.26
Turner Construction Cost Index[14]	1.54
Average Inflation Factor	**1.39**

Adjusted for inflation, the Jacobs Engineering estimate for a flare system capable of handling 50 PRDs is $27.5 million in 2005 dollars, with a plus or minus 30 percent confidence range of $19.2 million to $35.7 million in 2005 dollars.

Given the age of the Jacobs Engineering estimate, staff also compared the estimate with current construction and materials costs to assess whether the estimate, adjusted for inflation, continues to provide a reliable picture of what it would actually cost to install a flare system today. Staff contacted contractors with experience in design and construction of flare systems, as well as affected facilities that have recently installed flares and/or similar equipment. In some cases, these contacts were able to review the Jacobs Engineering study and provide an overall opinion on whether the methodology was generally valid and whether the cost inputs used, adjusted for inflation, generally reflect current realities. In other cases, they were able to give current cost data for individual components of a flare system (including labor and/or materials), which allowed

District staff to compare the Jacobs Engineering estimate with current realities on a line-item by line-item basis. Several examples demonstrate how these inquiries served to validate the Jacobs Engineering estimates.

- *Flare, Knockout Drum, and Water Seal:*

Staff first compared the Jacobs Engineering estimates for the various materials and equipment needed for a flare system with the current costs for such items. Staff contacted John Zink, Inc., a flare manufacturing contractor, who provided current cost information for a 200-foot self supported flare, a knockout drum built right into the bottom of the flare base, and a water seal. The company estimated that this equipment would cost roughly $500,000 today.(15) This estimate corresponds very closely with the Jacobs Engineering estimate, which comes to $505,960 (in 2005 dollars) for a flare, knockout drum, and water seal.

- *Thermal Incinerator*

Staff also examined cost estimates published by the United States Environmental Protection Agency ("EPA") for a thermal incinerator and associated piping.(16) A thermal incinerator is a control device that combusts hydrocarbon vapors before they are emitted to the atmosphere in a manner similar to a flare. This similarity makes it a good comparator to a flare. EPA estimates that the cost of the thermal incinerator itself (without the lines to connect it to the PRDs and all of the other parts of the complete system) would cost between $25 and $90 per standard cubic foot per minute (scfm) of capacity. For a 60,000 scfm system that could handle 50 PRDs – the capacity used in the Jacobs Engineering estimate – the total cost would be $1,500,000 to $5,400,000. The analogous Jacobs Engineering estimate for the flare equipment is $3,633,500 (in 2005 dollars), which is squarely within the range of EPA's estimate.

- *Piping:*

Staff also examined the costs of installing piping to carry PRD emissions to the flare system, which is another large portion of the costs of a new flare system. Staff examined the piping costs that the Tesoro refinery incurred when they had two releases within five years and had to pipe certain PRDs to a control system under Section 8-28-304.2 of the current rule. In Tesoro's experience, it cost approximately $30,000 to $32,500 per 100 linear feet of pipe.(17) This is slightly higher than the Jacobs Engineering piping estimate, which ranged from $9,750 to $24,310 in 2005 dollars, but is well within an order of magnitude. Again, this recent experience corresponds well with the estimates drawn from the work Jacobs Engineering did in connection with the 1997 Amendments.

- *Labor Inputs:*

To examine whether the estimates of labor inputs that Jacobs Engineering used are accurate, Staff contacted Rex Kenyon & Associates, a maintenance consulting services company. Kenyon provided labor estimates for a large number of particular tasks that would be involved in installing a flare system. Kenyon has generated these estimates from trades estimating manuals, and has compiled them into Excel spreadsheet estimating tool which District staff used to

compare the Kenyon estimates of current labor inputs with the Jacobs Engineering estimates.[18] Staff identified 32 tasks included in the Jacobs Engineering Estimate that had direct comparators in the Kenyon estimates. Of these 32 common tasks, the Jacobs estimate was lower for 20 of them (ranging from 39 percent to 96 percent of the Kenyon estimates) and higher for 11 of them (ranging from 111 percent to 229 percent of the Kenyon estimates), with one task being exactly the same. This comparison shows that the labor estimates that Jacobs Engineering used continue to be valid today for estimating the costs involved in installing a new flare system.

Given this close correlation between the cost inputs used in the Jacobs Engineering estimate (as adjusted for inflation) and current costs for similar inputs, Staff believe that the Jacobs Engineering cost estimate, adjusted for inflation, provides a reliable estimate of what it would cost to install a new flare system today.

Shell Estimate:

The District also examined an estimate prepared by Shell for installing a new flare to handle PRD emissions at its refinery in Martinez. Shell prepared this estimate pursuant to Section 8-28-304.1 of the Rule, which requires facilities to analyze the cost-effectiveness of controlling PRDs that experience release events. In connection with this requirement, Shell examined the costs of installing a new flare, liquid knockout drum, flare gas recovery, major headers, and individual sub-headers servicing individual PRDs. Shell estimated that it would cost the refinery $50 million for a system that could serve 39 PRDs in one area of the refinery and $25 million for a system that could serve ten PRDs in another area of the refinery. Shell estimated that it would need two separate flare systems because the relatively long distance between the two areas and the relatively low design pressures involved made it unreasonable to expect that a single flare system could serve both areas.[19]

This estimate is slightly higher than the Jacobs Engineering estimate of $27.5 million (in 2005 dollars) for a system capable of handling 50 PRDs, but it is within a factor of two of that estimate.

Costs to Control All PRDs District-Wide:

Staff then used the estimates referenced above to estimate what it would cost to control all PRDs District-wide. Using the more conservative estimate of $27.5 million for a system to handle 50 PRDs, Staff then looked at how many new flare systems would be needed to control all 324 PRDs currently in atmospheric service around the Bay Area. Staff assumed that one new flare system with a capacity to handle 50 PRDs would be sufficient to control the PRDs at three of the refineries, and that two new flare systems would be required at each of the remaining two refineries because they have around 100 PRDs each. Staff therefore estimated that seven new flare systems would be needed in total to

control the PRDs at all five refineries.[x] These calculations are summarized in Table 7.4.

Table 7.4
Flare Systems Required to Control PRDs at the Five Bay Area Refineries

Refinery	Atmospheric PRDs	Additional Flare Systems Needed
Chevron-Texaco	41	1
ConocoPhillips	12	1
Shell	107	2
Tesoro	99	2
Valero	65	1
Totals	**324**	**7**

At approximately $27.5 million per flare system, controlling all 324 PRDs with flares would thus result in a total capital cost of approximately $192.5 million District-wide. As with any estimate, there is some uncertainty inherent in this number. Staff is confident that it is reasonably accurate, however, and certainly is accurate to within an order of magnitude.

Costs of Using Existing Control Systems:

Staff also examined the costs of piping existing atmospheric PRDs to existing control systems. As noted above, it is highly unrealistic to assume that there is currently excess capacity to handle all 324 PRDs throughout the District: PRDs are designed to release large volumes of material in a short period of time, and control systems need to be capable of handling combined emissions from many PRDs simultaneously in case of an upset involving multiple units. Furthermore, to the extent that there is existing excess capacity, the current rule contemplates that any such existing excess capacity would be reserved for handling "bad actor" PRDs that have repeat releases and trigger the control requirements. It would be preferable to target any existing excess capacity to these PRDs, rather than use it for PRDs that may have a very low potential for release. Staff therefore believes that although there is most likely some spare capacity, it is unrealistic to assume that all existing PRDs can be vented to existing control systems. Staff have nevertheless analyzed the costs of controlling all existing PRDs assuming that sufficient spare capacity exists as an ultra-conservative estimate of the very least it could possibly cost to control all existing PRDs.

[x] There is a certain level of approximation inherent in these calculations, because PRDs do not exist at facilities in neat multiples of 50. Staff believes that such approximation is appropriate, however, because the experience of refineries with fewer than 50 PRDs – which will be able to install a smaller flare system and incur fewer costs – will balance out the experience of facilities that have more than 50 PRDs and will require a larger flare system at greater cost. Notably, the two refineries that staff estimate will need two flare systems have very close to 100 PRDs each (99 and 107), almost exactly double the 50 PRDs that staff used as the basis for their cost estimate. Staff therefore believes that their assumptions are supportable and appropriate for this cost estimation exercise.

Staff first examined the experience of one refinery that was able to reroute emissions from eight PRDs back into its process unit in a closed loop, without having to send them to a flare or vapor recovery system. The refinery was able to do so because unlike most PRDs, the devices involved served a liquid-packed unit, which (unlike gaseous equipment) can alleviate an overpressure without having to vent a lot of material. The refinery found that it could pipe the PRDs to a knockout drum to recover liquids vented from the PRDs, and then vent the relatively small amount of remaining vapors back into the system without risking any over-pressure problems. The refinery was able to accomplish this modification at a cost of $2 million for eight PRDs.[20] Extrapolating this experience District-wide – which is not a reasonable assumption given that only a small subset of PRDs is likely to be eligible for such treatment – the cost would be $81 million for all 324 PRDs.

Staff also reviewed an estimate by another refinery for piping PRDs to existing control capacity, which was prepared pursuant to Section 8-28-304.1 of the current rule. The refinery estimated that it would be able to vent an individual PRD to an existing flare system at a cost of $75,000.[21] The refinery noted that existing spare capacity was limited, making it unreasonable to assume that all PRDs could be treated this way. Assuming they all could, however, this estimate would translate into a District-wide cost of $24.3 million for all 324 existing atmospheric PRDs.

Assuming there was existing capacity for all PRDs District-wide, the only costs that facilities would incur would be the cost of installing piping to carry emissions from the PRD to the control device. Based on the estimates outlined above of $9,750 to $32,500 for 100 linear feet of piping per PRD, which was the average length of piping used in the Jacobs Engineering analysis, the costs of piping alone would be approximately $1.6 million to $5.3 million for 50 PRDs. For the 324 atmospheric PRDs District-wide, this corresponds to a total cost of $10.5 million to $34.8 million.

Based on these estimates, Staff has concluded that even if facilities had existing capacity to control all existing atmospheric PRDs, it would still cost $10.5 million to $81 million to control all PRDs District-wide. Again, staff does not believe that this is a realistic estimate given that it is highly unlikely that facilities have sufficient existing capacity for 324 PRDs.

Cost Effectiveness:

Based on the cost estimates of the various control scenarios outlined above, and the emissions reductions that would be expected from each of them, staff has calculated the cost-effectiveness of each option. Staff amortized the costs over a 10 and 20-year period at seven percent to determine the annualized costs. Staff then compared the annualized costs with the anticipated annual emissions

reductions based on the 20.5 tons-per-year emissions average since 1998 and based on the lower 12.4 tons-per-year average since the Prevention Measures requirements took effect. The results of these calculations are set forth below.

Cost-Effectiveness If New Control Systems Required:

For new flare systems to control all existing atmospheric PRDs, the cost-effectiveness calculations are as follows.

Estimated total cost District-wide: $192.5 million
Cost annualized over 10 years: $26.8 million per year
Cost annualized over 20 years: $17.9 million per year

Estimated emissions reduction efficiency: 98%
Tons of reductions from 20.5 tons-per-year baseline: 20.1 tons per year
Tons of reductions from 12.4 tons-per-year baseline: 12.2 tons per year

Based on these calculations, the cost-effectiveness of flare systems under different scenarios is set forth in Table 7.5.

Table 7.5
Cost Effectiveness Calculations for New Control Systems

Annualization Period	Cost-Effectiveness Based on 20.5 tpy of emissions	Cost-Effectiveness Based on 12.4 tpy of emissions
10 years	$1.3 million per ton	$2.2 million per ton
20 years	$890,000 per ton	$1.5 million per ton

Cost-Effectiveness Assuming Existing Spare Control Capacity:

If there were existing flare or vapor-recovery capacity to handle all existing atmospheric PRDs, and all that was needed was piping from the PRDs to the existing flares or vapor recovery systems, the cost-effectiveness calculations are as follows.

Estimated total cost District-wide: $10.5 million - $81 million
Cost annualized over 10 years: $1.5 million - $11.4 million per year
Cost annualized over 20 years: $977,000 - $7.6 million per year

Estimated emissions reduction efficiency: 98%
Tons of reductions from 20.5 tons-per-year baseline: 20.1 tons per year
Tons of reductions from 12.4 tons-per-year baseline: 12.2 tons per year

Based on these calculations, the cost-effectiveness of simply piping PRD emissions to existing flare or vapor-recovery capacity, assuming such capacity is available, is set forth in Table 7.6 for the different scenarios evaluated.

Table 7.6
Cost Effectiveness Calculations Assuming Existing Spare Capacity

Annualization Period	Cost-Effectiveness Based on 20.5 tpy of emissions	Cost-Effectiveness Based on 12.4 tpy of emissions
10 year	$75,000 - $567,000 per ton	$123,000 - $934,000 per ton
20 year	$49,000 - $378,000 per ton	$80,000 - $623,000 per ton

In each of these cases, the costs associated with controlling all existing atmospheric PRDs would be far higher than what the District normally considers to be cost-effective. To give some perspective, the costs associated with the 1997 amendments were estimated to be $20,000 per ton of VOC emissions, which is at the high end of cost effectiveness for District regulatory proposals. Because of the very high cost, staff is not recommending that all PRDs be required to be piped to control systems.

B. Incremental Cost Effectiveness

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 emissions 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 emission reduction potentials between each progressively more stringent control option as compared to the next less expensive option.

As explained above, staff examined two options in connection with the proposed amendments: an option to enhance the clarity and enforceability of the current rule, and an option to require all existing PRDs to be controlled. The first option would require facilities to demonstrate that they have the ability to detect release events and report them as required by the rule, which staff estimates will cost $65,300. Amortized over 10 or 20 years, this cost comes to approximately $9,300 or $6,200 in annualized costs, District-wide. The second option would require all PRDs to be controlled, and would cost between $26.8 million a year (annualized over 10 years) or $17.9 million (annualized over 20 years), assuming new control systems would be required. The incremental difference in

annualized costs would therefore be $26.8 million or $17.9 million, depending on which amortization period is used.

It is difficult to estimate the emissions reductions associated with monitoring and reporting requirements because they do not directly lead to emissions reductions. At the same time, comprehensive monitoring and reporting are necessary to ensure adequate compliance with the rule, so these requirements are essential to all the reductions expected from a regulation. Staff recognizes these inherent difficulties in analyzing the cost-effectiveness of such requirements, but has nevertheless estimated a five percent emissions reduction factor from these requirements. A five percent reduction would generate 1.0 tons per year in emissions reductions if the 20.5 tons-per-year baseline is used, or 0.62 tons per year if the 12.4 tons-per-year baseline is used. The emissions reductions that could be achieved by controlling all PRDs would be 20.1 tons or 12.2 tons, depending on which baseline is used. The incremental difference in emissions reductions would therefore be 19.1 tons or 11.5 tons depending on which baseline is used.

Based on these incremental emissions reductions and incremental costs, the incremental cost-effectiveness of the second option would be $1.08 million - $1.40 million per ton if the 20.5-ton emissions baseline is used or $1.56 - $2.33 million per ton if the 12.4-ton baseline is used.

Under the unlikely scenario that no additional control systems would be required, the same calculations generate an incremental cost-effectiveness of $50,800 - $598,000 per ton if the 20.5 ton emissions baseline is used, and $83,900 - $988,000 per ton if the 12.4 ton baseline is used.

C. 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 of Berkeley, California has prepared a socioeconomic analysis. The analysis concludes that the affected facilities 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.

VIII. ENVIRONMENTAL IMPACTS

Pursuant to the California Environmental Quality Act, the District has had an initial study for the proposed amendments prepared by Environmental Audit, Inc. The initial study indicated there are no potential significant adverse environmental impacts associated with the proposed amendments. The District intends to file a negative declaration for the proposed amendments to this rule.

IX. REGULATORY IMPACTS

California Health and Safety Code Section 40727.2 requires the District to identify existing federal air pollution control requirements for the equipment or source type affected by the proposed rule or regulation. The District must then note any differences between these existing requirements and the requirements imposed by the proposal. Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants applies to emissions from atmospheric pressure relief devices located at refineries and chemical plants. The proposal does not expand the applicability or the current rule. No federal air pollution control requirement or other District rule regulates episodic emissions from pressure relief devices.

X. RULE DEVELOPMENT PROCESS

In developing the proposed amendments to Rule 8-28, District Staff went through an extensive rule development process to solicit and receive input from affected facilities, interested organizations, and other members of the public. This section summarizes that work.

A. PRD Audit – May, 2002

Staff's rule development efforts commenced with a detailed examination of the current rule. Staff began by conducting an audit of PRDs at all five petroleum refineries in the Bay Area to investigate whether those facilities have been detecting and reporting PRD releases as required by the Rule. The audit did not find any definitive evidence of reportable releases (over 10 pounds) that had gone undetected or unreported. Staff could not conclude that all reportable releases have been detected, however, because the refineries did not have comprehensive data available for many of their PRDs, either because they do not monitor the PRDs or because they do not maintain data for any length of time. Indeed, staff discovered several small releases of which the facility was not aware. These involved less than 10 pounds of material so they are exempt from the Rule and would not have had to be reported, but they highlight the possibility that reportable releases could have gone undetected as well. Staff concluded from this review that the potential exists for reportable releases to go undetected by refinery operators, and recommended that Regulation 8-28 should contain explicit monitoring and recordkeeping requirements to alleviate this problem.

B. Technical Assessment Document – December 2002

Staff then conducted a technical assessment of the current Rule that assessed options for further improvements. The resulting Technical Assessment Document ("TAD") echoed the findings of the PRD Audit that facilities are not monitoring all of their PRDs sufficiently to ensure that any reportable release is detected and reported to the District. The TAD recommended that an explicit

monitoring requirement be added to the rule to ensure that all releases can be detected and quantified, among other ideas.

C. Technical Workgroup Meeting – May 9, 2005

Staff next convened a public workgroup meeting to discuss the findings of the Rule Audit and Technical Assessment Document and potential improvements to the rule. The workgroup meeting was held on May 9, 2005, at the District's offices, and was attended by representatives of the five Bay Area refineries, the Western States Petroleum Association ("WSPA"), and Communities for a Better Environment ("CBE"), as well as by staff of the District and the California Air Resources Board. The workgroup discussed the following regulatory concepts:

- Clarification of the term "source" as used in the rule. Representatives of WSPA and the refineries suggested that "source" should be limited to pressure-related equipment, while representatives of CBE suggested that "source" should be defined to include any equipment that could be affected by a process upset, even if it is not pressure-related.
- Making explicit the duty to monitor for PRD releases. All parties were in general agreement that the rule should explicitly require monitoring to detect and characterize PRD releases. Representatives of CBE contended that current monitoring systems are deficient and that the refineries' reported information on releases underestimates actual emissions. Representatives of the refineries contended that current monitoring is sufficient to detect all releases, but agreed that further improvements could be made.
- Requiring telltale indicators on all PRDs. Representatives of WSPA and the refineries contended that pressure monitoring systems are preferable to telltale indicators as methods to detect and quantify releases. They suggested that facilities be given a choice to use telltale indicators or pressure monitors, instead of allowing pressure monitors only where telltale indicators are infeasible.
- Requiring additional controls on PRDs, beyond what is already required by the Rule. Representatives of CBE suggested that the District should require all PRDs to be piped to control systems, and that the District should at least go back and review its previous analyses on what level of controls should be required to determine if its earlier conclusions are still valid.
- Removal of obsolete provisions and other minor non-substantive amendments.

D. Public Workshop Meeting – September 14, 2005

Staff then took this input and developed a draft of the proposed rule amendments, along with a draft staff report. Staff disseminated these documents among interested parties and the public, and then convened an early-evening public workshop meeting in Rodeo, Contra Costa County, to receive public input on them. The meeting was attended by representatives of the refineries, WSPA, Dow Chemical, CBE, the Contra Costa County Health Services Department, and the District, as well as a number of interested individuals. The discussion focused on the following principal areas.

- Success of current approach. Representatives of WSPA noted that the current version of the rule has worked well in reducing the frequency and severity of PRD releases.
- Definition of "source". Representatives of CBE again commented that "source" should not be limited to pressure-related equipment, but should include all equipment in a given process unit. They claimed that this was the intent of the current version of the rule, and that limiting "source" to pressure-related equipment would amount to backsliding.
- Additional control requirements. Representatives of CBE and several members of the public suggested that the District should require all PRDs to be piped to controls. Representatives of CBE commented that such a requirement would be cost-effective, and suggested that staff need to conduct further analysis on that issue. They and other commenters also stated that all PRDs should be controlled regardless of costs. Representatives of CBE claimed that the "Precautionary Principle" states that all feasible pollution prevention measures should be implemented regardless of the costs and that application of that principle here would require controls on all PRDs. Several commenters suggested that a blanket control requirement could be made less onerous by phasing it in over a long lead time.
- Acutely hazardous materials. Representatives of CBE stated that staff should consider requiring controls on all PRDs to reduce the likelihood of a catastrophic release of acutely hazardous materials that could affect workers and nearby residents. They stated that allowing any PRDs to vent to the atmosphere presents an unacceptable risk.
- Fugitive emissions. Representatives of CBE commented that staff needs to consider the potential for reduced fugitive emissions (leaks) from PRDs that would result from requiring all PRDs to be controlled. They commented that this is an additional benefit to a blanket control requirement that staff needs to consider.

At the conclusion of the meeting staff also invited the public to submit written comments on the draft rule and staff report, and several entities did so.

E. Informal Office Meetings with Interested Parties – September 2005

Staff also met individually during this time period (immediately before and after the public workshop) with representatives from the refineries and WSPA, CBE, Contra Costa County Health Services Department, and Dow Chemical to discuss the proposed regulations. Following up on these meetings, each of these entities (except Dow Chemical) also submitted written comments on the public workshop draft summarizing their positions.

F. Further Technical Workgroup Meeting – October 20, 2005

Staff also held a further technical workgroup meeting to discuss additional cost-effectiveness information on which Staff wanted to receive input. Staff also sought additional input on how the term "source" should be defined, and on how to specify minimum requirements for monitoring systems for PRD releases. Some participants also voiced a desire to have the District prohibit the use of atmospheric PRDs altogether.

G. Changes to the Proposal in Response to Public Input

In response to the public input received during this process, Staff took further action in several areas, including the following.

- Telltale indicators and monitoring: Several parties suggested that pressure monitoring systems are better than telltale indicators in many instances. Staff agrees with these commenters, and has removed the preference for telltale indicators that it initially proposed. The current proposal would allow affected facilities to choose whichever system of monitoring they deem most appropriate, as long as it meets the standards set forth in Section 8-28-503. In addition, Staff has made the monitoring requirement more generic so that it can accommodate situations where pressure is not the principal indicator of whether the PRD has released and if so how much material was involved. Any monitoring system will require a demonstration (in a report to the District) of its ability to effectively monitor PRD releases.
- "Source" Definition. Staff initially proposed that "source" be defined as all equipment within a pressure-related system. Commenters pointed out that the intent of the current rule is that "source" is a broader term encompassing all equipment within a given process unit, because of the potential for a process upset leading to a PRD release is not limited to a particular pressure-related systems within a process unit. Staff researched the intent of the current rule further and determined that this is correct. Staff reviewed the rationale behind the intent of the current rule and believes that it is sound from a technical and policy perspective, and so has changed its proposal. Staff now proposes to define "source" as a

process unit, the definition that was intended in the 1997 amendments and has added a definition of "process unit" to clarify the intent of the rule.

- Further cost analysis. In response to comments that staff should re-evaluate the costs and benefits of piping all PRDs to control systems, staff conducted additional cost analysis, and done additional work to verify costs used for the 1997 amendments. Staff contacted major engineering firms to estimate costs from piping and controls regarding the Jacobs Engineering report prepared in connection with the 1997 amendments and found that the costs, as adjusted for inflation to 2005 dollar values, are valid. Engineering firms contacted to validate costs are listed in the Reference Section at the end of this staff report.
- Further catastrophic release analysis. In response to comments that staff should consider provisions directed at preventing catastrophic releases of acutely hazardous materials, staff has reviewed the existing requirements and the work of the Board's Ad Hoc Committee on Accidental Releases in the 1990s. There are numerous federal, state and local ordinances that create programs to plan, prevent and mitigate accidents and releases of materials as a result of accidents. The District has been involved in the development of these programs for various Bay Area facilities, including refineries. Of note is the Contra Costa County Industrial Safety Ordinance (ISO), adopted in 1998. The ISO requires process hazards analyses, implementation of action items from those analyses, review of prevention measures and root cause analyses when accidents occur, strengthening existing review, inspection, auditing, and safety requirements, including public input on results of inspections and audits, and expansion of federal and state programs to additional industrial processes. These issues are addressed in detail in Section IV.B of the Staff Report.
- Fugitive Emissions. Comments suggested that staff should assess fugitive emissions from PRDs. Fugitive emissions from leaks at pressure relief devices were estimated to be 3300 pounds (1.65 tons) per day in 1997. Because of the requirements in Rule 8-28 and in Rule 8-18: Equipment Leaks, inspection programs and stricter standards imposed since 1997 have reduced emissions to approximately 10 pounds per day.

Detailed responses to all of the comments received -in response to the public hearing notice and final draft rule are provided in Appendix B.

XI. CONCLUSIONS

The 1997 amendments to Regulation 8, Rule 28 have been successful in preventing releases, reducing emissions, and requiring control of those pressure relief devices that need it most. The rule has required refiners to consider these releases and integrate control technologies into their future plant modifications.

The proposed amendments to Regulation 8, Rule 28 meet the commitment made as part of 2001 Ozone Attainment Plan Further Study Measure 8. The proposed amendments will enhance the District's ability to enforce the rule and enhance the operator's ability to detect releases. The proposed amendments also clarify the rule so that it can be more easily understood.

Pursuant to the California Health and Safety Code Section 40727, before adopting, amending, or repealing a rule the Board must make findings of necessity, authority, clarity, consistency, non-duplication and reference. The proposed regulation is:

- Necessary to supplement the District's ability to enforce the regulation and ensure that all provisions in the regulation are complied with;
- Authorized by California Health and Safety Code Section 40702;
- Clear, in that the new regulation specifically delineates the affected industries, compliance options and administrative and monitoring 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.

A socioeconomic analysis prepared by Applied Development Economics has found that the proposed amendments would not have a significant economic impact or cause regional job loss. A California Environmental Quality Act analysis prepared by Environmental Audit, Inc., concludes that the proposed amendments would not result in any adverse environmental impacts. A Negative Declaration for the proposed amendments has been prepared and was circulated for comment. All public noticing requirements for adoption of this rule have been met.

Staff recommends the adoption of the proposed amendments to Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants, and approval of a CEQA Negative Declaration.

XII. RESPONSE TO PUBLIC COMMENTS

Staff published the proposed amendments to Regulation 8, Rule 28, on November 7, 2005, and solicited comments from interested parties. Staff received comments from the Western States Petroleum Association ("WSPA") (through its attorneys Pillsbury Winthrop Shaw Pittman LLP); Shell Oil Products US Martinez Refinery ("Shell") (which submitted a comment letter and also an email comment); and Tesoro Refining & Marketing Co. (Tesoro).[xi] Staff has considered all of the comments and has the following responses. The comments and responses are grouped by issue area, in no particular order.

Comment 1: Commenters expressed support for the targeted approach in the current rule, which aims to control "bad actor" sources that experience multiple releases within a 5 year period. (Tesoro comment letter at p. 3.) Commenters expressed significant differences in opinion on how to define a "source" that is a bad actor (as discussed further below), but there has been general agreement that throughout the rulemaking process that the approach of identifying "bad actors" that have a propensity for repeated releases is appropriate.

Response: Staff agrees that the targeted approach is appropriate, and is not proposing any changes to the requirement that the PRDs on a source that experiences repeated releases must be vented to a control system.

Comment 2: Several commenters suggested that releases caused by mechanical failures should not be counted when determining which sources are "bad actors." (Shell Comment Letter at p. 1; WSPA Comment Letter at p. 5, fn. 5.) Presumably, these commenters would prefer to count only releases caused by operator error or some other type of negligent conduct.

Response: Staff disagrees with this comment. Staff believes that any source that experiences multiple release events within a five-year period should be considered a "bad actor," regardless of the reasons for the releases.

Comment 3: A number of commenters contended that the term "source" used to define the "bad actors" regulated under the current rule should be defined as a pressure-related system of equipment, and not as an entire Process Unit as the current rule does. Commenters supported their position by contending that process upsets resulting in overpressures and ultimately in PRD releases are limited to individual pressure systems and cannot cascade from one pressure system to another, contrary to statements in the Staff Report. Commenters also

[xi] After the close of the public comment period, staff also received a "proprietary and confidential" letter from the Valero Refining Company. As the letter was not received during the public comment period and it purports to be a confidential communication that the District cannot make public, Staff do not believe this letter to be a public comment that the District must consider and respond to. But the relevant points raised in the letter are essentially the same as those raised in other public comments, and so Staff are responding to the substance of the points Valero raised through these Responses.

contended that the PRD release Prevention Measures required by the current rule are always implemented on a pressure-system basis and never on a Process-Unit-wide basis, contrary to statements in the Staff Report. Based on these points, the commenters concluded that there is no technical justification for defining "source" as "Process Unit". (Tesoro Comment Letter at pp. 3-5; WSPA Comment Letter at pp. 5-7.)

Response: Staff continues to believe that it is more appropriate to treat the entire Process Unit as the "bad actor" that needs to be controlled if it demonstrates a propensity for releases. Staff disagrees that upsets that cause PRD releases are necessarily limited to individual pressure-related systems. To the contrary, in many situations a process upset or similar problem that ultimately results in a PRD release could potentially affect any or all of the pressure-related systems within a Process Unit. Using the more limited definition of "source" proposed by these commenters – an individual pressure-related system instead of the entire Process Unit – would therefore allow some "bad actor" units with a demonstrated history of multiple releases to go uncontrolled.

One prime example that illustrates why these commenters' arguments are misplaced is the No. 50 Crude Unit at the Tesoro refinery. Tesoro has had recurring upsets at this Process Unit that have affected multiple pressure systems. According to Tesoro, the problems have arisen when the crude feed pumps experience abrupt rate changes, which causes a "pressure transient throughout the crude train." (*See* Letter from Alan A. Savage III, Environmental Manager, Tesoro Golden Eagle Refinery, to Christine Schaufelberger, Director of Enforcement, BAAQMD, December 11, 2002.) The first time this happened after the provisions of the 1997 Rule took effect, the upset caused PRDs to release on one pressure-related system, the first stage desalter. (See District Episode Nos. 03R32 and 03S04.) Then, the next time it happened the upset caused PRDs to release on a *different* pressure-related system, the second stage desalter. (See District Episode Nos. 03U11 and 03U68.) Tesoro took the position advocated by the refineries now: that the 50 Crude Unit was not a "bad actor" with a history of multiple releases because the repeat releases occurred on separate pressure-related systems – even though they were caused by a common, recurring problem. Tesoro therefore did not vent any of the PRDs involved to control systems, leaving both pressure systems unregulated even though the Unit had a demonstrated history of feed pump problems causing pressure transients and resulting in releases. Further problems then caused more releases at the first stage desalter again. (See District Episode Nos. 03Y27, 04A38, and 04F12.) Tesoro conceded that it had to control that pressure system, but it continued to maintain that the second stage desalter was a different "source" and thus exempt from the control requirement because it was a different pressure system. Again, that approach – which the refineries are urging here – would have left the second stage desalter unregulated, even with a demonstrated history of feed pump problems creating pressure transients that can cause PRD releases from that

pressure system.[xii] This is just one example from the record of releases since the current rule took effect that illustrates why it would be inappropriate to define "source" more narrowly as limited to individual pressure-related systems. To do so would exempt repeated upsets from the regulation where they happen to affect different pressure systems within a common Process Unit.

The commenters are similarly incorrect that the Prevention Measures designed to prevent or minimize releases are applied only on a pressure-system basis. The record indicates that many of the Prevention Measures apply to the entire Process Unit, not simply individual pressure systems. For example, one common type of Prevention Measure is to ensure that Unit operators are adequately trained on how to respond to upset conditions before they can result in a PRD release. This type of Prevention Measure applies to all pressure systems within a Process Unit, and if it should fail as a result of inadequate training the failure could result in a release on any of the pressure systems within the Process Unit. And again, this type of failure has actually happened in the record staff has examined. For example, operator training is one of the Prevention Measures the Tesoro refinery identified for its #1 HDS Process Unit. (*See* Avon Refinery Atmospheric PSV Prevention Measures Report, July 14, 2000.) That Prevention Measure failed when maintenance workers were left in charge of the Process Unit while they were working on the Unit's computer control system. The maintenance workers lacked adequate training to understand the significance of process alarms, and as a result they ignored a high-level alarm on the Unit's prefractionator surge drum, which overfilled and caused a PRD release. (*See* District Episode No. 02N76.) The upset happened to occur in this particular vessel on this particular day, but the problem that led to the PRD release – operators failing to respond to alarms properly – was a Process-Unit-wide problem. It could have led to a release from any of the pressure systems within the Process Unit if they had happened to experience upsets on that particular day. Again, this is just one of many examples in the record of PRD Prevention Measures reports the District has compiled since the current rule was adopted.

These examples, as well as many more like them in the record the District has examined, show why the rule cannot be limited to individual pressure-related systems. The causes of release events are not limited to individual pressure-related systems, and so a regulation limited to individual pressure-related systems would be too narrow.

Comment 4: Several commenters also contended that the term "source" in the current version of the rule that was adopted in 1997 was intended to be limited to pressure-related equipment, not an entire Process Unit. These commenters

[xii] Tesoro eventually controlled the PRDs on both pressure systems. But it maintains that it did so because there were multiple releases on each individual system, not because it viewed the pump problem and ensuing pressure transients as a repeat upset affecting the Process Unit. (*See* Tesoro Comment Letter at 1.)

argue that the District should adopt the narrower definition of "source" to conform to what they contend was the original intent in 1997. (Tesoro Comment Letter at p. 4; WSPA Comment Letter in its entirety.[xiii])

Response: Staff disagrees that the intent behind the current version of the rule adopted in 1997 was to limit the definition of "source" to individual pressure-related systems. The regulatory language adopted in 1997 uses the ambiguous term "source," which could be used to refer to either a Process Unit or a narrower grouping of equipment. But the Staff Report that accompanied the 1997 Amendments and the presentation made at the Public Hearing make it clear that the rule was intended to regulate all PRDs on a Process Unit, requiring telltale indicators after a first release event and requiring controls after a second release event within 5 years. The issue was initially raised by a public comment, which stated that the control requirements triggered by a second release event within five years "should apply to a second release *from any PRD serving the same process unit*, not merely the same PRD nor even those in parallel service." Staff agreed, and made clear that where there is a second release within 5 years from any PRD serving the same process unit, "*any PRD serving the same source (process unit)* must be vented to control." (1997 Staff Report, p. 30, Comment 18 & Response (emphasis added).) Staff also made this interpretation clear at the public hearing at which the Board of Directors adopted the current version of the rule, explaining that in the event of a second release within 5 years, "ultimately, the refinery will be required to vent *all of the devices associated with the process unit* to a gas recovery system or safety flare." (Testimony of Barry Young, Principal Air Quality Engineer, December 9, 1997 (emphasis added).)

The commenters are correct in pointing out that staff used some language that was less than perfectly clear in certain places in the 1997 Staff Report when referring to the PRD groupings that the rule applies to. For example, in some places the 1997 Staff Report uses the term "parallel service", and in some places it suggests that only the individual PRD that experiences two releases must be controlled, and nothing more. (*See* WSPA Comment Letter at p. 7.) But all of those statements were made in discussions of other issues unrelated to the issue of what was intended by the term "source". The only place in the 1997 Staff Report where that issue is squarely addressed is in the Response to Comments cited above, where Staff were unambiguously clear that the term was intended to mean "Process Unit." Taken in conjunction with the discussion at the Public Hearing, there is only one conclusion that can be drawn from the record: the intent behind the 1997 Amendments was that the "sources" covered by Section 304 of the Rule are entire Process Units, not simply individual pressure-related systems within Process Units.

[xiii] WSPA appears to be confused about the year in which the current rule was adopted. The material provisions of the current rule were adopted in 1997. Minor typographical revisions were adopted in 1998, but they did not impact any of the issues involved in the current proposal or any of the points raised by the commenters.

The commenters are also correct in pointing out that the language that staff ultimately proposed for Section 8-28-304.2 in 1997 was less than perfectly clear, stating that upon a second release event within five years on the same "source", "the facility shall vent all the pressure relief devices that vent the second Release Event, including those in parallel service," to a control system. (WSPA Comment Letter at 7.) This language is ambiguous and confusing. It suggests that the group of PRDs that have to be controlled after the second release event "includ[es] those in parallel service," which implies that the group is *larger* than those in parallel service – *i.e.*, all those on the Process Unit. But it does not explicitly use the term "Process Unit," or even the similar term "source" that is used elsewhere in Section 304. As a result, it is impossible to determine conclusively from the language of the regulation by itself what must be controlled. Faced with such ambiguity, one must look to the statements made on the subject in the Staff Report and at the Public Hearing. As outlined above, those statements clearly demonstrate that the intent was that all PRDs on a Process Unit must be controlled when the Process Unit experiences two release events within five years.

Comment 5: Several commenters claimed that applying the regulation to Process Units is inconsistent with the District's past practice. (WSPA Comment Letter at 8-9; Tesoro Comment Letter, pp. 1-2.) One commenter contended that it is "inequitable" to apply the rule to Process Units in light of the District's purportedly inconsistent past practice. (Tesoro Comment Letter, pp. 1-2.)

Response: The District's past practice has been to interpret "source" as "Process Unit", as was intended when the rule was adopted in 1997. This practice was first documented just two months after the current rule was adopted, on February 9, 1998, when WSPA representatives met with District staff to explain that WSPA believed that using a "Process Unit" definition was too burdensome. The refineries contended then – as they do now – that the term "source" was overly broad, and asked that it be narrowed to cover only those PRDs on the individual vessel or other piece of equipment involved in a release, not on the entire Process Unit. District staff disagreed (as Staff continues to do now), and declined to propose narrowing the regulation when minor non-substantive amendments were adopted in March of 1998.[xiv]

The District then applied this same interpretation in 1999 at the Benicia Refinery (operated by Exxon at the time, and now operated by Valero). There, Exxon experienced a PRD release at one of the three towers at its Crude Light Ends Unit, which are each a separate pressure system. Exxon approached the District to ask whether it had to install telltale indicators on all of the PRDs on the Unit, or

[xiv] One commenter appears to suggest that the District's failure to clarify explicitly that "source" was intended to mean Process Unit in the 1998 revisions indicates that the District acquiesced in WSPA's desire to have a narrower definition. (WSPA Comment Letter at p. 7.) But the District's refusal to adopt WSPA's position shows that the District *disagreed* with WSPA's arguments for the narrower definition, *not* that the District agreed.

only those on the pressure system where the release occurred. The District made clear that telltale indicators were required on the entire Unit, and that in the event of a second release event within 5 years all 4 of the PRDs on the Unit would have to be controlled.[xv] (*See* letter from William de Boisblanc, Director, BAAQMD Permit Services Division, to Eric R. Hengst, Exxon Company, USA, August 16, 1999.)

Finally, the District is also applying this interpretation currently with Tesoro's Alkylation Unit. The Process Unit has experienced the two release events that trigger the requirement to control the PRDs on the Unit. The District will require Tesoro to control all of the PRDs on the Unit by May 1, 2006, one year after the second release event occurred.

The commenters are correct that the Tesoro refinery used the narrower interpretation in connection with the repeated releases at the 50 Crude Unit (described above in connection with Comment 3), and the District did not take action to enforce the broader definition. But the failure of an agency to take enforcement action in a particular situation where a facility has not complied with a regulation does not re-write the regulation to excuse the non-compliance, whatever the reason. And as described above, the 50 Crude Unit is a prime example of why the regulation should not be limited to regulating individual pressure systems. The pump problems and resulting pressure transients that were causing the PRD releases there were affecting multiple pressure systems. Addressing only the individual pressure systems that experienced multiple releases allowed the potential for further releases at the other pressure systems affected by the pump problems and resulting pressure transients. Thus, to the extent this situation was an example of inconsistent application of the regulation, it should be considered as an aberration to be corrected and not as evidence of what was intended by the rule. Indeed, the situation further demonstrates why the language of the rule should be clarified to make its meaning unambiguous.

Comment 6: One commenter also contended that an early draft version of the current proposed amendments that was circulated in connection with a public workshop meeting in August of this year proposed to define "source" as "process component". The commenter pointed out that the definition of "process component" in that early draft was essentially limited to pressure-related equipment and did not encompass the entire Process Unit. The commenter noted that the draft staff report accompanying that workshop draft stated that the

[xv] Valero now contends that there were 8 additional PRDs on equipment "associated with" the Virgin Light Ends Unit for which the District did not require controls. (WSPA Comment Letter at p. 9.) But Valero never brought this issue to the District's attention in 1999. Valero simply asked if it had to address all of the PRDs on the Virgin Light Ends Unit, or simply those on the pressure system that had the release. Faced with that question, the District applied the "Process Unit" approach and responded that all of the PRDs on the Unit needed to be addressed. Had Valero informed the District that there was additional equipment that was also part of the Process Unit, the District would have concluded that it had to be addressed as well.

term “source” was intended to be limited to pressure-related equipment. The commenter contended that these drafts suggest that “source” in the current rule should be limited to pressure-related systems. (WSPA Comment Letter at pp. 8-9.)

Response: The commenter is correct that staff initially concluded that “process component” was a more appropriate definition for “source”. But this was only a preliminary assessment contained in a public workshop draft, which staff prepared in order to publish their initial assessment of the issue and to allow interested parties to comment on it. That is exactly what happened. As detailed in Section X of the Staff Report, the discussion at the public workshop revealed that the intent of the current rule was to regulate all the PRDs on a Process Unit, because the upsets that trigger PRD releases are not limited to particular pressure-related systems. (*See generally* Comments 3 and 4 above and the Responses thereto.) After the public workshop meeting, Staff went back and researched the issue in more detail and concluded that this was correct: “source” should properly be defined as “Process Unit” as was intended in the 1997 Amendments. Given this situation, Staff’s erroneous initial determination in the workshop draft does not suggest that the definition of “source” should be limited to individual pressure systems.

Comment 7: Commenters stated that controlling all PRDs on a Process Unit when the Process Unit experiences two releases within 5 years is costly, and contended that doing so will likely require the refineries to construct new flare systems. These commenters contended that the costs of such control systems are not justified by the resulting emissions reduction benefits. Most of these comments were couched in terms of “cost effectiveness” and suggested that controlling all the PRDs on a problem Process Unit would not be “cost effective.” Commenters also stated that staff have not conducted an adequate cost-effectiveness analysis as required by California law for the use of “Process Unit” as the definition, either in 1997 when the rule was initially adopted or in connection with the current proposed amendments. (Tesoro Comment Letter at pp. 3-5; WSPA Comment Letter at pp. 10-15; Shell Comment Letter at p. 1.)

Response: Staff recognizes that requiring PRDs to be vented to control systems on “bad actor” Process Units that experience two release events within five years may require refineries to incur substantial costs. As explained in the Staff Report, venting PRDs to control systems is costly, regardless of whether a new control system needs to be installed. But for “bad actor” Process Units, such expenditures would achieve important corresponding air quality benefits. Controlling the PRDs on these units will eliminate potentially enormous episodic releases at volatile processes that have demonstrated a propensity for recurring problems. Historically, such releases have resulted in emissions of tens and even hundreds of tons of ozone precursors in a single day – amounts that are very significant from the perspective of preventing violations of the applicable ambient air quality standards for ozone. Where there is a substantial risk of a

release that could contribute to a violation of a public health standard, even very large costs could be justified under certain circumstances. "Bad actor" Process Units that have a demonstrated propensity for releases present such circumstances.

It is important to note that this conclusion holds for "bad actor" units that have demonstrated a propensity for repeat releases, but it is much more tenuous with respect to the bulk of the PRD population that has not shown a high release risk. Where PRDs have a very low potential for upsets and releases, and hence present a far lower ozone concern, it is not possible to justify very large expenditures on control equipment. For this reason, staff continues to believe that a blanket control requirement that *all* existing PRDs be vented to a control system would not be justified given the costs involved, whereas the targeted approach requiring controls only on "bad actor" Process Units is worth the costs involved.

With respect to the comments to the effect that targeting "bad actor" Process Units "does not meet standard tests for cost effectiveness" (Tesoro Comment Letter at p. 1; *see also* WSPA Comment Letter at pp. 10-15.), the commenters have apparently misunderstood the concept of cost-effectiveness. There is no such thing as a "standard test for cost-effectiveness." Cost-effectiveness is a useful tool for comparing alternative emission reduction strategies to determine which alternative can achieve the same goal at the least cost. It is not a bar to adopting certain regulations simply because they may be expensive. To the extent that the concept is applicable here, it would be to compare the rule's current approach with alternative approaches that would achieve the same result in controlling episodic emissions from the "bad actor" PRDs that have demonstrated a propensity for repeat releases (although this is a hypothetical exercise because no such alternative approaches have been identified). It is not appropriate to use "cost-effectiveness" expressed in terms of annual emissions to compare a regulation aimed at episodic emissions with other regulations that address steady-state emissions produced day in and day out at a constant rate, as most District regulations do. This is because episodic releases occur relatively rarely and thus do not present large totals on an annual basis. They may still be a large problem on a daily basis, however, because they can emit large amounts of material in a short time. Using the concept of "cost-effectiveness" as these commenters suggest ignores these benefits of controlling episodic releases.

Finally, with respect to the formal cost-effectiveness analysis required by California law, the targeted control approach set forth in the current rule – regulating "bad actor" Process Units that experience multiple releases within five years – was supported by the cost-effectiveness analysis that was conducted in connection with the adoption of the current rule in 1997. Staff has conducted a further formal cost-effectiveness analysis for the changes that are being proposed to the rule, but the analysis did not revisit the issue with respect to the

targeted control approach because staff is not proposing any changes to this approach. Staff's response to the comments that the "Process Unit" clarification constitutes a change from the existing rule is set forth above in connection with Comment 4.

Comment 8: Commenters contended that applying the regulation to entire Process Units involves certain negative environmental effects because of the natural gas usage and other aspects of flare systems that may be required for "bad actor" Units that demonstrate a propensity for repeat releases. These commenters stated that the District has not conducted a CEQA analysis of these impacts. (Tesoro Comment Letter at pp. 4, 5; WSPA Comment Letter at pp. 15-18.)

Response: Staff recognizes that there are certain environmental impacts associated with flares. Such impacts are outweighed by the potential for very large releases from "bad actor" process units that show a propensity for upsets, however. For example, a small negative impact from emissions from pilot or purge gas used in a flare on a daily basis would be outweighed by the large positive impacts from having a flare in place when a PRD vents a large volume of material to relieve a process overpressure. Staff therefore believes that overall, this rule has a positive effect on the environment.

With respect to the legal requirements of CEQA, the current rule was adopted pursuant to a negative declaration in 1997 that found that the requirement to control PRDs on a Process Unit that experiences multiple releases would have no significant adverse environmental impacts. The District is not changing that requirement in any way, and so there are no additional or different environmental impacts to be analyzed. The District has prepared a CEQA initial study that evaluates the effects of the changes to the rule that staff are proposing. This CEQA document does not address the impacts of the targeted control approach that requires repeat-release Process Units to be controlled because that is not something that is being proposed in this rulemaking. Staff's response to the comments that the "Process Unit" clarification constitutes a change from the existing rule is set forth above in connection with Comment 4.

Comment 9: Several commenters identified certain items of equipment at certain refineries that the commenters claim would be inappropriately grouped together for regulatory purposes under the "Process Unit" definition. These commenters were concerned that if they have two releases from such equipment within 5 years, the rule would unfairly require them to control all of the PRDs on all of the equipment involved. (Tesoro Comment Letter pp. 4-5, Summary Points 1 & 5; Shell Comment Letter at p. 1; Valero communication referenced in footnote 1 above.)

Response: How the regulation applies to individual pieces of equipment at individual facilities is necessarily a fact-specific determination that must be made

on a case-by-case basis after a full investigation of all relevant circumstances. Staff are not in a position in the context of a rulemaking effort to provide a conclusive determination of how the regulation will work in hypothetical future situations. As a result, Staff cannot provide a meaningful response to these comments regarding particular Process Units at particular refineries.

As a general principle, however, Staff intends to apply the regulation in a reasonable manner, and does not intend to require controls in situations where it would be ill-advised from an air quality perspective. Staff has built in a mechanism to achieve this goal in Section 8-28-409 of the proposed amendments, which requires each refinery to submit to the District a list of the Process Units that are equipped with PRDs, as the refineries would define them. Staff will then have an opportunity to determine how to define the equipment subject to the rule in an appropriate manner so that the unreasonable outcomes these refineries fear will be avoided. If it is truly not possible to avoid significant unreasonable outcomes with the current "Process Unit" approach, it will always remain possible to propose further amendments to address any problems that become evident as the rule is implemented, while avoiding the pitfalls associated with the refineries' narrower approach that are outlined above.

Comment 10: One commenter noted that the current rule contains an exception to the requirement to implement at least three redundant Prevention Measures for each PRD that allows facilities to implement fewer than three prevention measures for a particular PRD on the condition that the control requirements are triggered after a single release rather than after two releases. The proposed amendments delete the option of having fewer than three prevention measures, but do not provide a future compliance date. The commenter stated that the lack of a future compliance date means that in some cases facilities may be out of compliance immediately upon adoption. (Shell e-mail comment.)

Response: Staff has made a change to the proposed amendments to correct this oversight, which would provide a six month period to allow facilities to implement three prevention measures for each PRD. This revision is not a substantive change to the proposed amendments, and does not require a new public notice and comment period or continuation of the public hearing in order to be adopted.

Comment 11: Although no public commenter raised this issue, District staff have discovered that one release event that occurred since the current rule took effect was inadvertently left out of the baseline emissions inventory Staff used to calculate the emissions reductions expected from the rule (and related calculations) in the original version of the Staff Report.

Response: Staff have corrected the oversight and have calculated the correct numbers. These numbers are set forth in the revised version that is being made available in connection with this Response to Public Comments. None of these

changes affects the conclusions reached in the Staff Report or the proposed amendments to the rule.

XIII REFERENCES

[1] Crosby® Pressure Relief Valve Engineering Handbook, Technical Document No. TP-V300, May 1997.

[2] Crosby® Series Technical Brochure: JOS-E, JBS-E, JLT-JPS-E, JLT-JBS-E, JOS-H-E; Spring Loaded Pressure Relief Valves; 2005

[3] Testimony of Mr. Jim Karas, BAAQMD Air Quality Engineering Manager, Meeting of BAAQMD Ad Hoc Committee on Accidental Releases, October 26, 1995.

[4] Final Staff Report, Control of Episodic Releases Of VOCs From Pressure Relief Devices at Petroleum Refineries, Dec. 9, 1997, p. 30.

[5] Testimony of Mr. Barry Young, Principal Air Quality Engineer, Public Meeting of the BAAQMD Board of Directors, Dec. 9, 1997.

[6] Final Staff Report, Control of Episodic Releases of VOCs from Pressure Relief Devices at Petroleum Refineries, December 9, 1997, page 11.

[7] Kathy Wheeler, Shell – Telephone conversation with District staff, June 1, 2005.

[8] Lisa Polos, ConocoPhillips – Telephone conversation with District staff, June 2, 2005.

[9] Omega Engineering, Inc. – Telephone conversation with District staff, June 1, 2005.

[10] John Parker, Accutech Industrial Solutions – Presentation to District staff, June 21, 2005.

[11] Jacobs Engineering Group Inc., Pressure Valve Cost Study, prepared for Western States Pretroleum Ass'n, Concord, CA (July 1993).

[12] Bureau of Labor Statistics: Consumer Price Index for the San Francisco-Oakland-San Jose, CA Metropolitan Area: Series Id: CUURA422SA0, CUUSA422SA0.

[13] Solomon Associates: http://www.solomononline.com/.

[14] Turner Construction Company, Cost Index.

[15] Bob Ferraro, Regional Sales Manager, John Zink Company, Email, Subject: Order of Magnitude Cost Estimates for refinery relief systems; September 23, 2005.

[16] United States Environmental Protection Agency: "Air Pollution Control Technology Fact Sheet, Thermal Incineration, August 14, 2003; Document Number EPA-452/F-03-022.

[17] Mike DeLeon, Tesoro – Telephone conversation with District Staff, October 13, 2005.

[18] Cost Estimating Spreadsheet, Rex Kenyon & Associates (undated, provided Oct. 11, 2005).

[19] Atmospheric Relief Valve Cost Estimates, Shell Martinez Refinery (Rev. 5: February 2005)

[20] Mike DeLeon, Tesoro – Telephone conversation with District staff, May 26, 2005.

[21] Letter from Clark Hopper, Environmental Manager, Valero Refining Co., to Kelly Wee, Director Of Enforcement, BAAQMD, August 28, 2003, p. 3.

SOCIOECONOMIC
ANALYSIS
PROPOSED RULE

REGULATION 8, RULE 28: EPISODIC RELEASES FROM PRESSURE RELIEF DEVICES AT PETROLEUM REFINERIES AND CHEMICAL PLANTS

November 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 amendments to Regulation 8, Rule 28 in order achieve and maintain state ambient air quality standards for ozone, and reduce episodic releases from atmospheric pressure relief devices in petroleum refineries. Following this summary, 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 amendments along with the socioeconomic impacts of the proposed amendments. The proposed amendments will assist the BAAQMD in meeting its commitments to improving air quality in the region by improving the clarity and enforceability of Regulation 8, Rule 28.

SUMMARY

The proposed rule affects Pressure Relief Devices (PRD) at the five oil refineries in the San Francisco Bay Area region. 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 amendments would require refineries to submit reports identifying all of their affected equipment and demonstrating that they have the capability to detect and record a Release Event from any of their PRDs. Compliance is expected to cost approximately $65,300 District-wide.

The socioeconomic analysis evaluates the compliance costs in relation to the financial characteristics of the affected facilities to determine the significance of the economic impact of the proposed rule amendments. The compliance cost represents approximately 0.01 percent of profits for the affected

facilities, well 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 job losses. 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

CURRENT STATUS OF THE RULE

Regulation 8, Rule 28, which addresses episodic emissions of both organic and inorganic compounds from Pressure Relief Devices (PRD) located at petroleum refineries and chemical plants, was last amended in 1998. For petroleum refineries, the rule requires that facilities report to the District any releases over 10 pounds from a PRD and that certain substantive measures be taken to reduce the likelihood of releases. For chemical plants, the rule requires only release reporting (releases of 10 pounds or more). The existing rule requirements are summarized below:

1) **New and Modified Sources**: PRDs at new and modified sources at petroleum refineries must vent to a fuel gas recovery system, furnace, or flare with a control efficiency of at least 98 percent

2) **Existing Sources**: Any PRD in organic compound service at an existing source at a petroleum refinery must implement specified prevention procedures to minimize releases.[1]

3) **Releases from PRDs**: Within 90 days of a reportable Release Event a facility must:

    a. Conduct a process hazard analysis including an evaluation of the cost effectiveness and technological feasibility of controls
    b. Implement prevention measures (to the extent they have not already been implemented)
    c. Conduct a failure analysis to discover the cause of the release and prevent recurrences

[1] The prevention measure procedures include: 1) establishing training, equipment, inspection, maintenance and monitoring requirements; and 2) implementing prevention measures such as process flow, temperature, level, and pressure indicators with interlocks; documented and verified routine inspection and maintenance programs; inherently safer design; and deluge systems.

All PRDs on the source that experienced the Release Event must be equipped with a telltale indicator and evaluated for control within 120 days of the Release Event. All PRDs on any source that experiences two or more Release Events within five years must be vented to a control device.

4) **Reporting Requirements for Refineries and Chemical Plants**: Following all Release Events: 1) the Event must be reported by the next working day; 2) the associated PRDs must be inspected within five days; and, 3) a report must be submitted to the District within 30 days.[2]

   The requirement to report this information implies that facilities must monitor PRDs to determine whether a Release Event has occurred and if so, the duration, cause, type and amount of material released. There is no explicit monitoring requirement in the rule, however.

PROPOSED RULE AMENDMENTS

In 2005, building upon the District's 2002 audit of PRDs located at the five refineries located in the San Francisco Bay Area (Bay Area), District staff evaluated the rule and developed a set of recommendations to improve its effectiveness. Based upon those recommendations, staff is proposing the following amendments to the Rule:

1. Require facilities to ensure that they have the capability to detect and quantify all release events, including small releases of 10 pounds (the reporting threshold), and require facilities to demonstrate this capability to the District;
2. Require data recording and recordkeeping for venting and emissions verification;

[2] The report must include: 1) date, time, and duration of Release Event; 2) device that experienced the Event; 3) District-assigned release number; 4) type and size of device; 5) type and amount of material released; 6) information used to estimate duration and amount released; 7) cause of release; 8) schedule prevention of re-occurrence action; and, 9) results of fugitive emission inspection.

3. Clearly define the equipment subject to the rule as the process unit to ensure that the original intent of the rule – to regulate all PRDs on an individual source (i.e., process unit) in the same manner – is clarified;
4. Require facilities to report to the District their analysis of the root causes and potential corrective actions after each PRD release event;
5. Make minor, non-substantive changes to the rule such as deleting obsolete references to "turnarounds," moving requirements where appropriate, and clarifying various sections of the rule.

EMISSIONS REDUCTIONS

Since the 1998 amendments took effect, there have been 42 Release Events reported by the five Bay Area refineries according to Release Event Reports submitted to the District. These 42 Release Events vented 125 tons of VOC emissions, according to the refineries' calculations. The 125 tons of reported VOC emissions translates to average emissions of approximately 17.9 tons per year.

Ensuring that facilities are using comprehensive monitoring systems will ensure that facilities are fully aware of release events, which will allow operators to better target their release prevention and mitigation efforts and will ensure that repeat-release "bad actors" and identified and subjected to additional control requirements. These effects, in turn, are expected to lead to fewer release events and reduced emissions.

US EPA has estimated from time to time in various rulemakings that enhanced monitoring can result in a ten to twenty percent emissions reduction. Here, staff believes that the proposal to add an explicit monitoring requirement should more appropriately to use a five percent emissions reduction factor, because many PRDs are already subject some form of monitoring and it appears that most releases – and especially the larger ones – are being detected.

Using the 17.9 tons-per-year average emissions figures from the period 1998-2005, a 5% reduction would result in approximately 0.9 fewer tons of emissions per year.

3. IMPACT OF PROPOSED RULE AMENDMENTS

This section of the socioeconomic analysis describes demographic and economic trends in the San Francisco Bay Area (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, Petroleum Refining (NAICS 32411) and how the proposed changes to Rule 8-28 concerning episodic releases from pressure relief devices (PRDs) would impact the refineries in the Bay Area. 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.

3.1 METHODOLOGY

The socioeconomic analysis of the proposed rule amendments concerning episodic releases of PRDs involves the use of information provided directly by BAAQMD, as well as secondary data used to describe the industries affected by the proposed rule amendments.

Based on conversations with BAAQMD staff, ADE determined that the impacts would affect the oil refineries in the BAAQMD region: 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 PRD rule

amendments. 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 job losses appear likely, the indirect multiplier effects of the job losses area estimated using a regional IMPLAN input-output model.

3.2 REGIONAL DEMOGRAPHIC TRENDS

The Bay Area experienced moderate population growth from 1994 to 2004. Between 1994 and 1999, the nine-county region increased by 7 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. 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 the proposed PRD rule amendments 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 job 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 proposed PRD rule amendments affect industries in SIC 2911, Oil Refining (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 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 proposed PRD rule amendments. 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	Estimated Payroll
5	$9,837,599,000	1,935	$172,194,000

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 equal 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 proposed rule amendments require that each affected refinery prepare and submit to the District a "Monitoring System Demonstration Report." This report would provide information that would demonstrate that the refineries have adequate monitoring systems in place for all of their atmospheric PRDs subject to the rule. Section 8-28-407 is proposed to require facilities to submit a monitoring demonstration report that will enable staff to enforce the monitoring requirements. The report will require descriptions of the monitoring equipment, operating parameters and engineering calculations used to quantify emissions releases. District Staff have estimated that preparing the needed information for inclusion in the report for each PRD would take about two man-hours per PRD. (Most of this information if already available and must be utilized in the event of a release event and the subsequent report to the District.) The hour labor cost is estimated to be approximately $100 per hour. Because there are 324 PRDs in total at the five Bay Area refineries, the District estimates that the total one time cost of this provision to be about $64,800.

The proposed amendments also require each affected refinery to provide a listing of each process unit equipped with atmospheric PRDs and the associated PRDs. This information is already generally available and would not require any additional man-hours to generate. Preparation of the report for submission should take no longer than an hour for each refinery. District Staff have therefore estimated the

cost associated with this provision to be approximately $100 per refinery; this translates to $500 District-wide.

District staff have also recognized that some facilities may have to install additional monitoring equipment to be able to demonstrate that they can detect releases as required by the rule, which could cost approximately $1,500 per PRD. The requirement to have such equipment is already an implied requirement of the existing rule, however. The current proposal simply makes the requirement explicit and establishes minimum standards for such equipment. As such, any costs facilities will incur for new equipment are not attributable to the proposed amendments. Moreover, District staff expect these costs to be relatively small, as few PRDs will need additional equipment.

Therefore, the total one time compliance cost that would result from the proposed amendments would be approximately $65,300.

3.6 BUSINESS RESPONSE TO COMPLIANCE COSTS

Sites impacted by the proposed PRD rule amendments 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 all together. 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 PRD rule amendments, 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 PRD rule amendments and their impact on profits. Affected refineries will incur an initial cost of approximately $**65,300.** This cost represents an estimated **0.01** percent of profits for the oil refineries affected by the proposed PRD rule amendments. This cost impact is far below the 10% of profits above which facilities would experience serious economic effects.

Table 6
Impact of Proposed Changes on Estimated Profits at Bay Area Oil Refineries

Impacted Refineries	Estimated Profits Generated	Cost of Compliance	Cost as a % of profits
5	$688,632,000	$65,300	0.01

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

Furthermore, even if facilities had to incur costs for installing additional monitoring equipment of 5 times this cost, and these costs were considered to be required by the proposed amendments rather than required under the current rule, the cost of compliance would still be only **0.05** percent of profits. Even under this conservative assumption, the impact would still be far below the 10% significant impact threshold.

3.8 IMPACT ON SMALL BUSINESSES

In addition to analyzing the employment impacts the proposed PRD rule amendments, state legislation requires

that the socioeconomic analysis assess whether small businesses are disproportionately affected by air quality rules.

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:

- 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 PRD rule amendments 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 proposed PRD rule amendments employ, on average, 387 workers (and far more when affiliates are included), 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 the proposed PRD rule amendments do not disproportionately affect small businesses because the sources impacted by the proposed changes do not meet California's definition of small business.

Initial Study/Negative Declaration for the Amendments to Bay Area Air Quality Management District Regulation 8, Rule 28

Prepared for:

Bay Area Air Quality Management Distict
939 Ellis Street
San Francisco, CA 94109
Contact: Victor Douglas
(415) 749-4752

Prepared By:

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

November 2005

Chapter 1

Chapter 2

Chapter 3

TABLES:

M:\DBS\2421-BAAQMD-\2421-R8TOC.doc

Chapter 1

Introduction

Purpose of this Document

This Initial Study/Negative Declaration (IS/ND) assesses the environmental impacts of the proposed adoption of amendments to Regulation 8, Rule 28, by the Bay Area Air Quality Management District (BAAQMD or District) as required by the California Environmental Quality Act (CEQA) and in compliance with the state CEQA Guidelines (Title 14 California Code of Regulations §1400 et seq.). An IS/ND serves as an informational document to be used in the decision-making process for a public agency that intends to carry out a project; it does not recommend approval or denial of the project analyzed in the document. The BAAQMD is the lead agency under CEQA and must consider the impacts of the proposed rule amendments when determining whether to adopt them. The BAAQMD has prepared this IS/ND because no significant adverse impacts would result from the proposed rule amendments.

Scope of this Document

This document evaluates the potential impacts of the proposed amendments on the following resource areas:

- aesthetics,
- agricultural resources,
- air quality,
- biological resources,
- cultural resources,
- geology and soils,
- hazards and hazardous materials
- hydrology and water quality,
- land use planning,
- mineral resources,
- noise,

- population and housing,
- public services,
- recreation,
- transportation and traffic, and
- utilities and service systems.

Impact Terminology

The following terminology is used in this IS/ND to describe the levels of significance of impacts that would result from the proposed rule amendments:

- An impact is considered *beneficial* when the analysis concludes that the project would have a positive effect on a particular resource.
- A conclusion of *no impact* is appropriate when the analysis concludes that there would be no impact on a particular resource from the proposed project.
- An impact is considered *less than significant* if the analysis concludes that an impact on a particular resource topic would not be significant (i.e., would not exceed certain criteria or guidelines established by BAAQMD). 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.
- An impact is considered *less than significant with mitigation incorporated* if the analysis concludes that an impact on a particular resource topic would be significant (i.e., would exceed certain criteria or guidelines established by BAAQMD), but would be reduced to a less than significant level through the implementation of mitigation measures.

Organization of This Document

The content and format of this document, described below, are designed to meet the requirements of CEQA.

- Chapter 1, "Introduction," identifies the purpose, scope, and terminology of the document.
- Chapter 2, "Description of the Proposed Rule," provides background information of Regulation 8, Rule 28, describes the proposed rule amendments, and describes the area and facilities that would be affected by the amendments.

- Chapter 3, "Environmental Checklist," presents the checklist responses for each resource topic. This chapter includes a brief setting description for each resource area and identifies the impact of the proposed rule amendments on the resources topics listed in the checklist.

- Chapter 4, "References Cited," identifies all printed references and personal communications cited in this report.

Chapter 2

Description of the Proposed Rule

Background

Pressure relief devices are a means to safely relieve excessive pressures to protect process equipment, piping and other components to prevent the rupture of equipment or other safety hazards. PRDs are designed to vent, or "lift", at a prescribed "set pressure" to relieve excess pressure before it can exceed safe operating and/or equipment design levels. In most new refinery construction, PRDs in VOC service relieve to a control system such as a safety flare or thermal oxidizer. However, many older installations still have PRDs that vent directly to the atmosphere, resulting in the emission of VOCs and/or other material when the PRDs lift or if the valve leaks at pressures below the set point. These PRDs are called "atmospheric" PRDs.

Bay Area 2001 Ozone Plan Further Study Measure FS-8 committed the Bay Area Air Quality Management District to examining whether there is the potential for reducing emissions of ozone precursors from PRDs at petroleum refineries. PRDs are currently regulated under District Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants. For chemical plants, the rule requires only that facilities report any releases of over 10 pounds from a PRD to the District. For petroleum refineries, the rule requires release reporting and also requires certain substantive measures to reduce the likelihood of releases.

In accordance with FS-8, District staff conducted an audit of refinery PRDs and drafted a technical assessment document, both in 2002. District staff also reviewed release event reports submitted to the District by the affected facilities since the implementation of the 1997 amendments to Regulation 8, Rule 28, visited refineries and chemical plants, interviewed refinery staff, and discussed concerns with District staff to get a complete understanding of how the rule is being implemented. Based on these investigations, Staff are proposing the following amendments to Regulation 8, Rule 28:

1. Require facilities to ensure that they have the capability to detect and quantify all release events, including small releases of 10 pounds (the reporting threshold), and require facilities to demonstrate this capability to the District;
2. Require data recording and recordkeeping for venting and emissions verification;
3. Clearly define the equipment subject to the rule as the process unit to ensure that the original intent of the rule – to regulate all PRDs on an individual source (i.e., process unit) in the same manner – is clarified;
4. Require facilities to report to the District their analysis of the root causes and potential corrective actions after each PRD release event;

5. Make minor, non-substantive changes to the rule such as deleting obsolete references to "turnarounds," moving requirements where appropriate, and clarifying various sections of the rule.

Objectives

The objectives of the proposed rule amendments are to help reduce emissions of ozone forming compounds (e.g., VOCs) by making Regulation 8, Rule 28 clearer and more easily enforceable.

The U.S. Environmental Protection Agency (U.S. EPA) has set primary national ambient air quality standards for ozone and other air pollutants to define the levels considered safe for human health. CARB has also set a California ozone standard. The BAAQMD is seeking re-designation to attainment for the federal 1-hour standard for ozone and is a non-attainment area for the state 1-hour standard and federal 8-hour standard. Under the requirements of the federal Clean Air Act (CAA), non-attainment areas must prepare ozone attainment demonstrations showing how they will attain the federal standard. The most recent federal attainment demonstration is the Bay Area 2001 Ozone Attainment Plan. Similarly, the California Clean Air Act of 1988 requires areas that do not comply with the standard to prepare ozone attainment plans. The most recent state plan is the Bay Area 2000 Clean Air Plan.

Both federal and state plans include measures to reduce emissions of the pollutants that form ozone, i.e., nitrogen oxides and volatile organic compounds. These measures may be already adopted rules or proposal to adopt new regulations or amendments to existing regulations. As noted, Regulation 8, Rule 28 would improve enforcement of pressure relief devices.

Affected Area

The proposed rule amendments would apply to refineries and chemical plants 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.

The majority of the facilities affected by the proposed rule amendments are located within Contra Costa County and Solano County (see Figure 1) adjacent to the San Francisco Bay.

Chapter 3

Environmental Checklist

ENVIRONMENTAL CHECKLIST FORM

1. Project Title:	Bay Area Air Quality Management District (BAAQMD) Proposed Amendments to Regulation 8, Rule 28.
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:	Victor Douglas, Planning and Research Division 415/749-4752 or vdouglas@baaqmd.gov
4. Project Location:	This rule amendment 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 and Solano Counties.
5. Project Sponsor's Name and Address:	Bay Area Air Quality Management District 939 Ellis Street San Francisco, California 94109
6. General Plan Designation:	The rule amendments apply to refineries and chemical plants which are usually located in heavy manufacturing or industrial areas.
7. Zoning	The rule amendments apply to refineries and chemical plants that are usually located in heavy manufacturing or industrial areas.
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 one impact that is a "Potentially Significant Impact"), as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Hazards & 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 the proposed project COULD NOT have a significant effect on the environment, and that 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 significant effects 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 MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ 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 proposed project, nothing further is required.

_____ _____

Signature Date

_____ _____

Printed Name For

		Potentially Significant Impact	Less Than Significant Impact 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, 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 refineries and chemical plants affected by the proposed rule amendments are generally located in industrial areas, with the majority in industrial portions of Contra Costa and Solano Counties. Scenic highways or corridors are generally not located in the vicinity of industrial areas.

Regulatory Background

Visual resources are generally protected by the City and/or County General Plans through land use and zoning requirements.

Discussion of Impacts

I a-d: The proposed amendments to Regulation 8, Rule 28 would enhance existing requirements for pressure relief devices (PRDs) at existing petroleum refineries and chemical plants in the Bay Area. PRDs are small devices within refinery or plant units and not visible to areas outside of

the facilities. The proposed amendments are not expected to require new structures that would be visible to areas outside of the refinery or plant.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURE 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

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. Some of these agricultural lands are under Williamson Act contracts.

The refineries and chemical plants affected by the proposed rule amendments are generally located in heavy industrial areas, with the majority in industrial portions of Contra Costa and Solano Counties. Agricultural resources are generally not located in the vicinity of heavy industrial areas.

Regulatory Background

Agricultural resources are generally protected by the City and/or County General Plans, Community Plans through land use and zoning requirements, as well as any applicable specific plans, ordinances, local coastal plans, and redevelopment plans.

Discussion of Impacts

II a-c: The proposed amendments to Regulation 8, Rule 28 would enhance existing requirements for PRDs at existing petroleum refineries and chemical plants in the Bay Area. The amendments would not require construction or any other activities with impacts outside of the boundaries of existing industrial facilities. The refineries and chemical plants are located within heavy industrial areas. Therefore, no significant adverse impacts on agricultural resources are expected.

	Potentially Significant Impact	Less Than Significant Impact 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 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?	☐	☐	☐	☑
f) Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?	☐	☐	☐	☑

Setting

Meteorological Conditions

The summer climate of the West Coast is dominated by a semipermanent high centered over the northeastern Pacific Ocean. Because this high pressure cell is quite persistent, storms rarely affect the California coast during the summer. Thus the conditions that persist along the coast of California during summer are a northwest air flow and negligible precipitation. A thermal low pressure area from the Sonoran-Mojave Desert also causes air to flow onshore over the San Francisco Bay Area much of the summer.

In winter, the Pacific High weakens and shifts southward, upwelling ceases, and winter storms become frequent. Almost all of the Bay Area's annual precipitation takes place in the November through April period. During the winter rainy periods, inversions are weak or nonexistent, winds are often moderate and air pollution potential is low. During winter periods when the Pacific high becomes dominant, inversions become strong and often are surface based; winds are light and pollution potential is high. These periods are characterized by winds that flow out of the Central Valley into the Bay Area and often include tule fog.

Topography

The San Francisco Bay Area is characterized by complex terrain consisting of coastal mountain ranges, inland valleys and bays. Elevations of 1,500 feet are common in the higher terrain of this area. Normal wind flow over the area becomes distorted in the lower elevations, especially when the wind velocity is not strong. This distortion is reduced when stronger winds and unstable air masses move over the areas. The distortion is greatest when low level inversions are present with the surface air, beneath the inversion, flowing independently of the air above the inversion.

Winds

In summer, the northwest winds to the west of the Pacific coastline are drawn into the interior through the Golden Gate and over the lower portions of the San Francisco Peninsula. Immediately to the south of Mount Tamalpais, the northwesterly winds accelerate considerably and come more nearly from the west as they stream through the Golden Gate. This channeling of the flow through the Golden Gate produces a jet that sweeps eastward but widens downstream producing southwest winds at Berkeley and northwest winds at San Jose; a branch curves eastward through the Carquinez Straits and into the Central Valley. Wind speeds may be locally strong in regions where air is channeled through a narrow opening such as the Carquinez Strait, the Golden Gate, or San Bruno Gap.

In winter, the Bay Area experiences periods of storminess and moderate-to-strong winds and periods of stagnation with very light winds. Winter stagnation episodes are characterized by outflow from the Central Valley, nighttime drainage flows in coastal valleys, week onshore flows in the afternoon and otherwise light and variable winds.

Temperature

In summer, the distribution of temperature near the surface over the Bay Area is determined in large part by the effect of the differential heating between land and water surfaces. This process produces a large-scale gradient between the coast and the Central Valley as well as small-scale local gradients along the shorelines of the ocean and bays. The winter mean temperature high and lows reverse the summer relationship in that daytime variations are small while mean minimum nighttime temperatures show large differences and strong gradients. The moderating effect of the ocean influences warmer minimums along the coast and penetrating the Bay. The coldest temperatures are in the sheltered valleys, implying strong radiation inversions and very limited vertical diffusion.

Inversions

A primary factor in air quality is the mixing depth, i.e., the vertical dimension available for dilution of contaminant sources near the ground. Over the Bay Area the frequent occurrence of temperature inversions limits this mixing depth and consequently limits the availability of air for dilution. A temperature inversion may be described as a layer or layers of warmer air over cooler air.

Precipitation

The San Francisco Bay Area climate is characterized by moderately wet winters and dry summers. Winter rains (December through March) account for about 75 percent of the average annual rainfall; about 90 percent of the annual total rainfall is received in November to April period; and between June and September, normal rainfall is typically less than 0.10 inches. Annual precipitation amounts show greater differences in short distances. Annual totals exceed 40 inches in the mountains and are less than 15 inches in the sheltered valleys.

Pollution Potential

The Bay Area is subject to a combination of physiographic and climatic factors which result in a low potential for pollutant buildups near the coast and a high potential in sheltered inland valleys. In summer, areas with high average maximum temperatures tend to be sheltered inland valleys with abundant sunshine and light winds. Areas with low average maximum temperatures are exposed to the prevailing ocean breeze and experience frequent fog or stratus. Locations with warm summer days have a higher pollution potential than the cooler locations along the coast and bays.

In winter, pollution potential is related to the nighttime minimum temperature. Low minimum temperatures are associated with strong radiation inversions in inland valleys that are protected from the moderating influences of the ocean and bays. Conversely, coastal locations experience higher average nighttime temperatures, weaker inversions, stronger breezes and consequently less air pollution potential.

Air Quality

Criteria Pollutants

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 (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 for each of these pollutants and their effects on health are summarized in Table 3-1. The BAAQMD monitors levels of various criteria pollutants at 26 monitoring stations. The 2002 air quality data from the BAAQMD's monitoring stations are presented in Table 3-2.

Air quality conditions in the San Francisco Bay Area have improved since the Air 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 3-3). The Air District is in attainment of the State and federal ambient air quality standards for CO, nitrogen oxides (NOx), and sulfur oxides (SOx). The Air 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. However, the Air District does not comply with the State 24-hour PM10 standard.

The 2004 air quality data from the BAAQMD monitoring stations are presented in Table 3-2. All monitoring stations were below the standard and federal ambient air quality standards for CO, NO_2, and SO_2. The federal 1-hour ozone standard was not exceeded in 2004. Based on the Bay Area ozone record for 2001-2003, the U.S. EPA has determined that the Bay Area has attained the federal 1-hour ozone standard. The federal 8-hour standard was not exceeded in the District in 2004. The Bay Area is designated as a non-attainment area for the California 1-hour ozone standard. The state 1-hour ozone standard was exceeded on 7 days in 2004 in the District, most frequently in the Eastern District (Livermore) (see Table 3-2).

All monitoring stations were in compliance with the federal PM10 standards. The California PM10 standards were exceeded on seven days in 2004, most frequently in San Jose. The Air District exceeded the federal PM2.5 standard on one day (at Concord) in 2004 (see Table 3-4).

TABLE 3-1

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. > 0.070 ppm, 8-hr	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)	20 $\mu g/m^3$, annarithmetic mean > 50 $\mu g/m^3$, 24-hr average>	50 $\mu g/m^3$, annual arithmetic mean > 65 $\mu g/m^3$, 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 70%, 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
BAY AREA AIR POLLUTION SUMMARY 2004

MONITORING STATIONS	Ozone							CARBON MONOXIDE			NITROGEN DIOXIDE			SULFUR DIOXIDE			PM10				PM2.5				
	Max 1-Hr	Nat Days	Cal Days	3-Yr Avg	Max 8-Hr	Nat Days	3-Yr Avg	Max 1-Hr	Max 8-Hr	Nat/ Cal Days	Max 1-Hr	Ann Avg	Nat/ Cal Days	Max 24-Hr	Ann Avg	Nat/ Cal Days	Ann Avg	Max 24-Hr	Nat Day	Cal Days	Max 24-Hr	Nat Days	3-Yr Avg	Ann Avg	3-Yr Avg
NORTH COUNTIES	(pphm)							(ppm)			(pphm)			(ppb)			($\mu g/m^3$)				($\mu g/m^3$)			($\mu g/m^3$)	
Napa	9	0	0	0.0	7	0	6.6	3.7	2.0	0	6	1.1	0	--	--	--	20.7	60	0	1	--	--	--	--	--
San Rafael	9	0	0	0.0	6	0	4.9	3.2	2.0	0	6	1.5	0	--	--	--	17.9	52	0	1	--	--	--	--	--
Santa Rosa	8	0	0	0.0	6	0	5.1	2.7	1.6	0	5	1.1	0	--	--	--	18.0	48	0	0	27	0	32	8.3	9
Vallejo	10	0	1	0.0	7	0	6.5	4.0	3.4	0	5	1.2	0	5	1.3	0	19.6	51	0	1	40	0	39	11.1	11
COAST & CENTRAL BAY																									
Oakland	8	0	0	0.0	6	0	4.0	3.5	2.6	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Richmond	--	--	--	--	--	--	--	--	--	--	--	--	--	5	1.6	0	--	--	--	--	--	--	--	--	--
San Francisco	9	0	0	0.0	6	0	4.7	2.9	2.2	0	6	1.7	0	8	1.4	0	22.5	52	0	1	46	0	41	9.9	11
San Pablo	11	0	1	0.0	7	0	5.2	3.2	1.8	0	6	1.3	0	5	1.6	0	21.2	64	0	1	--	--	--	--	--
EASTERN DISTRICT																									
Bethel Island	10	0	1	0.0	8	0	7.5	1.2	0.9	0	3	0.8	0	6	1.6	0	19.5	42	0	0	--	--	--	--	--
Concord	10	0	1	0.0	8	0	7.9	2.7	2.0	0	7	1.2	0	10	1.0	0	18.6	51	0	1	74	1	40*	10.7*	11*
Crockett	--	--	--	--	--	--	--	--	--	--	--	--	--	7	1.7	0	--	--	--	--	--	--	--	--	--
Fairfield	10	0	1	0.0	8	0	7.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Livermore	11	0	5	1.0	8	0	8.3	3.5	1.8	0	6	1.4	0	--	--	--	20.0	49	0	0	41	0	37	10.3	11
Martinez	--	--	--	--	--	--	--	--	--	--	--	--	--	7	1.5	0	--	--	--	--	--	--	--	--	--
Pittsburg	9	0	0	0.0	8	0	7.3	4.1	1.9	0	5	1.1	0	7	2.0	0	21.7	64	0	1	--	--	--	--	--
SOUTH CENTRAL BAY																									
Fremont	9	0	0	0.0	7	0	6.4	3.0	1.7	0	6	1.5	0	--	--	--	18.6	49	0	0	40	0	32	9.4	10
Hayward	9	0	0	0.0	7	0	6.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redwood City	10	0	1	0.0	7	0	6.0	4.8	2.1	0	6	1.5	0	--	--	--	20.5	65	0	1	36	0	32	9.3	9
San Leandro	10	0	1	0.0	7	0	5.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SANTA CLARA VALLEY																									
Gilroy	9	0	0	0.0	8	0	7.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Los Gatos	9	0	0	0.0	8	0	7.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
San Jose Central*	9	0	0	*	7	0	*	4.4	3.0	0	7	1.9	0	--	--	--	23.1	58	0	4	52	0	*	11.6	*
San Jose East	9	0	0	0.0	7	0	6.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
San Jose, Tully Road	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	26.0	65	0	3	45	0	35	10.4	10
San Martin	9	0	0	0.0	8	0	8.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sunnyvale	10	0	1	0.0	8	0	6.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Bay Area Days over Standard		**0**	**7**			**0**				**0**			**0**			**0**			**0**	**7**		**1**			

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

*

TABLE 3-3

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
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
2004	0	7	0	0	0	0	0	0	0	0	0	7	1

* 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.

Toxic Air Pollutants

The BAAQMD also regulates toxic air contaminants (TACs). The BAAQMD maintains a network of monitoring stations to monitor certain TACs 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. The mean ambient concentrations of monitored TACs are listed in Table 3-4 based on monitoring conducted during 2000 for the monitoring stations closest to the refineries. The Richmond station is located at 7th Street downwind from the ChevronTexaco refinery and the Richmond parkway. The Crockett station is located at the end of Kendall Avenue generally downwind of the ConocoPhillips refinery. There are two Concord stations.

TABLE 3-4

CONCENTRATIONS OF TOXIC AIR CONTAMINANTS IN THE BAY AREA[(1)]

CHEMICAL	MONITORING STATION (mean ppb)				
	Crockett	Concord (Treat Blvd)	Richmond	Bethel Island	Concord (Arnold)
Vinyl Chloride	<0.30	<0.30	<0.30	<0.30	<0.30
Methylene Chloride (DCM)	0.30	0.26	0.26	0.30	<0.50
Chloroform (CHCl3)	<0.30	<0.30	0.01	<0.30	<0.30
Ethylene Dichloride	<0.10	<0.10	<0.10	<0.10	<0.10
1,1,1-Trichloroethane (TCA)	0.12	0.06	0.06	0.05	0.20
Carbon Tetrachloride (CCl4)	0.11	0.11	0.10	0.11	0.10
Trichloroethylene (TCE)	<0.08	0.04	0.05	<0.08	<0.08
Benzene	0.20	0.54	0.41	0.26	0.43
Ethylene Dibromide	<0.02	<0.02	<0.02	<0.02	<0.02
Perchloroethylene	0.02	0.04	0.06	0.03	0.05
Toluene	0.35	2.32	1.92	0.49	0.94
MTBE	0.67	0.54	0.69	0.46	0.59

(1) BAAQMD, Toxic Air Contaminant, 2000 Annual Report, December 2001.

The concentrations of TACs at these monitoring stations are similar to concentrations of TACs in the rest of the Bay Area.

Regulatory Background

Criteria Pollutants

At the federal level, the Clean Air Act (CAA) Amendments of 1990 give the U.S. EPA additional authority to require states to reduce emissions of ozone precursors and PM10 in non-attainment 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 local level, California's air districts, including the BAAQMD, are responsible for overseeing stationary source emissions, approving permits, maintaining emission inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality-related sections of environmental documents required by CEQA.

The BAAQMD regulates air contaminants from stationary sources. The 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 BAAQMD 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 air quality planning documents required by both federal and state laws.

Toxic Air Contaminants

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 Hazardous Air Pollutants (HAPs).

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. EPA has promulgated NESHAPs for many of the 189 listed HAPs, although not all have been completed yet.

Many of the sources of TACs that have been identified under the CAA are also subject to the California TAC regulatory programs. CARB developed three regulatory programs for the control of TACs. Each of the programs is discussed in the following subsections.

Control of TACs Under the TAC Identification and Control Program: 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, and CARB adopted a regulation designating all 189 federal HAPs as TACs.

Control of TACs Under the Air Toxics "Hot Spots" Act: 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. Inventory reports must be updated every four years under current state law. The BAAQMD uses a maximum individual cancer risk of 10 in one

million, or an ambient concentration above a non-cancer reference exposure level, as the threshold for notification.

Senate Bill (SB) 1731, enacted in 1992 (California Health and Safety Code §44390 et seq.), amended AB 2588 to include a requirement for facilities with significant risks to prepare and implement a risk reduction plan which will reduce the risk below a defined significant risk level within specified time limits. At a minimum, such facilities must, as quickly as feasible, reduce cancer risk levels that exceed 100 per one million. The BAAQMD adopted risk reduction requirements for perchloroethylene dry cleaners to fulfill the requirements of SB 1731.

Discussion of Impacts

III a. The objective of the proposed rule amendments is to help make Regulation 8, Rule 28 clearer and more easily enforceable. The proposed amendments are part of the District's efforts to implement its local air quality plans. The proposed amendments will therefore not conflict with or obstruct implementation of an applicable air quality plan.

III b, c, d, and f. The proposed amendments will make the rule clearer and more enforceable, which will help further the rule's goal of reducing emissions from PRDs. The rule as it currently exists has been successful in reducing emissions. When the current rule was adopted in 1997, emissions from PRDs were found to be approximately 27 to 150 tons per year. Since the current rule has been in place, emissions have averaged 18 tons per year. Furthermore, since the rule's requirement to implement Prevention Measures took effect, emissions have averaged only 8.6 tons per year. The proposed amendments will ensure that facilities are monitoring their PRDs properly and are maintaining and reporting PRD emissions data so that District enforcement staff can ensure compliance with the rule. By enhancing the current rule in this way, the proposed amendments will help the rule achieve emissions reductions. U.S. EPA has estimated from time to time in various rulemakings that enhanced monitoring can result in a ten to twenty percent emissions reduction. Here, staff believes that the proposal to add an explicit monitoring requirement should more appropriately use a five percent emissions reduction factor, because many PRDs are already subject to some form of monitoring and it appears that most releases – and especially the larger ones – are being detected. Using the 18 tons-per-year average emissions figure from the period 1998-2005, a five percent reduction would result in emissions reductions of approximately 0.9 tons per year. Using the 8.6 tons-per-year average from the period after the Prevention Measures requirement came into effect, a five percent reduction would result in emissions reductions of 0.4 tons per year. Based on the above analysis, the proposed amendments to Regulation 8, Rule 28 are expected to result in reductions in emissions and, thus, provide air quality benefits. No significant adverse impacts to air quality are expected.

III e. The proposed amendments are expected to enhance the District's ability to enforce the rule. The rule amendments are not expected to generate any additional odors at refineries or chemical plants, and could actually reduce the potential for odor impacts by reducing emissions from PRDs.

		Potentially Significant Impact	Less Than Significant Impact 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, marsh, vernal pool, 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)	Conflicting 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, 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. A wide variety of biological resources are located within the Bay Area.

The refineries and chemical plants covered by the proposed amendments are generally located industrial areas. The sites have been graded to develop the various industrial structures and are typically surrounded by other commercial and industrial facilities. Native vegetation, other than landscape vegetation, has been removed from operating portions of the industrial facilities to minimize fire hazards.

Regulatory Background

Biological resources are generally protected by the City and/or County General Plans through land use and zoning requirements which minimize or prohibit development in biologically sensitive areas. Biological resources are also protected by the California Department of Fish and Game, and the U.S. Fish and Wildlife Service. The U.S Fish and Wildlife Service and National Marine Fisheries Service oversee the federal Endangered Species Act. Development permits may be required from one or both of these agencies if development would impact rare or endangered species. The California Department of Fish and Game administers the California Endangered Species Act which prohibits impacting endangered and threatened species. The U.S. Army Corps of Engineers and the U.S. EPA regulate the discharge of dredge or fill material into waters of the United States, including wetlands.

Discussion of Impacts

IV a – f. No impacts on biological resources are anticipated from the proposed rule amendments. The PRDs and the equipment they serve are located within the confines of existing industrial facilities. The proposed rule amendments neither require, nor are likely to result in, activities, e.g., construction activities, that would affect sensitive biological resources. Activities related to the proposed rule amendment would be limited to the confines of the existing facilities. No significant construction activities are expected to be required within or outside of the confines of the existing facilities. Therefore, no significant adverse impacts on biological resources are expected.

		Potentially Significant Impact	Less Than Significant Impact 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 a formal cemeteries?	☐	☐	☐	☑

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. Cultural resources are defined as buildings, sites, structures, or objects that might have historical architectural, archaeological, cultural, or scientific importance.

The refineries and chemical plants affected by the proposed rule amendments are located in industrial areas. The sites have been graded to develop the various refinery structures and are typically surrounded by other commercial and industrial facilities. Cultural resources are generally not located within the operating portions of the refineries.

Regulatory Background

The State CEQA Guidelines define a significant cultural resources 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 California Register of Historical Resources or a local register or survey that meets the requirements of Public Resources Code Sections 50020.1(k) and 5024.1(g).

Discussion of Impacts

V a – d. No impacts on cultural resources are anticipated from the proposed rule amendments that would apply to existing refinery and chemical plant operations. The PRDs already exist and are located within the confines of existing refineries. The proposed rule amendments neither require nor are likely to result in activities that would affect sensitive cultural resources. No major construction activities are expected from the proposed rule amendments. Therefore, no significant adverse impacts on cultural resources are expected.

	Potentially Significant Impact	Less Than Significant Impact 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:	☐	☐	☐	☑
• 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.	☐	☐	☐	☑
• Strong seismic groundshaking?	☐	☐	☐	☑
• Seismic–related ground failure, including liquefaction?	☐	☐	☐	☑
• 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 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 facilities affected by the proposed rule amendments are located in industrial areas.

The refineries and chemical plants 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.

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 principal 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-triggered 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 rule amendments. No major construction activities are expected from the proposed rule amendments and no new structures would be required. Therefore, no significant adverse impacts on geology and soils are expected.

		Potentially Significant Impact	Less Than Significant Impact 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 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

Petroleum refineries and chemical plants handle and process large quantities of flammable, hazardous, and acutely hazardous materials. Accidents involving these substances can result in worker or public exposure to fire, heat, blast from an explosion, or airborne exposure to hazardous substances.

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 that are 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 rupture of a storage tank containing a flammable gaseous material (like propane), without immediate ignition, can result in a vapor cloud explosion. 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. 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:** Process vessels containing flammable and/or explosive vapors and potential ignition sources are present at refineries and chemical plants. 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.

For all refineries and chemical plants, risks to the public are reduced if there is a buffer zone between industrial processes and residences or other sensitive land uses, or the prevailing wind blows away from residential areas and other sensitive land uses. The risks posed by refinery and chemical plant operations are unique and determined by a variety of factors.

Regulatory Background

There are many federal and state rules and regulations that refineries and chemical plants must comply with which serve to minimize the potential impacts associated with hazards at these facilities.

Under the Occupational Safety and Health Administration (OSHA) regulations [29 Code of Federal Regulations (CFR) Part 1910], facilities which use, store, manufacture, handle, process, or move highly hazardous materials must prepare a fire prevention plan. In addition, 29 CFR Part 1910.119, Process Safety Management (PSM) of Highly Hazardous Chemicals, and Title 8 of the California Code of Regulations, General Industry Safety Order §5189, specify required prevention program elements to protect workers at facilities that handle toxic, flammable, reactive, or explosive materials. Prevention program elements are aimed at preventing or minimizing the consequences of catastrophic releases of the chemicals and include process hazard analyses, formal training programs for employees and contractors, investigation of equipment mechanical integrity, and an emergency response plan.

Section 112 (r) of the Clean Air Act Amendments of 1990 [42 U.S.C. 7401 et. Seq.] and Article 2, Chapter 6.95 of the California Health and Safety Code require facilities that handle listed regulated substances to develop Risk Management Programs (RMPs) to prevent accidental releases of these substances, U.S. EPA regulations are set forth in 40 CFR Part 68. In California, the California Accidental Release Prevention (CalARP) Program regulation (CCR Title 19, Division 2, Chapter 4.5) was issued by the Governor's Office of Emergency Services (OES). RMPs consist of three main elements: a hazard assessment that includes off-site consequences analyses and a five-year accident history, a prevention program, and an emergency response program. Refineries are also required to comply with the U.S. EPA's Emergency Planning and Community Right-to-Know Act (EPCRA).

The refineries and most chemical plants that store materials are required to have a Spill Prevention Control and Countermeasures (SPCC) Plan per the requirements of 40 Code of Federal Regulations, Section 112. The SPCC is designed to prevent spills from on-site facilities and includes requirements for secondary containment, provides emergency response procedures, establishes training requirements, and so forth.

The Hazardous Materials Transportation (HMT) Act is the federal legislation that regulates transportation of hazardous materials. The primary regulatory authorities are the U.S. Department of Transportation, the Federal Highway Administration, and the Federal Railroad Administration. The HMT Act requires that carriers report accidental releases of hazardous materials to the Department of Transportation at the earliest practical moment (49 CFR Subchapter C). The California Department of Transportation (Caltrans) sets standards for trucks in California. The regulations are enforced by the California Highway Patrol.

California Assembly Bill 2185 requires local agencies to regulate the storage and handling of hazardous materials and requires development of a plan to mitigate the release of hazardous materials. Businesses that handle any of the specified hazardous materials must submit to government agencies (i.e., fire departments), an inventory of the hazardous materials, an emergency response plan, and an employee training program. The business plans must provide a description of the types of hazardous materials/waste on-site and the location of these materials. The information in the business plan can then be used in the event of an emergency to determine the appropriate response action, the need for public notification, and the need for evacuation.

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

VII a. The proposed rule amendments will not require or change the transportation, use, storage, or disposal of any hazardous material. The proposed amendments will enhance the current rule, which applies to PRDs that may serve equipment handling hazardous materials, but they will not alter the way those materials are transported, used, stored, or disposed of. By enhancing the current rule, the proposed amendments may actually reduce the hazards associated with exposure to released material. Therefore, no significant hazards to the public or the environment are expected.

VII b – c. The proposed rule amendments will not change the way affected facilities engage in operations that may involve hazardous materials (including the transportation, use, storage, or disposal of such materials). The proposed amendments will therefore not affect the likelihood of or risk from upset or accident conditions that may result in the release of hazardous materials into the environment. By enhancing the current rule, the proposed amendments may even reduce the likelihood or risk from such conditions. Therefore, no significant adverse impacts from accidental releases of hazardous materials into the environment are expected from the proposed amendments. The absence of any such significant impacts applies to all areas throughout the District, regardless of proximity to existing or proposed schools.

VII d. No impacts on hazardous material sites are anticipated from the proposed rule amendments that would apply to existing refinery operations. Some of the refineries and chemical plants may be located on the hazardous materials sites list pursuant to Government Code Section 65962.5. However, the proposed

rule amendments would have no affect on hazardous materials nor would the amendment create a significant hazard to the public or environment. 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.

VII e – f. No impacts on airports or airport land use plans are anticipated from the proposed rule amendments. The proposed rule amendments neither require nor are likely to result in activities that could affect anything outside of the refinery boundaries. No major construction activities are expected from the proposed rule amendments. Therefore, no safety hazards are expected as a result of proximity to airports.

VII g. No impacts on emergency response plans are anticipated from the proposed rule amendments. The proposed rule amendments neither require, nor are likely to result in, activities that would impact the emergency response plan. No major construction activities are expected from the proposed rule amendments. Therefore, no significant adverse impacts on emergency response plans is expected.

VII h. No increase in hazards related to wildfires are anticipated from the proposed rule amendments that would apply to existing refinery and chemical plant operations. No major construction activities are expected from the proposed rule amendments and no activities would occur outside the confines of the existing refineries or chemical plants. Vegetation surrounding the operating portions of industrial facilities is has generally been removed to reduce the potential fire hazards. Therefore, no significant adverse impacts on fire hazards are expected.

	Potentially Significant Impact	Less Than Significant Impact 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 such that there would be 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 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 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 flood flows?	☐	☐	☐	☑
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?	☐	☐	☐	☑
j)	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 refineries and chemical plants 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.

Regulatory Background

The Federal Clean Water Act of 1972 primarily establishes regulations for pollutant discharges into surface waters in order to protect and maintain the quality and integrity of the nation's waters. This Act requires industries that discharge wastewater to municipal sewer systems to meet pretreatment standards. The regulations authorize the U.S. EPA to set the pretreatment standards. The regulations also allow the local treatment plants to set more stringent wastewater discharge requirements, if necessary, to meet local conditions.

The 1987 amendments to the Clean Water Act enabled the U.S. EPA to regulate, under the National Pollutant Discharge Elimination System (NPDES) program, discharges from industries and large municipal sewer systems. The U.S. EPA set initial permit application requirements in 1990. The State of California, through the State Water Resources Control Board, has authority to issue NPDES permits, which meet U.S. EPA requirements, to specified industries.

The Porter-Cologne Water Quality Act is California's primary water quality control law. It implements the state's responsibilities under the Federal Clean Water Act but also establishes state wastewater discharge requirements. The RWQCB administers the state requirements as specified under the Porter-Cologne Water Quality Act, which include storm water discharge permits. The water quality in the Bay Area is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board.

In response to the Federal Act, the State Water Resources Control Board prepared two state-wide plans in 1991 and 1995 that address storm water runoff: the California Inland Surface Waters Plan and the California Enclosed Bays and Estuaries Plan. Enclosed bays are indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. San Francisco Bay, and its constituents parts, including Carquinez Strait and Suisun Bay, fall under this category.

Discussion of Impacts

VIII a – j. No significant adverse impacts on hydrology/water quality resources are anticipated from the proposed rule amendments. The refineries and chemical plants affected by the proposed rule amendments are required to treat and monitor wastewater discharges from their facilities, and the proposed amendments would not affect those requirements. The proposed amendments are not expected to require new construction, 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 amendments and no new structures are required. Therefore, no significant adverse impacts on hydrology/water quality are expected.

	Potentially Significant Impact	Less Than Significant Impact 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, 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 refineries and chemical plants affected by the proposed rule amendments are located in industrial areas and are generally adjacent to industrial and commercial land uses.

Regulatory Background

Land uses are generally protected and regulated by the City and/or County General Plans through land use and zoning requirements.

Discussion of Impacts

IX a-c. PRDs are located within the confines of existing refineries within heavy industrial areas. The proposed rule amendments neither require, nor are likely to result in, any significant construction inside or outside of those facilities. Therefore, no land use impacts are expected.

	Potentially Significant Impact	Less Than Significant Impact 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, 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 the affected environment vary greatly throughout the area. The facilities affected by the proposed rule amendments are generally located in industrial areas.

Regulatory Background

Mineral resources are generally protected and regulated by the City and/or County General Plans through land use and zoning requirements.

Discussion of Impacts

X a-b. PRDs are located within the confines of refineries and chemical plants within industrial areas. The proposed rule amendments neither require, nor are likely to result in, any significant construction inside or outside of those facilities. The proposed rule amendments are 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. Therefore, no impacts on mineral resources are expected.

		Potentially Significant Impact	Less Than Significant Impact 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 the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☑
b)	Expose persons to or generate of 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 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 within 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, 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 the affected environment vary greatly throughout the area. The refineries and chemical plants affected by the proposed rule amendments are located in industrial areas and are typically surrounded by other commercial and industrial facilities.

Regulatory Background

Noise issues related to construction and operation activities are addressed in local General Plan policies and local noise ordinance standards. The General Plan and noise ordinances generally establish allowable noise limits within different land uses including residential areas, other sensitive use areas (e.g., schools, churches, hospitals, and libraries), commercial areas, and industrial areas.

Discussion of Impacts

XI a-f. PRDs are located within the confines of existing refineries and chemical plants within industrial areas. PRDs can be noise sources when they release. The proposed amendments to the rule will not require the installation of PRDs or generate any additional noise. The proposed amendments may help reduce the number of releases from PRDs, which would also mean a reduction in the noise related to PRD releases. No new equipment that would generate any significant noise is required as part of the proposed rule amendments. Therefore, no noise impacts are expected.

		Potentially Significant Impact	Less Than Significant Impact 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, 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 the affected environment vary greatly throughout the area. The refineries and chemical plants affected by the proposed rule amendments are located in industrial areas.

Regulatory Background

Population and housing growth and resources are generally protected and regulated by the City and/or County General Plans through land use and zoning requirements.

Discussion of Impacts

XII a. PRDs are located within the confines of refineries and chemical plants within industrial areas. The proposed rule amendments neither require nor are likely to result in, any significant construction inside or outside of those facilities. No additional workers will be required at the refineries; therefore, no increase in population is expected.

XII b-c. PRDs are located within the confines of existing refineries and chemical plants within industrial areas. No housing would be impacted or removed by the proposed rule amendments and no displacement of housing would occur. Therefore, no significant adverse impacts on population/housing are expected.

	Potentially Significant Impact	Less Than Significant Impact 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, 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 the affected environment vary greatly throughout the area. The facilities affected by the proposed rule amendments are located in industrial areas.

Given the large area covered by the BAAQMD, public services are provided by a wide variety of local agencies. Fire protection and police protection/law enforcement services within the BAAQMD are 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.

Regulatory Background

City and/or County General Plans usually contain goals and policies to assure adequate public services are maintained within the local jurisdiction.

Discussion of Impacts

XIII a. PRDs are located within the confines of refineries and chemical plants within industrial areas. The proposed rule amendments do not require new public services. A reduction in the releases from PRDs would

result in a reduction in hazards associated with those releases. No impacts on the need for fire or police protection are expected. The proposed rule amendments are not expected to require additional workers at the refinery or result in population growth so no impacts on schools or parks are expected. Therefore, no significant adverse impacts on public services are expected.

	Potentially Significant Impact	Less Than Significant Impact 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

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 there are numerous areas for recreational activities. The facilities affected by the proposed rule amendments are located in industrial areas. Public recreational land uses are not located within the operating areas of these facilities.

Regulatory Background

Recreational areas are generally protected and regulated by the City and/or County General Plans at the local level through land use and zoning requirements. Some parks and recreation areas are designated and protected by state and federal regulations.

Discussion of Impacts

XIV a-b. PRDs are located within the confines of existing refineries and chemical plants within industrial areas. The proposed rule amendments neither require, nor are likely to result in, any significant construction inside or outside of those facilities. No additional workers will be required at the refineries, no increase in population is expected and, therefore, no significant adverse impacts on recreation are expected.

		Potentially Significant Impact	Less Than Significant Impact 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

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). Transportation systems located within the Bay Area include railroads, airports, waterways, and highways. The transportation infrastructure for vehicles and trucks in the Bay Area ranges from single lane roadways to multilane interstate highways. The refineries and chemical plants affected by the proposed rule amendments are located in the industrial portions of Contra Costa and Solano Counties and are accessed via highways and local roadway systems.

Regulatory Background

Transportation planning is usually conducted at the county level.

Discussion of Impacts

XV a-b. PRDs are located within the confines of existing refineries and chemical plants within industrial areas. The proposed rule amendments are not expected to require any significant construction activities. No significant transport of additional materials or workers will be required. No changes to traffic patterns or levels of service at local intersections are expected. Therefore, no adverse significant impacts to traffic are expected.

XV c. The proposed rule amendments include minor modifications to the operation of existing facilities. The project will not involve the delivery of any significant materials via air so no increase and no adverse impacts in air traffic are expected.

XV d - e. The proposed rule amendments are not expected to increase traffic hazards or create incompatible uses at or adjacent to the site. Emergency access is provided at the refinery and most chemical plant sites, will continue to be maintained at the refinery and chemical plant sites, and will not be impacted by the proposed rule amendments.

XV f. No significant construction activities are expected, so no parking is required for construction workers. No increase in permanent workers is expected. Therefore, the proposed rule amendments will not result in significant adverse impacts on parking.

XV g. The proposed rule amendments are 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 Impact 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 storm water 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 needed?	☐	☐	☐	☑
e)	Result in a determination by the wastewater treatment provider which 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, 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 the affected environment vary greatly throughout the area. The refineries and chemical plant affected by the proposed rule amendments are located in industrial areas.

Given the large area covered by the BAAQMD, public utilities are provided by a wide variety of local agencies. The affected facilities have wastewater and storm water treatment facilities and discharge treated wastewater under the requirements of NPDES permits.

Water is supplied to the refineries and chemical plants by several water purveyors in the Bay Area. Solid waste is handled through a variety of municipalities, through recycling activities and at disposal sites.

There are no hazardous waste disposal sites within the jurisdiction of the BAAQMD. Hazardous waste generated at area facilities, which is not reused on-site, or recycled off-site, is disposed of at a licensed in-state hazardous waste disposal facility. Two such facilities are the Chemical Waste Management Inc. (CWMI) Kettleman Hills facility in King's County, and the Safety-Kleen facility in Buttonwillow (Kern County). Hazardous waste can also be transported to permitted facilities outside of California. The nearest out-of-state landfills are U.S. Ecology, Inc., located in Beatty, Nevada; USPCI, Inc., in Murray, Utah; and Envirosafe Services of Idaho, Inc., in Mountain Home, Idaho. Incineration is provided at the following out-of-state facilities: Aptus, located in Aragonite, Utah and Coffeyville, Kansas; Rollins Environmental Services, Inc., located in Deer Park, Texas and Baton Rouge, Louisiana; Chemical Waste Management, Inc., in Port Arthur, Texas; and Waste Research & Reclamation Co., Eau Claire, Wisconsin.

Regulatory Background

City and/or County General Plans usually contain goals and policies to assure adequate utilities and service systems are maintain within the local jurisdiction.

Discussion of Impacts

XVI a – g. No significant adverse impacts on utilities and service systems are anticipated from the proposed rule amendments. The proposed rule amendments are not expected to generate or affect wastewater or solid or hazardous waste, will not affect storm water, or storm water drainage, and will not require water, or affect water supplies. PRDs that serve equipment that handles material that could contaminate soil or water could be a pathway for such material to reach the environment in the event of an upset and release. But the proposed amendments would not alter the way that facilities operate the equipment handling such materials, and so there would be no increase in the potential for such releases. Indeed, by enhancing the current rule, the proposed amendments may even lessen the potential. No increases in demand for public utilities are expected as a result of the proposed rule amendments, therefore, no adverse significant impacts are expected.

		Potentially Significant Impact	Less Than Significant Impact 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

XVII a. The proposed rule amendments do 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, as discussed in the previous sections of the CEQA checklist. The proposed rule amendments will enhance the District's current PRD rule, which is designed reduce emission from refineries and chemical plants, thus providing a beneficial air quality impact and improvement in air quality. No significant adverse impacts are expected from the proposed amendments.

XVII b. The proposed amendments are expected to enhance the District's ability to enforce the Regulation 8, Rule 28. The proposal also clarifies the rule so that it can be more easily understood and enforced. By improving the rule, the proposed amendments will help reduce emissions from refineries and chemical plants, thus providing a beneficial air quality impact and improvement in air quality. The proposed rule amendments are part of a long-term plan to bring the Bay Area into compliance with the state ambient air quality standards for ozone and to maintain compliance with the federal standards. The proposed rule

amendments do not have adverse environmental impacts that are limited individually, but cumulatively considerable when considered in conjunction with other regulatory control projects. The proposed rule amendments do not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly. No significant adverse impacts are expected.

XVII c. The proposed rule amendments are expected to result in emission reductions from refineries and chemical plants, thus providing a beneficial air quality impact and improvement in air quality. The proposed rule amendments are part of a long-term plan to bring the Bay Area into compliance with the state ambient air quality standards for ozone and to maintain compliance with the federal standards, thus reducing the potential health impacts due to ozone exposure. The proposed rule amendments will not have significant adverse effects (either directly or indirectly) to human beings.

HLH\2421-BAAQMD\2421R8.3ChckList..doc

Chapter 4

References

Bay Area Air Quality Management District (BAAQMD), 2001. Revised 2001 San Francisco Bay Area Ozone Attainment Plan for the 1-hour National Ozone Standard, adopted October 24, 2001.

BAAQMD, 2001. Toxic Air Contaminant 2000 Annual Report. December 2001.

BAAQMD, 2002. 2002 BAAQMD Ambient Air Quality Data.

BAAQMD, 2004. Initial Study/Negative Declaration for the Amendments to Bay Area Air Quality Management District Regulation 8, Rule 8. June 2004.

BAAQMD, 2005. Draft Staff Report, Proposed Amendments to Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants, August 12, 2005.

M:\HLH\2421-BAAQMD\2421-R8Ch.4-Refs.doc

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairman Townsend and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: December 14, 2005

Re: Public Hearing to Consider Approval of Report on 2001 Ozone Attainment Plan Further Study Measure 8: Atmospheric Blowdown Systems

RECOMMENDED ACTION:

Approve staff recommendation that no regulatory amendments regarding atmospheric blowdown systems are necessary or appropriate at this time.

BACKGROUND

In the 2001 Ozone Attainment Plan the District discussed the need to study emissions from atmospheric blowdown systems and to undertake rulemaking to address the emissions if warranted. Blowdown systems at petroleum refineries provide for the safe disposal of hydrocarbons, liquids and gases that are either automatically vented from a process component through pressure relief devices (PRDs) or manually drawn from units using control valves or block valves. The blowdown systems separate liquids from vapors and recover any condensable oil and water. Gases in the typical blowdown systems are then sent to fuel gas recovery, or to a flare. In *atmospheric* blowdown systems, the hydrocarbon vapors are treated with steam and emitted to the atmosphere without any controls. Along with hydrocarbons from PRDs, blowdown systems handle other material such as industrial water, steam, gasoline and diesel fuel used for cleaning and maintenance during shutdowns and prior to startups. Although all Bay Area refineries have blowdown systems in their process, atmospheric blowdown systems are only found at the Tesoro Refinery in Avon, CA near Martinez. The most significant source of emissions from atmospheric blowdown systems is the PRDs that vent to these systems.

Staff has discussed the issues related to atmospheric blowdown systems with the stakeholders in various forums. In addition to the workgroup meetings on Regulation 8, Rule 28 concerning PRDs, staff held a separate workgroup meeting specifically to discuss atmospheric blowdown systems on September 15. The workgroup meeting was attended by representatives from Western States Petroleum Association, Tesoro refinery,

Communities for a Better Environment and the California Air Resources Board. A public workshop was held in Martinez on October 27, 2005.

DISCUSSION:

There are two types of emissions from atmospheric blowdown systems. The most significant are episodic emissions that occur when a PRD vents. The other type are periodic emissions, which are from processes that occur intentionally but are not part of the normal refinery operation, such as depressurization of process vessels and from cleaning of vessels during maintenance operations.

Staff has identified 167 unique input streams that are plumbed into the four atmospheric blowdown systems at Tesoro; 42 of these are PRDs. The remaining streams originate from a large variety of sources including heat exchangers, pumps and compressors, process vessels, distillation columns, and steam lines. During normal refinery operations, there is no flow to the blowdown systems. However, during process upsets that may cause a PRD to vent, or during periodic cleaning and maintenance operations, emissions to the atmosphere may occur.

Because the Tesoro blowdown systems are open to the atmosphere, any episodic emissions from PRDs are subject to Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants.

Periodic emissions from the atmospheric blowdown systems are subject to a variety of Regulation 8 rules: Rule 8-10, Process Vessel Depressurization; Rule 8-18, Equipment Leaks; and Rule 8-2, Miscellaneous Operations. The emissions from periodic operations such as depressurization or cleaning and maintenance activities can be calculated from the concentration of gases or the vapor pressure and quantities of liquids introduced to the blowdown system before being drained from the blowdown system. Consequently, compliance with the applicable standards in the Regulation 8 rules can be determined.

Theoretically, the episodic and periodic emissions from the atmospheric blowdown systems could be controlled by venting the blowdown systems to some control device such as a flare. For a number of reasons, including the difficulties presented by the need to control low and high pressure streams that vent to these blowdown systems, it would be inordinately expensive to control these systems as a whole, which, during normal operation, have no emissions. Because the existing regulatory controls in Regulation 8 are sufficient to limit emissions from all input streams (and in fact would require control of pressure relief devices if they have two releases from the same source), staff does not recommend development of further regulations for atmospheric blowdown systems at this time.

ISSUES

Issues raised during the public workshop, comment period and at the technical workgroup session centered on 1) the need to control all emissions from atmospheric blowdown systems to avoid the potential for catastrophic emissions that could lead to an

incident such as the one that occurred at the BP refinery in Texas City, Texas; and 2) concerns that atmospheric blowdown systems are insufficiently regulated and monitored.

Staff has reviewed the investigation into the incident at the Texas City BP refinery. The Chemical Safety Board found multiple causes that contributed to the Texas City incident, including operator errors, malfunctioning alarms, and disregard of safety practices. Venting blowdown systems to a flare would not, in itself, ensure that an accident of this sort could not happen. In Contra Costa County where the Tesoro Refinery is located, the county's Industrial Safety Ordinance is designed to insure that the atmospheric blowdown systems at Tesoro are operated in a safe manner.

The existence of the atmospheric blowdown systems at Tesoro does make monitoring for compliance with Regulation 8 rules more difficult. District staff is working closely with Tesoro to address the monitoring issues and to enforce existing regulations applicable to the atmospheric blowdown systems. Tesoro has installed flow monitoring equipment on all four blowdown systems. These monitors will indicate whether there are any unexpected flows. Further, the facility is required to report any venting from any PRD plumbed to a blowdown system. The proposed amendments to Rule 8-28 would require that each PRD is monitored with a system that is capable of detecting a release of as little as ten pounds.

CONCLUSION

Based on staff analysis and consideration of public comments, no further regulatory amendments are warranted at this time.

BUDGET CONSIDERATION / FINANCIAL IMPACT

None

Respectfully submitted,

Jack P. Broadbent
Executive Officer / Air Pollution Control Officer

Prepared by: Victor Douglas
Reviewed by: Henry Hilken

Attachment:

Staff Report for Further Study Measure 8: Atmospheric Blowdown Systems

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

Staff Report

FURTHER STUDY MEASURE 8

Atmospheric Blowdown Systems

November 28, 2005

Prepared by:

Victor Douglas
Senior Air Quality Engineer

I. INTRODUCTION

A. Summary of Proposal

District staff has determined that it is not necessary to initiate rulemaking to control emissions from refinery blowdown systems (BDS) because the inputs to those systems are already regulated. Blowdown systems at all but one refinery in the Bay Area Air Quality Management District are currently vented to a flare or fuel gas recovery system. The one refinery with uncontrolled, or atmospheric, blowdown systems is the Tesoro Refinery in Contra Costa County. Staff has analyzed the four atmospheric blowdown systems at the Tesoro Refinery and has determined that the inputs to those systems are subject to existing District rules and that additional controls on the blowdown systems themselves would be redundant.

Blowdown systems have two types of inputs: *episodic emissions* from pressure relief devices (PRDs) that vent into the blowdown systems and *periodic emissions* from cleaning and maintenance operations during shutdowns. Episodic emissions from PRDs are subject to the requirements of Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices in Petroleum Refineries and Chemical Plants. Periodic emissions from shutdowns, startups, cleaning and maintenance operations are subject to the requirements of various rules, most notably Regulation 8, Rule 10: Process Vessel Depressurization, or Regulation 8, Rule 2: Miscellaneous Operations. Because inputs to atmospheric BDSs are already fully regulated, staff does not recommend new rulemaking to further control emissions from these systems.

II. BACKGROUND

A. Description of Blowdown Systems

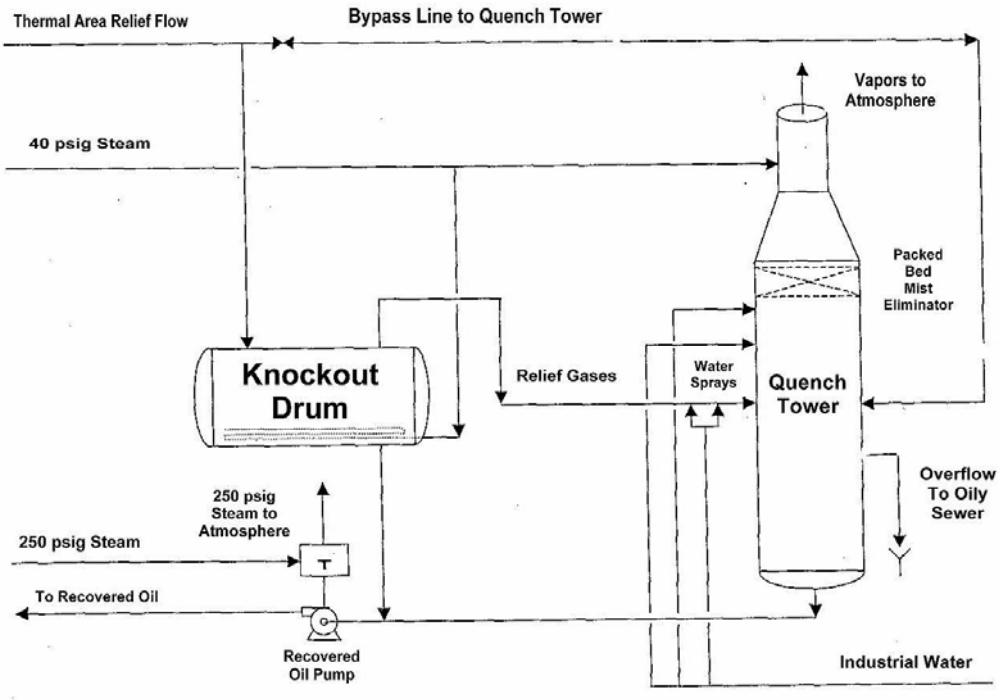
All process units in refineries can be expected to experience operational upsets that must be handled in a safe and effective manner. Upsets include instrument failures, loss of cooling water, loss of steam, loss of power and a number of atypical operating conditions. In order to protect process vessels from over-pressurization and rupture during upsets, vessels are equipped with pressure relief devices (PRDs) so that gases and fluids can be released safely. PRDs may vent directly to the atmosphere or to a blowdown system. BDSs provide for the safe disposal of hydrocarbons, liquids and gases that are either automatically vented from the process component through PRDs or manually drawn from units using control valves or block valves. The BDSs separate liquids from vapors and recover any condensable oil and water. Gases in the typical blowdown system are then sent to fuel gas recovery, or to a flare.

There are many BDSs at refineries operating in the District. Only four of the BDSs are vented to the atmosphere; all four of these atmospheric blowdown systems are located at the Tesoro Refinery in Avon, California near Martinez. Relief flows from PRDs and process vents, including high pressure steam, are

plumbed to atmospheric BDSs. Other materials that can enter a BDS include industrial water, steam, gasoline and diesel fuel used to clean out process vessels during maintenance. Process units are typically purged to the BDS during shutdown and prior to startup. The separated vapors are usually combined with high pressure steam to prevent the potential for explosive or combustible concentrations of hydrocarbons, and then released to the atmosphere. This provides for some reduction in emissions.

Figure 1 is a simplified flow diagram of one of the four atmospheric BDSs. Each of the four BDSs is unique.

Figure 1
Atmospheric Blowdown System



Each atmospheric BDS services a different section of the Tesoro Refinery: Crude Unit 50, Crude Unit 3, the Fluid Catalytic Cracking Area, and the Coker Area. The Crude Unit 3 blowdown system is shown in Figure 2. In each of the four areas, relief gases are transported to the top of a knockout drum. Typically, there should be no flow to the drum. Flow should only be present during startup, shutdown, or upset conditions. The purpose of the knockout drum is to separate gases from liquids. Liquids fall to the bottom and are manually pumped to tanks for reprocessing. There are a number of ways an operator determines that flow is present, including communication with refinery staff, high temperature, high pressure, spray flow alarm, or high level alarm.

Knockout drums on two of Tesoro's atmospheric BDSs have a steam coil. The steam coil keeps heavy hydrocarbons fluid. Vapors and mist exit the top of the

drum and proceed to the side of the quench tower. Water sprays are used to remove condensable hydrocarbons, which fall to the bottom of the quench tower. The liquid hydrocarbons overflow to the oily sewer, where they are separated for reprocessing and wastewater treatment. The remaining vapors exit through the top of the tower. Steam flows into the stack to prevent air from entering and creating an explosive mixture.

Figure 2: Crude Unit 3 Blowdown System

III. REGULATORY HISTORY

A. Further Study Measure 8 (2001 Ozone Attainment Plan)

In the 2001 Ozone Attainment Plan the District discussed the need to study whether regulatory controls for blowdown systems should be implemented (Further Study Measure 8; Pressure Vessels, Blowdown Systems, and Flares). With regard to BDSs,[1] the study was intended to evaluate the volume of gases sent to atmospheric BDSs and the contribution of pressure relief devices (PRDs) to these flows. The study was also intended to consider, as appropriate, the feasibility, cost and safety of emissions reductions by reducing flows to BDSs.

[1] The other commitments discussed in the 2001 Ozone Plan FS-8 have been or are being addressed through other control measures. These include adopted Regulation 12, Rule 11: Flare Monitoring at Petroleum Refineries and Regulation 12, Rule 12: Flares at Petroleum Refineries and proposed amendments to Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants.

B. 2002 Pressure Relief Valve Audit

In 2002, the District audited pressure relief devices at all five Bay Area refineries to determine compliance with Rule 8-28 and to make recommendations for rule improvement. The findings of the audit directly relate to blowdown systems for the pressure relief devices that vent into the blowdown system. The District is currently developing proposed changes to Rule 8-28, accessible at http://www.baaqmd.gov/pln/ruledev/workshops.htm, which apply to all PRDs including those that vent to blowdown systems.

C. 2002 Technical Assessment Document

In 2002, the District released a draft Technical Assessment Document (TAD) to address emissions from blowdown systems. The TAD calculated emissions from an incident in May, 2001 to determine a range of flow rates from the BDS and estimated emissions using an EPA AP-42 emission factor. As explained below, use of this emission factor significantly overstated emissions from these BDSs. The TAD stated that emissions from blowdown systems could be reduced by prevention measures or control measures such as venting emissions sources into an abatement device. The TAD recommended monitoring for each blowdown system. The TAD can be reviewed on the District's website at: http://www.baaqmd.gov/enf/further_study_measures/flares/blowdown_tad_draft2_dec2002.pdf.

IV. SUMMARY OF TECHNICAL REVIEW

A. Emissions

The typical source of emissions from blowdown systems is a pressure relief device. One or more PRDs that feed into the BDS may experience a release to relieve an over-pressure situation, or an improperly reseated PRD may leak emissions into the BDS. These are *episodic* emissions. Other causes of emissions to the BDS are processes that occur intentionally but are not part of the normal refinery operation, such as a shutdown or cleaning or maintenance when valves are manually opened. These are *periodic* emissions. The 2002 Blowdown System TAD estimated that the emissions average seven tons of organic compounds per day from the four Tesoro BDSs, but this value is misleading and should be clarified.

The TAD estimate was based on EPA emission factors and assumed flow rates that are atypical. The emissions calculation assumed that 15 percent of the refinery feed (crude oil) emissions go to the atmospheric blowdown systems. The EPA factor for blowdown systems, 580 pounds of emissions for each 1000 barrels crude oil processed, assumes the blowdown systems are uncontrolled. However, in the EPA emission factor, "uncontrolled" means that not only the blowdown system itself is uncontrolled or atmospheric, as are Tesoro's BDSs, but that the input streams are not controlled by PRDs or manual valves. The EPA factor, therefore, is not applicable to these blowdown systems. The TAD

also estimated flows of 1 to 5 million cubic feet per day, based on a single incident that occurred in 2001. Flow rates are more typically non-existent, unless, as mentioned above, pressure is being relieved or there is some process where valves are intentionally open, such as vessel depressurization or cleaning. In addition, there exists the possibility of a leak into the BDS from a valve left open or where there is some valve failure.

The TAD also relied on District source test data for an incident that occurred over a five day period from June 16 though 21, 2002. During this incident, the #50 Crude Unit was pressurized and de-pressurized three times with nitrogen as part of unit start-up. During that time, it was discovered that a check valve, not normally opened, had failed, resulting in hydrocarbon emissions that were detected during the source test. Use of emissions data from this atypical event provides a inflated picture of normal blowdown system emissions. Neither the forced flow from nitrogen pressurization and de-pressurization nor the check valve leakage is a normal operating condition.

Other source tests conducted at Tesoro during the past three years have been unable to detect any flow coming out of the blowdown systems. The District monitored the blowdown system serving the #50 Crude Unit from February 5 through December 19, 2003. During that time, with the exception of fewer than five hours in total, the monitoring equipment was unable to detect any flow.

B. Characterization of Input Streams

Staff reviewed piping and instrument diagrams for the four atmospheric BDSs located at the Tesoro Refinery. The diagrams indicate that there are 167 uniquely identified streams plumbed into the four BDSs. Forty-two of the streams are dedicated solely to PRDs. The table in Appendix 1 summarizes the types, source, quantities, and characterization of the identified input streams for the four BDSs at Tesoro.

The table provides an estimate of emissions from blowdown systems for each type of event. As previously described, there are not normally flows to (or, therefore, emissions from) the blowdown systems. There have been eight PRD releases into the blowdown towers since July, 1998 (when reporting of PRD releases became mandatory under Regulation 8, Rule 28). The emissions from these episodic releases are subject to the provisions of Regulation 8, Rule 28 and totaled 26.3 tons.[2] Periodic emissions from cleaning and maintenance activites, or from depressurization when manual valves are opened into the BDSs, can be calculated from the concentration of gases or the vapor pressure and quantities of liquids in the BDS before being drained into slop oil vessels. For example, the VOC emissions from 20 barrels of gasoline in a BDS totaled

[2] 50 Crude Unit, seven releases, 377 lbs; Coker, one pre-turnaround release, 16 tons; three post-turnaround releases, 20,212 lbs; #3 Crude Unit and Cat. Cracker, no releases. Regulation 8, Rule 28 required the implementation of measures to prevent PRD releases at the first refinery turnaround after July 1, 1998.

2.81 pounds. The emissions from 20 barrels of diesel totaled 0.014 pounds VOC.[3] These amounts might be used to clean process vessels as described in the Appendix table. The table also lists materials, amounts and frequency of use for various maintenance operations. These emissions are likely overstated, as they do not account for any cooling effect from the quench towers or packed bed mist eliminators in the blowdown systems. The episodic and periodic natures of emissions from blowdown systems do not lend themselves to an annual average calculation expressed in terms of tons or pounds per day.

C. Rules Affecting BDS Input Streams

Emissions from PRDs, whether vented directly to atmosphere or to a BDS, are regulated by Regulation 8, Rule 28: Episodic Releases from Pressure Relief Devices at Petroleum Refineries and Chemical Plants. Similarly, any fugitive leakage of hydrocarbons past PRDs would be subject to the requirements in Regulation 8, Rule 18: Equipment Leaks. Input streams to Tesoro's atmospheric BDSs that are not controlled by PRDs are controlled by manual valves. These are used during shutdowns and maintenance. Regulation 8, Rule 10: Process Vessel Depressurization applies during the shutdown of a pressure vessel. Once a valve is opened and a process component is flushed into the BDS with steam and/or diesel, the operation is subject to the provisions of Regulation 8, Rule 2: Miscellaneous Operations. Table 1 summarizes District rules applicable to BDS input streams. It must be noted that more than one rule may apply to a single input stream depending on the nature of the emissions and source. For example, one input may originate from a process vessel that may be depressurized only once every few years. Emissions from the depressurization would be regulated under Rule 8-10: Process Vessel Depressurization. However, if material leaks past the valve that controls the depressurization, then those fugitive emissions would be regulated under Rule 8-18: Equipment Leaks.

Table 1
District Rules Applicable to Blowdown System Input Streams

District Rule	Description
Rule 8-2: Miscellaneous Operations	Limits organic emissions from miscellaneous operations to no more than 300 ppm concentration and 15 lbs per day.
Rule 8-10: Process Vessel Pressurization	Prohibits opening pressurized vessels until pressure is less than 1000 mm Hg pressure (4.6 psig) and organic compound concentration less than 10,000 ppm before being opened.
Rule 8-18: Fugitive Emissions	Applies to fugitive emissions from valves, pumps, compressors, pressure relief devices and other refinery components. The rule sets emission standards for each category and allows a small fraction of leaking components to be placed on a "non-repairable" list provided the leak is less than 10,000 parts per million on a volume basis (ppmv).

[3] Assumes 90^{o}F and that 20 barrels of liquid fully displaces the equivalent volume of vapors.

District Rule	Description
Rule 8-28: Episodic Emissions from PRDs	Regulates emissions from pressure relief devices (PRDs) at refineries and chemical plants. The rule requires that PRDs be equipped with a telltale indicator following one "Release Event" (10 pounds or more of VOC). Control is required for all PRDs on a process unit following the second release event within five years on that process unit. Rule 28 is concurrently being considered for amendment.

D. Controls for Blowdown Systems

Blowdown systems could be further controlled in various ways, although doing so would not be a simple matter. A pressure relief device that vents into a BDS could theoretically be routed to a control system such as a flare or fuel gas recovery system. Tesoro has been able to control a select group of PRDs by venting them into an existing fuel gas recovery system. However, there are significant difficulties to be overcome for either of these control options. Atmospheric blowdown systems are designed to operate at or near atmospheric pressures, as are the input streams that feed into the BDSs. In order to control these systems by routing them to a flare or fuel gas recovery system, the pressures at which this equipment typically operates would have to be adjusted so that back pressure associated with the control system would not over-pressurize and potentially damage the equipment. The components that operate at atmospheric pressure, such as the manual valves serving drains and pumps, could not be routed to a flare or fuel gas system without additional equipment such as pumps or compressors to increase the pressure of these streams. More likely, the blowdown units would have to be completely scrapped and another system designed and constructed.

It may be possible to isolate PRDs and route those to a control device without controlling the atmospheric BDSs. The costs of such an approach would be consistent with the cost estimates for controlling pressure relief devices. This is a control option that was considered as part of the larger PRD regulation. Amendments to Regulation 8, Rule 28: Episodic Pressure Relief Devices at Petroleum Refineries and Chemical Plants are currently being considered. Information concerning the draft amendments can be found on the District's website at http://www.baaqmd.gov/pln/ruledev/workshops.htm.

V. SUMMARY OF PUBLIC CONSULTATION PROCESS

A. Meetings

Blowdown systems, because of their intimate relationship with pressure relief devices, have previously been discussed concurrently with other work on Further Study Measure 8 concerning flares and pressure relief devices. In June, 2003, the District Board adopted new Regulation 12, Rule 11: Flare Monitoring at Petroleum Refineries. A workgroup was initiated in January, 2002 to provide technical assistance in developing that rule. During workgroup meetings to

develop Reg. 12-11, it was decided that splitting FS-8 into separate technical assessments was most efficient, in part because atmospheric BDSs are only found at one refinery.

The Technical Assessment Document was distributed and posted to the District's web site in December, 2002. No comments on the TAD were received.

Following the District's investigation of inputs to the four blowdown systems at Tesoro, a workgroup meeting was held on September 15, 2005. Preliminary results were presented and the question of the need for a separate regulation specifically targeting BDSs was discussed. As mentioned above, the question of regulation of BDSs is inextricably tied to the question whether PRDs should be controlled to a more stringent standard than is required in the current Regulation 8, Rule 28. Much of the discussion at the BDS workgroup meeting focused on that issue. This document and recommendation reflect the input staff received during that workgroup meeting.

A public workshop to receive comment on the proposal was held on Thursday, October 27 in Martinez, near the Tesoro refinery. At that time, the public was given opportunity to comment on the staff's determination that a separate regulation addressing emissions from atmospheric blowdown systems is not necessary or appropriate at this time. Following the public workshop, there was a seven day comment period.

B. Responses to Public Comments

This section presents a summary of the public comments that were received during the workgroup meeting, public workshop, or as part of the public consultation process. The District received written and oral comments from one source: representatives of Communities for a Better Environment (CBE).

Comment: The District did not set the condition for meaningful comments. CBE asserts that staff did not allow CBE adequate time and access to information for CBE to provide meaningful comments on the staff's conclusion that further regulation of BDSs was unnecessary. When CBE requested data to substantiate staff's conclusion, staff directed CBE to gather the information directly from Tesoro, which was never made available.

Staff Response: Except for the confidential information submitted by Tesoro during the investigation undertaken by the District for the BDSs portion of Further Study Measure 8, all data and information relied on by staff was available as part of the public process for consideration of this potential control measure. This included emissions data and summary information that characterizes the input streams all of which was set out in the September 30, 2005 Workshop Staff Report.

Staff did not provide CBE the piping and instrument diagrams of the four BDSs submitted by Tesoro as requested because the company had designated that

information proprietary. Staff did, however, make available as part of the public workshop materials a detailed summary of the confidential information submitted by Tesoro. Additionally, during the workgroup meeting, Tesoro agreed to work directly with CBE to provide additional data to supplement the basic summary distributed at that meeting. Upon receipt of this comment, staff made inquiries of both parties and worked to facilitate the exchange of information.

Comment: CBE asserts that none of the four rules referenced in the BDS Staff Report explicitly or clearly applies to BDS.

Staff Response: All inputs to the BDS are subject to one or more different rules depending on the source of emissions. The rules iterated, 8-2, 8-10, 8-18, and 8-28, apply to different emissions at different times, but together, leave no emission unregulated. Regulation 8-2 is a miscellaneous standard for emissions not covered by other rules. Regulation 8-10 specifically limits emissions from opening of pressure vessels during maintenance operations, Regulation 8-18 limits fugitive emissions from valves and other equipment connections, and Regulation 8-28 addresses emissions from pressure relief devices, including those opening into the blowdown system.

Comment: CBE asserts that staff previously stated that it would address BDSs in a PRD rule, but it does not do so in the currently proposed PRD Rulemaking.

Staff Response: In the 2001 Ozone Attainment Plan, Further Study Measure 8, the District discussed the need to "…examine the blowdown system for each of the Bay Area refineries to determine whether there is potential for significantly reducing emissions by reducing routine flaring and by venting more pressure relief valves (PRVs) to gas recovery systems, with flares used only for emergency events." Thus, originally, FSM 8 covered flares, PRDs and BDSs as sources of episodic emissions that should be considered as a source of further controls. Ultimately separate TADs were prepared for each "system" but they are clearly facets of an interrelated system that is a source of (primarily) episodic emissions. The current PRD rulemaking does not address BDSs directly but it does address the primary input to BDSs and in that context will certainly control a significant portion of the emissions vented through these systems.

Comment: BDSs themselves would not be monitored. Although staff proposes to measure or calculate the emissions for the inputs to the BDS, the Staff Report does not describe even generally how this would be accomplished. The Report neither discusses the significance nor presents data on each stream going into the BDSs.

Staff Response: It is true that at the initiation of this evaluation, BDS were not equipped with permanent monitoring devices. However, all four BDSs are currently equipped with flow meters. Under Regulation 8, Rule 28, the facility is required to quantify emissions from a PRD release event (accurate to two significant figures). Emissions quantification for Rule 8-28 is often based upon engineering estimates of the equipment from which the release occurred, and, in

the proposed Regulation 8-28 amendments, refineries will be required to demonstrate their capability to accurately quantify a release. The flow monitors will assist in quantifying emissions and enforcing the other applicable rules, particularly Regulation 8-2: Miscellaneous Operations. Regulation 8-2 requires compliance with an emission standard of 15 lbs organic compounds a day as well as a concentration limit of 300 ppm. Based on the material emitted and measured flows, these parameters (concentration and pounds) can be determined.

Comment: The Report contains discrepancies that are not fully explained, including emissions estimates from the Blowdown System TAD of seven tons per day. The Staff Report states that this number is overestimated. However, there is no information as to whether the monitoring was based on calculations or measurements, or whether the monitoring was continuous or conducted in a manner that can be expected to represent emissions accurately. Most importantly, the monitoring focused on the regularity with which flow was detected rather than on the significance of the amount emitted. The TAD stated that information was insufficient to draw a conclusion. However, staff now has drawn a conclusion based largely on that same data. More information is needed to draw such a conclusion.

Staff Response: The Report clearly explains why the seven tons of emissions presented in the TAD was overestimated. Further, additional data have been generated since the TAD was published and that data were presented in the Workshop Report. Specifically, that report included information on ten months continuous monitoring in which no flows were detected with the exception of a five-hour period. The report also includes descriptions of specific incidents that occurred at the individual BDSs and the reasons for the emissions. Staff also evaluated each of the input streams to characterize the stream and their potential for emissions. Based on all of this information, staff concluded that additional rulemaking is unnecessary.

Comment: The District has ducked it obligation to evaluate BDSs. In the settlement agreement, the District specifically commits to evaluate controls of uncontrolled BDSs. "For refinery blowdown systems, in addition to the description identified in Further Study Measure 8, the District will evaluate the potential for control of uncontrolled refinery blowdown systems."

Staff Response: Staff did evaluate the potential for control of uncontrolled refinery blowdown systems for purposes of reducing ozone. This is a multi-pronged evaluation that looks at a number of factors. The evaluation performed by the District is described in this Report. The primary conclusion reached by staff in preparing its recommendation not to undertake additional control of the four atmospheric blowdown systems at Tesoro for purposes of controlling ozone precursors was the finding that all of the inputs to these systems are controlled by an existing District rule. The primary input is episodic releases from PRDs. The District is considering amendments to that regulation, which will affect the input to the BDSs. Other inputs are far less significant and they are also subject

to existing District rules. The conclusion dictated by this part of the evaluation that a second level of controls for the sources that vent to an atmospheric BDS, as opposed to simply venting to atmosphere, found additional support when District staff considered that the significant technological challenges attended to controlling the atmospheric BDSs at Tesoro.

VI. EXPLANATION FOR NOT PROCEEDING WITH RULEMAKING AT THIS TIME

The inputs that are responsible for emissions from atmospheric blowdown systems are subject to existing District regulations. Regulation 8, Rule 28, requiring control of all pressure relief devices on any process unit that vents twice is the most stringent rule of its sort in existence, and one of only two to control episodic PRD releases in California. Regulation 8, Rule 10 was amended in January, 2004 to establish more stringent standards to reduce emissions from vessel depressurization, and Regulation 8, Rule 18 is the most stringent rule regulating fugitive emissions in the United States. Finally, Regulation 8, Rule 2 controls emissions from miscellaneous operations such as flushing diesel into the blowdown tower during cleaning and maintenance and also would limit emissions in the event of a valve left open inadvertently. Atmospheric BDSs do complicate enforcement of the requirements for the various inputs to the system. However, proper monitoring of emissions by measurement of flows and measurement or calculation of hydrocarbon concentration provides sufficient means to enforce these rules.

Staff has determined, therefore, that a second level of regulatory control, i.e., controlling emissions from atmospheric BDSs, which receive only regulated inputs, is not warranted under existing circumstances. Therefore, staff does not propose to undertake additional rulemaking related to atmospheric BDSs at this time.

APPENDIX 1
Characterization of the Various Input Streams to Atmospheric Blowdown Systems

Source	No. of Inputs	Material in Stream	Total Amounts	Conditions of Use	Access to Blowdown
PRDs	(42)	Hydrocarbons	Varies	Process Upset	PRD
Heat Exchanger Drains (83)	(29)	Slurry, heating oil, Product Feed, Light gas oil, Gasoline, Steam, LPG, Decant Oil	170 - 11,575 gal	Shutdown	Manual valve
	(33)	Diesel	66 bbls	Clean & repair, once each 6 yrs	Manual valve
	(19)	Gasoline, steam & water	2-42 bbls	Clean & repair, once each 3 yrs	Manual valve
	(1)	Steam / water	10 bbls	Never	Manual valve
Pumps / Compressors (5)	(1)	Glycol / Gasoline	1 gal/min	Flushing following emergencies – inner seal failure	Manual valve
	(2)	Decant Oil / gasoline	5 -25 gal	Flushing during Shutdown	Manual valve
	(1)	Gasoline vapor Gasoline liquid	5 cf 10 gal	Intermittent flushing	Manual valve
	(1)	Slurry HGO	0 gal 0 gal	Shutdown (not used)	Locked closed
PRD Flush	(1)	Diesel	10 bbls	Flushing following episodic PRD lift	Manual valve
BDT level glass flush Line	(2)	Wash oil	0	Used to flush BDT level glass	Manual valve, locked closed
Valve Flush (2)	(1)	Slurry (15 gal) LGO (45 gal)		Shutdown	Manual valve
	(1)	LGO (0 gal)	0	Shutdown – never used	Locked closed
Vessels (3)	(3)	Foul water / LPG	0	Not used	Locked closed
Blowdowns (from PRDs)	(2)	n/a	0	Never used	Double blocked valves -- locked closed
Fractionator	(1)	n/a	0	Never used	Manual valve, locked closed
Vent (8)	(1)	Gasoline / LPG	15 MMSCF	Emergencies – high accumulation & flare pressure	Manual valve
	(1)	Steam	4000 scf	Turnaround, once each 6 yrs	Manual valve
	(3)	Crude, gasoline	20-200 bbls	Clean & repair, once each 3 yrs	Manual valve
	(2)	Gasoline	20 bbls	Shutdown & startup, once each 6 yrs	Manual valve
	(1)	Various Light materials		Normally to flare. Has tie into blowdown – not used	Locked closed
Condensate	(2)	Steam condensate	100 – 200 lbs/hr	Intermittent	Manual valve
Drain (Purge gas)	(2)	Natural Gas	8-10 lbs	1 / 2 days	Manual valve
Drain (steam line)	(1)	Steam condensate	0 -10 Mlb/hr	Startup – 1 / 2 yrs	Manual valve
Drain (PRD)	(2)	Gasoline	80 bbls	Following PRD lift	Manual valve
Drain (valve)	(2)	Water / liquid	4 gals	2/yr	Manual valve
Outlets	(4)	Gasoline	25-90 bbls	Shutdown & startup, twice in 3 yrs	Manual valve
Coil Outlet	(3)	Diesel	60 bbls	Shutdown & startup, twice per year	Manual valve
Flare Header	(1)	HC Gas	0	Never used	Locked closed
40# Steam	(1)	Steam	0.5 – 30 Mlbs/hr	Continuous minimum flow	open
250# Steam	(1)	Steam	0	Never used	Locked closed

AGENDA: 11

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: December 21, 2005

Re: Commendations/Proclamations

RECOMMENDED ACTION:

The Board of Directors will recognize employees who have completed milestone levels of twenty-five (25), and thirty-five (35) years of service with the Air District during the past six months with plaques or pins.

BACKGROUND:

Annually, the District recognizes employees who have contributed incremental years of dedicated service to the District. Formally, the Board recognizes and presents service awards to employees who have completed twenty-five (25) years or more of service to the District.

From July 1, 2005 to December 31, 2005, there was one employee who completed thirty-five (35) years of service and six employees who completed twenty-five (25) years of service with the District. A list of these employees is attached.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Employee Recognition Awards

35 Years of Service

Jack Bean

25 Years of Service

Steve Hill
Noriko Lew
Richard Lew
Thomasina Mayfield
Lynn Miller
Luna Salaver