BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

BOARD OF DIRECTORS
REGULAR MEETING
March 21, 2012

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 m ay reconsider or amend the item at any time during the meeting.

Public Comment Procedures

Persons wishing to make public comment must fill out a Public Comment Card indicating their name and the number of the agenda item on which they wish to speak, or that they intend to address the Board on matters not on the Agenda for the meeting.

Public Comment on Non-Agenda Matters, Pursuant to Government Code Section 54954.3 For the first round of public comment on non-agenda matters at the beginning of the agenda, ten persons selected by a drawing by the Clerk of the Boards from among the Public Comment Cards indicating they wish to speak on matters not on the agenda for the meeting will have three minutes each to address the Board on matters not on the agenda. For this first round of public comments on non-agenda matters, all Public Comment Cards must be submitted in person to the Clerk of the Boards at the location of the meeting and prior to commencement of the meeting. The remainder of the speakers wishing to address the Board on non-agenda matters will be heard at the end of the agenda, and each will be allowed three minutes to address the Board at that time.

Members of the Board may engage only in very brief dialogue regarding non-agenda matters, and may refer issues raised to District staff for handling. In addition, the Chairperson may refer issues raised to appropriate Board Committees to be placed on a future agenda for discussion.

Public Comment on Agenda Items After the initial public comment on non-agenda matters, the public may comment on each item on the agenda as the item is taken up. Public Comment Cards for items on the agenda must be submitted in person to the Clerk of the Boards at the location of the meeting and prior to the Board taking up the particular item. Where an item was moved from the Consent Calendar to an Action item, no speaker who has already spoken on that item will be entitled to speak to that item again.

Up to ten (10) speakers may speak for three minutes on each item on the Agenda. If there are more than ten persons interested in speaking on an item on the agenda, the Chairperson or other Board Member presiding at the meeting may limit the public comment for all speakers to fewer than three minutes per speaker, or make other rules to ensure that all speakers have an equal opportunity to be heard. Speakers are permitted to yield their time to one other speaker; however no one speaker shall have more than six minutes. The Chairperson or other Board Member presiding at the meeting may, with the consent of persons representing both sides of an issue, allocate a block of time (not to exceed six minutes) to each side to present their issue.

BOARD OF DIRECTORS REGULAR MEETING AGENDA

WEDNESDAY **BOARD ROOM**
MARCH 21, 2012 **7TH FLOOR**
9:45 A.M.

CALL TO ORDER

Opening Comments — Chairperson, John Gioia
Roll Call — Clerk of the Boards
Pledge of Allegiance

PUBLIC COMMENT ON NON-AGENDA MATTERS

Public Comment on Non-Agenda Items, Pursuant to Government Code Section 54954.3
For the first round of public comment on non-agenda matters at the beginning of the agenda, ten persons selected by a drawing by the Clerk of the Boards from among the Public Comment Cards indicating they wish to speak on matters not on the agenda for the meeting will have three minutes each to address the Board on matters not on the agenda. For this first round of public comments on non-agenda matters, all Public Comment Cards must be submitted in person to the Clerk of the Board at the location of the meeting and prior to commencement of the meeting.

CONSENT CALENDAR (ITEMS 1 – 5)

Staff/Phone (415) 749-

1. Minutes of the Board of Directors Regular Meeting of March 7, 2012
   Clerk of the Boards

2. Board Communications Received from March 7, 2012 through March 20, 2012
   J. Broadbent/5052
   jbroadbent@baaqmd.gov

   A list of communications directed to the Board of Directors received by the Air District from March 7, 2012 through March 20, 2012, if any, will be at each Board Member's place.

3. Consideration of Authorization for Execution of Purchase Order in Excess of $70,000 Pursuant to Administrative Code Division II Fiscal Policies and Procedures Section 4.3 Contract Limitations
   J. Broadbent/5052
   jbroadbent@baaqmd.gov

   The Board of Directors will consider authorizing the Executive Officer/APCO to execute a purchase order to Entech Corporation in the amount of $47,697 and to Agilent Technologies in the amount of $78,325 for a total of $126,022 for laboratory equipment.

4. Referral of Proposed Budget for Fiscal Year Ending (FYE) 2013 to the Budget and Finance Committee

J. Broadbent/5052
jbroadbent@baaqmd.gov

Pursuant to Administrative Code Division II, Section 3.2 Fiscal Policies and Procedures, and in compliance with Health and Safety Code Section 40276, the Board shall refer the proposed budget for FYE 2013 to the Budget and Finance Committee for review and consideration.

5. Consider Reclassifying Positions

J. Broadbent/5052
jbroadbent@baaqmd.gov

The Board of Directors will consider reclassifying three positions, effective upon Board of Directors' approval.

COMMITTEE REPORTS AND RECOMMENDATIONS

6. Report of the **Public Outreach Committee** Meeting of March 15, 2012

CHAIR: M. Ross

J. Broadbent/5052
jbroadbent@baaqmd.gov

The Committee may recommend Board of Directors approval of staff recommendations for selected contractor/sub-contractors for the Spare the Air Campaigns' Advertising, Communications & Evaluation Services. The proposed amount set for the overall contract is up to $1,990,000 per contract year, for up to three years, to be broken down as follows:

- *Spare the Air Every Day Campaign*
  - *Advertising* $600,000
  - *Media Relations* $200,000
  - *Social Media* $50,000
  - *Employer Program* $150,000
  - *Public Opinion Surveys* $45,000

- *Winter Spare the Air Campaign*
  - *Advertising* $550,000
  - *Media Relations* $100,000
  - *Social Media* $50,000
  - *Public Opinion Surveys* $45,000

- *Spare the Air Grants & Incentives Campaign*
  - *Advertising* $200,000

7. Report of the **Executive Committee** Meeting of March 19, 2012

CHAIR: J. Gioia

J. Broadbent/5052
jbroadbent@baaqmd.gov

8. Report of the **Stationary Source Committee** Meeting of March 19, 2012

CHAIR: J. Avalos

J. Broadbent/5052
jbroadbent@baaqmd.gov

9. Report of the **Legislative Committee** Meeting of March 21, 2012
CHAIR: T. Bates **J. Broadbent/5052**
jbroadbent@baaqmd.gov

The Committee may recommend positions on new and existing bills.

PUBLIC HEARING(S)

10. Public Hearing to consider adoption of Regulation 8, Rule 53: Vacuum Truck Operations, amendments to Regulation 2, Rule 1: Permits, General Requirements and adoption of a CEQA Negative Declaration. **J. Broadbent/5052**
jbroadbent@baaqmd.gov

The Board of Directors will conduct the first of two public hearings to consider adoption of Regulation 8, Rule 53: Vacuum Truck Operations, amendments to Regulation 2, Rule 1: Permits, General Requirements and adoption of a CEQA Negative Declaration.

PRESENTATION(S)

11. Overview of the 2011/2012 Wood Smoke Reduction Program **E. Stevenson/4695**
estevenson@baaqmd.gov

Staff will provide an overview of the 2011/2012 Wood Smoke Reduction Program and outline program enhancements and revisions for the 2012/2013 season.

CLOSED SESSION

12. **EXISTING LITIGATION (Government Code Section 54956.9(a)**
Pursuant to Government Code Section 54956.9(a), a need exists to meet in closed session with legal counsel to consider the following case(s):

California Building Industry Association v. Bay Area AQMD, Alameda County Superior Court, Case No. RG-10548693

OPEN SESSION

PUBLIC COMMENT ON NON-AGENDA MATTERS

Public Comment on Non-Agenda Items, Pursuant to Government Code Section 54954.3
Speakers who did not have the opportunity to address the Board in the first round of comments on non-agenda matters will be allowed three minutes each to address the Board on non-agenda matters.

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)

OTHER BUSINESS

13. Report of the Executive Officer/APCO

14. Chairperson's Report

15. Time and Place of Next Meeting is Wednesday, April 4, 2012, Bay Area Air Quality Management District Office, 939 Ellis Street, San Francisco, California 94109 at 9:45 a.m.

16. Adjournment

CONTACT EXECUTIVE OFFICE - 939 ELLIS STREET SF, CA 94109 **(415) 749-5130**
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 Executive Office should be given at least 3 working days prior to the date of the meeting so that arrangements can be made accordingly.
- Any writing relating to an open session item on this Agenda that is distributed to all, or a majority of all, members of the body to which this Agenda relates shall be made available at the Air District's headquarters at 939 Ellis Street, San Francisco, CA 94109, at the time such writing is made available to all, or a majority of all, members of that body. Such writing(s) may also be posted on the Air District's website (www.baaqmd.gov) at that time.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
939 ELLIS STREET, SAN FRANCISCO, CALIFORNIA 94109
(415) 771-6000

EXECUTIVE OFFICE:
MONTHLY CALENDAR OF DISTRICT MEETINGS

MARCH 2012

TYPE OF MEETING	DAY	DATE	TIME	ROOM
Board of Directors Executive Committee *(Meets 3rd Monday of each Month)*	**Monday**	**19**	**9:30 a.m.**	**4th Floor Conf. Room**
Board of Directors Stationary Source Committee *(Meets 3rd Monday Every Other Month)*	**Monday**	**19**	**10:30 a.m.**	**4th Floor Conf. Room**
Board of Directors Legislative Committee *(At the Call of the Chair)*	**Wednesday**	**21**	**9:00 a.m.**	**4th Floor Conf. Room**
Board of Directors Regular Meeting *(Meets 1st & 3rd Wednesday of each Month)*	**Wednesday**	**21**	**9:45 a.m.**	**Board Room**
Board of Directors Mobile Source Committee *(Meets 4th Thursday each Month)* **- CANCELLED AND RESCHEDULED TO THURSDAY, MARCH 29, 2012**	**Thursday**	**22**	**9:30 a.m.**	**4th Floor Conf. Room**
Board of Directors Budget & Finance Committee *(Meets the 4th Wednesday Each Month)*	**Wednesday**	**28**	**9:30 a.m.**	**4th Floor Conf. Room**
Board of Directors Personnel Committee *(At the Call of the Chair)*	**Wednesday**	**28**	**11:00 a.m.**	**4th Floor Conf. Room**
Board of Directors Mobile Source Committee *(Meets 4th Thursday each Month)* **- CANCELLED**	**Thursday**	**29**	**9:30 a.m.**	**4th Floor Conf. Room**

APRIL 2012

TYPE OF MEETING	DAY	DATE	TIME	ROOM
Board of Directors Regular Meeting *(Meets 1st & 3rd Wednesday of each Month)*	**Wednesday**	**4**	**9:45 a.m.**	**Board Room**
Advisory Council Regular Meeting *(Meets 2nd Wednesday each Month)*	**Wednesday**	**11**	**9:00 a.m.**	**Board Room**
Board of Directors Executive Committee *(Meets 3rd Monday of each Month)*	**Monday**	**16**	**9:30 a.m.**	**4th Floor Conf. Room**
Board of Directors Climate Protection Committee *(At the Call of the Chair)*	**Monday**	**16**	**10:30 a.m.**	**4th Floor Conf. Room**
Board of Directors Regular Meeting *(Meets 1st & 3rd Wednesday of each Month)*	**Wednesday**	**18**	**9:45 a.m.**	**Board Room**

April 2012 Calendar Continued on Next Page

APRIL 2012

TYPE OF MEETING	DAY	DATE	TIME	ROOM
Board of Directors Budget & Finance Committee *(Meets the 4th Wednesday Each Month)*	**Wednesday**	**25**	**9:30 a.m.**	**4th Floor Conf. Room**
Board of Directors Mobile Source Committee *(Meets 4th Thursday each Month)*	**Thursday**	**26**	**9:30 a.m.**	**4th Floor Conf. Room**

MAY 2012

TYPE OF MEETING	DAY	DATE	TIME	ROOM
Board of Directors Regular Meeting *(Meets 1st & 3rd Wednesday of each Month)*	**Wednesday**	**2**	**9:45 a.m.**	**Board Room**
Advisory Council Regular Meeting *(Meets 2nd Wednesday each Month)*	**Wednesday**	**9**	**9:00 a.m.**	**Board Room**
Board of Directors Regular Meeting *(Meets 1st & 3rd Wednesday of each Month)*	**Wednesday**	**16**	**9:45 a.m.**	**Board Room**
Board of Directors Executive Committee *(Meets 3rd Monday of each Month)*	**Monday**	**21**	**9:30 a.m.**	**4th Floor Conf. Room**
Board of Directors Stationary Source Committee *(Meets 3rd Monday Every Other Month)*	**Monday**	**21**	**10:30 a.m.**	**4th Floor Conf. Room**
Board of Directors Budget & Finance Committee *(Meets the 4th Wednesday Each Month)*	**Wednesday**	**23**	**9:30 a.m.**	**4th Floor Conf. Room**
Board of Directors Mobile Source Committee *(Meets 4th Thursday each Month)*	**Thursday**	**24**	**9:30 a.m.**	**4th Floor Conf. Room**

HL – 3/15/12 (10:40 a.m.) **P/Library/Forms/Calendar/Calendar/Moncal**

AGENDA: 1

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson John Gioia and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 10, 2012

Re: Board of Directors Draft Meeting Minutes

RECOMMENDED ACTION

Approve attached draft minutes of the Board of Directors Regular Meeting of March 7, 2012.

DISCUSSION

Attached for your review and approval are the draft minutes of the Board of Directors Regular Meeting of March 7, 2012.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Sean Gallagher
Reviewed by: Jennifer C. Cooper

Attachment

Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109
(415) 749-5000

Board of Directors Regular Meeting
March 7, 2012

DRAFT MINUTES

CALL TO ORDER – ROLL CALL

Vice Chairperson Ash Kalra called the meeting to order at 10:04 a.m.

Present: Vice Chairperson Ash Kalra; Secretary Nate Miley; and Directors Susan Garner, Jennifer Hosterman, David E. Hudson, Eric Mar, Mary Piepho, Mark Ross, Jim Spering, Brad Wagenknecht and Ken Yeager.

Absent: Chairperson John Gioia; and Directors John Avalos, Tom Bates, Susan Gorin, Carole Groom, Scott Haggerty, Carol L. Klatt, Liz Kniss, Katie Rice and Shirlee Zane.

PLEDGE OF ALLEGIANCE

Vice Chairperson Kalra led the Pledge of Allegiance.

PUBLIC COMMENT ON NON-AGENDA MATTERS

Dr. Henry Clark, Member, West County Toxics Coalition, addressed the Board regarding the proposed Lawrence Berkeley National Laboratory facility in Richmond and the potential air quality issues that may result from its operation.

COMMENDATIONS/PROCLAMATIONS/AWARDS

Vice Chairperson Kalra recognized outgoing Director Johanna Partin, in absentia, for her service, leadership and dedication to protecting air quality in the Bay Area and relayed that a token of appreciation from the District will be delivered by mail, as requested.

CONSENT CALENDAR (Items 1 – 7)

1. **Minutes of the Board of Directors Special Meeting of February 1, 2012;**
2. **Board Communications Received from February 2, 2012, through March 6, 2012;**
3. **Air District Personnel on Out-of-State Business Travel;**
4. **Quarterly Report of Executive Office and Division Activities;**
5. **Set a Public Hearing for March 21, 2012, to consider adoption of Regulation 8, Rule 53: Vacuum Truck Operations, amendments to Regulation 2, Rule 1: Permits, General Requirements and adoption of a California Environmental Quality Act (CEQA) Negative Declaration;**

6. Consideration of Authorization for Execution of Purchase Order in Excess of $70,000 Pursuant to Administrative Code Division II Fiscal Policies and Procedures Section 4.3 Contract Limitations; and

7. Consideration of Authorization for Execution of Purchase Order in Excess of $70,000 Pursuant to Administrative Code Division II Fiscal Policies and Procedures Section 4.3 Contract Limitations.

Board Comments/Discussion: None.

Public Comments: None.

Board Action: Director Wagenknecht made a motion to approve Consent Calendar Items 1, 2, 3, 4, 5, 6 and 7; Director Spering seconded; unanimously approved without objection.

COMMITTEE REPORTS AND RECOMMENDATIONS

8. Report of the Executive Committee Meeting of February 15, 2012
Vice Chairperson Kalra on behalf of Chairperson Gioia

The Committee met on Wednesday, February 15, 2012, and approved the minutes of December 19, 2011.

The Committee received the Update on Protocol for Video Conferencing from the Fourth Floor Conference Room. The current protocol allows Board Members to participate in committee meetings remotely when the agenda includes only non-action items. The Committee reevaluated the background material and current protocol to consider amending the same to specifically allow Board Members the opportunity to participate remotely in meetings when the agenda includes both action items and non-action items. The Committee agreed to keep the current protocol in place and agreed that Vice Chairperson Kalra and Director Bates will work with staff to explore the technology and legal considerations in greater depth for future consideration by the Committee.

The Committee received a Status Report on Regional Agency Headquarters (RAHQ) Project, including a review of the project history to date and a general description of the acquisition details, the financing terms, and the next steps in the project.

The Committee went into Closed Session to receive a report on Existing Litigation, specifically *California Building Industry Association v. Bay Area AQMD*, Alameda County Superior Court, Case No. RG-10548693.

The next meeting of the Committee is Monday, March 19, 2012, at 9:30 a.m.

Jeffrey McKay, Deputy Air Pollution Control Officer, presented briefly to amplify several points regarding the building acquisition, namely that the condominium agreement has been delivered to the Metropolitan Transportation Commission (MTC); the Lease/Purchase Option Agreement will be delivered to MTC on March 10, 2012; the financing arrangements through Bay Area Toll Authority will be arranged on a date to be determined; and requests for proposals for the 939 Ellis disposition are scheduled for August 2012; and MTC expects to have the new building completed in 2013.

Board Comments/Discussion:

Director Garner expressed her support of the concept of allowing broader video conferencing options for members of the Board of Directors and asked about the completion timeline. Vice Chairperson Kalra responded that no timeline is set and some significant legal issues must be considered. Director Garner replied that the matter has been ongoing for two years and requested a timeline be established. Vice Chairperson Kalra said he will confer with Director Bates at the next Executive Committee meeting to develop a timeline.

Director Spering inquired about the status of Senator DeSaulnier's proposed legislation regarding an audit of the building purchase, whether it is being monitored by staff, and if expenditures related to the building acquisition are being held back until its resolution. Jack Broadbent, Executive Officer/Air Pollution Control Officer, responded that staff are monitoring the legislation and will present a staff position to the Legislative Committee immediately preceding the next Board of Directors meeting on March 21, 2012. Mr. Broadbent provided a brief summary of the bill and expressed the Air District staff's opposition to the bill, indicating that a separate audit of the Air District's involvement only, as conducted by the Bureau of State Audits, is almost complete. Director Spering suggested that staff aggressively oppose the proposed legislation if we are serious about the new building and the efforts expended to house the regional agencies in one building.

Director Hudson recommended the Air District consider of selling 939 Ellis via a lease option on carry back.

Director Wagenknecht seconded Director Spering's recommendation to engage the legislative proposal, noting that this was a carefully thought out and well deliberated purchase that should not be undone by the State at this point. Mr. Broadbent offered to find and provide to the members of the Board a copy of the full legislative bill.

Director Piepho asked about the policy elements for opposition and the Air District's anticipated position and level of advocacy before the legislature. Mr. Broadbent responded that staff will present to the Legislative Committee and they, in turn, to the Board of Directors on the matter, all of which will occur on March 21 and that the Air District has followed a careful and thoughtful process resulting in a move that will be a benefit to the public. Director Piepho inquired whether there has been any communication with Senator DeSaulnier by Air District staff to which Mr. Broadbent replied in the negative and suggested it was likely that MTC staff had communicated with the Senator. Jean Roggenkamp, Deputy Air Pollution Control Officer, noted that the bill is Senate Bill 1545.

Public Comments: None.

Board Action: Director Piepho made a motion to approve the report and recommendation of the Executive Committee; Director Wagenknecht seconded; carried unanimously without opposition.

9. Report of the Public Outreach Committee Meeting of February 16, 2012
Chairperson: M. Ross

The Committee met on Thursday, February 16, 2012, and approved the minutes of October 31, 2011.

The Committee received the 2011-2012 Winter Spare the Air Season Summary, including a campaign overview and detailed review of the District's use of advertising, media outreach, social media, and finally, a final look at the media coverage and compliance levels that resulted.

The Committee received an overview of the Air District's retreat with the Bay Area Environmental Health Collaborative (BAEHC). Staff reported the retreat helped BAEHC and the District find common goals and areas of mutual understanding. The Committee heard about ongoing efforts to potentially develop a monthly meeting where District staff and BAEHC can continue to address ongoing concerns and challenges regarding the protection of air quality.

The Committee received an update on the Public Engagement Policy and Guidance Plan Workshop Strategy. The Committee reviewed the background of this plan to develop a District-wide, consistent approach to engage stakeholders in Air District processes, the establishment of a Stakeholder Advisory Task Force, plans to host regional workshops and conduct supplemental outreach via additional public meetings, surveys, newsletters and media promotion, and the proposed next steps in the project.

The next meeting of the Committee is Thursday, March 15, 2012, at 9:30 a.m.

Public Comments: None.

Board Comments/Discussion: None.

Board Action: Director Garner made a motion to approve the report and recommendation of the Public Outreach Committee; Director Wagenknecht seconded; carried unanimously without opposition.

10. Report of the Budget and Finance Committee Meeting of February 22, 2012
Vice Chairperson Kalra on behalf of Committee Chairperson Groom

The Committee met on Wednesday, February 22, 2012, and approved the minutes of December 14, 2011, and January 25, 2012.

The Committee received the Air District Financial Audit Report for Fiscal Year Ending 2011. The Committee reviewed the Independent Auditors' Report confirming that the Air District's financial statements "…present fairly, in all material respects, the respective financial position of the governmental activities and each major fund of the Bay Area Quality Management District as of June 30, 2011, and the respective changes in the financial position, for the year then ended in conformity with accounting principles generally accepted in the United States of America."

The Committee received a report on development of a Cost Recovery Policy. The Committee reviewed the work to date on this project and the revisions to the initial draft Cost Recovery Policy which were made based on input received from the Cost Recovery Policy Stakeholder Advisory Group. The revised policy would set a goal of achieving 85 percent cost recovery within the next four years, instead of 90 percent within the next five years as the initial draft policy specified. The Committee voted to recommend to the Board of Directors the approval of the revised Cost Recovery Policy, and provided further direction that a review of the Policy be performed in two years.

The next meeting of the Committee is Wednesday, March 28, 2012, at 9:30 a.m.

Mr. McKay presented briefly to amplify several points regarding the proposed Cost Recovery Policy, namely the continued implementation of cost containment measures and updating of cost recovery analysis; that cost recovery as a matter of policy should generally fully recover regulatory program activity costs; the Air District will continue existing provisions that use tax revenue; the policy will establish a goal to increase overall cost recovery to 85 percent over the next four years; there will be adjustments in fee schedules in consideration of cost recovery analyses as they are completed; and fee revenue will need to be increased by an estimated 6.4% per year for four years in order to meet the 85% cost recovery goal.

Public Comments:

Sunny Campbell, Executive Director, California Service Station & Automotive Repair Association, addressed the Board in opposition to the adoption of the proposed Cost Recovery Policy citing the imposition of these fees as being overly burdensome on small business owners.

Guy Bjerke, Manager, Bay Area Region and State Safety Issues, Western State Petroleum Association, addressed the Board in support of the adoption of the proposed Cost Recovery Policy citing the Association's appreciation for the certainty the policy will provide despite their standing desire to minimize fees as much as possible.

David Sahagun, President, California Service Station & Automotive Repair Association, addressed the Board in opposition to the adoption of the proposed Cost Recovery Policy citing the imposition of fees and taxes on small business owners by various governmental entities as being overly burdensome to the point of forcing the closure of small businesses.

Board Comments/Discussion:

Mr. Broadbent clarified that the action item before the Board today is not whether or not to impose the fees and at what level, but rather the adoption of a Cost Recovery Policy itself, which will merely establish a cost recovery plan to provide certainty to all parties about what to expect in the next few years and that Air District staff will be working through a proposal with the Budget and Finance Committee in the coming months, with consideration by the Board likely to occur in May.

Director Hosterman said that all of the Directors are struggling with how best to attract and retain businesses in their home constituencies and, meanwhile, working to satisfy the Air District's needs, and asked the Air District to consider stretching out the schedule beyond four years or the implementation of some method by which special fee payments can be arranged for businesses in need.

Director Wagenknecht noted that the policy is in satisfaction of a long term goal of the Air District, that fees have increased substantially over the last several years in an effort to make up lost ground, that 6.4% increases each year is an averaged figure representing the Air District's increased recovery, not an absolute fee increase for all regulated parties, and that the Policy is the result of some carefully considered work to balance the needs of all those involved.

Director Miley expressed his general agreement with Director Hosterman's sentiment, his dislike of unintended consequences, and his compassion for the plight of the small business person, noting in closing that when the fee increase is proposed it will be subject to his careful scrutiny.

Director Hudson said that the current goal of 85% over four years is itself a retreat from the original goal of 100% recovery and the more recently proposed 90% recovery over five years assumes a 2% cost increase per year, and suggested that the Air District maintain its focus on getting recovery back on track and consider establishing some basement figure to avoid a return to the 62% the Air District was recovering at the lowest recent point.

Director Piepho expressed her appreciation for the public comments as a reminder to the Board that these policy and fees changes should not be viewed in isolation from those whom they affect and urged close monitoring of the policy.

Director Garner inquired whether the fee schedule increases are tiered by business size to which Mr. Broadbent replied in the negative, explaining that they are based on the cost and service needs required, pursuant to past practice and recent legislation.

Director Ross noted that the policy is difficult to shoulder in these uncertain times but the Air District has worked to provide a degree of certainty in this proposal and that the targets will undoubtedly move again over time.

Director Spering explained that small business owners are often left without a means to recover these costs, whether by price increases on products or otherwise, and suggested the imposition of these increases over the course of six or seven years rather than the four currently proposed, combined with a provision that the matter may not come back for further review without a compelling reason, as its continuous review adds controversy and undermines the consistency that is a stated goal of the policy. Mr. Broadbent replied that consistency is precisely the goal and noted that the Board cannot bind future Boards, so if reconsideration is what is desired at some point in the future then it will occur.

Director Wagenknecht inquired whether the proposed fee increase and implementation of the policy will go before the Budget and Finance Committee to which Mr. Broadbent replied in the affirmative and shared that this discussion has informed that process for staff.

Director Spering and Mr. Broadbent discussed what precisely was before the Board.

Board Action: Director Wagenknecht made a motion to approve the report and recommendation of the Budget and Finance Committee noting the comments and discussion; Director Mar seconded; carried unanimously without opposition.

11. Report of the Mobile Source Committee Meeting of February 23, 2012
Committee Vice Chairperson Miley on behalf of Committee Chairperson Haggerty

The Committee met on Thursday, February 23, 2012, and approved the minutes of November 28, 2011.

The Committee reviewed projects with proposed grant awards over $100,000 and recommends Board of Directors approval of six projects that will replace four pieces of off-road equipment and twelve

marine engines and authorization for the Executive Officer to enter into agreements for the recommended Carl Moyer Program projects.

The Committee also reviewed a request to authorize Air District participation in Year 14 of the Carl Moyer Program and Year 3 of the Goods Movement I-Bond Program and recommends that the Board of Directors:

1. Adopt a resolution authorizing the Executive Officer to execute all necessary agreements with the Air Resources Board relating to the Air District's receipt of Carl Moyer Program funds for Program Year 14;

2. Allocate $5 million in Mobile Source Incentive Funding for projects eligible for funding under the Carl Moyer Program; and

3. Authorize the Executive Officer to enter into agreements with the Air Resources Board related to the acceptance of I-Bond funding for the Year 3 Port Truck replacement program and to enter into agreements for port truck projects ranked and approved by the Air Resources Board.

The Committee reviewed a request to select a contractor to assist the Air District in the drafting of Regional Plug-In Electric Vehicle Readiness plans for the U.S. Department of Energy and California Energy Commission. The Committee recommends that the Board of Directors:

1. Approve the selection of ICF International as the Air District consultants;

2. Authorize the Executive Officer to enter into all necessary agreements with ICF International to produce the required planning documents; and

3. In the event that a contract cannot be agreed upon with ICF International, authorize the Executive Officer to enter into an agreement with the next highest ranking bidder, UC Berkeley.

The Committee received an informational report on the Air District Grant Programs. The report recapped the allocations of funding made by the Air District in calendar year 2011 and previewed the projected funding, upcoming opportunities and challenges for Air District grant programs in calendar year 2012.

The Committee reviewed recommendations regarding the Air District's Port Drayage Truck Program and recommends that the Board of Directors:

1. Approve changes to the fiscal year ending 2012 Transportation Fund for Clean Air Regional Fund Policies and current Program Manager Fund Policies to include engine model year 2005/2006 drayage truck replacement projects as an eligible project type.

2. Authorize the expenditure of the remaining Regional Fund monies from the engine model year 2004 port truck program and the allocation of an additional $1 million in Regional Funds to implement a program to replace engine model year 2005/2006 port drayage trucks registered in the Bay Area;

3. Authorize the Executive Officer to enter into all contracts and make all expenditures necessary to allocate the program funds to eligible projects; and

4. Authorize the Executive Officer to accept, enter into contracts for and allocate funding from additional sources for the engine model year 2005/2006 Drayage Truck Replacement Program.

The next meeting of the Committee is on March 29, 2012.

Public Comments: None.

Board Comments/Discussion: None.

Board Action: Director Miley made a motion to approve the report and recommendations of the Mobile Source Committee; Director Hudson seconded; carried unanimously without opposition.

PRESENTATION(S)

12. Overview of Bay Area Environmental Health Collaborative Retreat

Lisa Fasano, Director of the Communications & Outreach Office, gave the staff presentation Overview of the Retreat with Bay Area Environmental Health Collaborative, including a summary of the objectives, participants, common goals and outcome.

Board Comments/Discussion:

Director Mar thanked the Air District staff for their expenditure of resources and time towards rebuilding trust with these community based groups.

Public Comments:

Dr. Clark again addressed the Board, expressing his organization's gratitude for the work done.

Rosina Roibal, Program Coordinator, Bay Area Environmental Health Collaborative, addressed the Board to second Director Mar's expression of gratitude to Air District staff, characterized the retreat as a positive process and shared that the organization looks forward to the prospect of further cooperation.

Board action: None; informational only.

13. Update on Regional Plug-In Electric Vehicle Deployment and Planning

Ms. Roggenkamp introduced Karen Schkolnick, Air Quality Program Manager of the Strategic Incentives Division, who gave the staff presentation Update on Regional Plug-In Electric Vehicle Deployment and Planning, including a review of the Air District's efforts to date; an explanation of charger technology; a detail of Air District deployment efforts from 2009 through 2012; summary of regional planning to prepare for mass adoption of plug-in electric vehicles in September 2012; and a review of the next steps.

Public Comments: None.

Board Comments/Discussion:

Director Ross noted that utilization of software, such as phone applications, is an integral component of deployment outreach efforts and asked how much it would cost to charge an average car to which Ms. Schkolnick answered approximately $1 to $1.50 to charge a car at home during off-peak hours and slightly more at a public station to cover likely surcharges. Director Ross suggested the distribution of promotional debit cards at program launch as an initial incentive.

Director Yeager extended his gratitude to Air District staff for working so well with the staff of Santa Clara County on this project and asked how much of the planning efforts have been focused on coordinating the dual availability of cars and charging stations. Ms. Schkolnick said that item is a component of the planning efforts.

Director Mar asked about the adoption rate statistic provided in the presentation and for speculation as to their popularity in the Bay Area. Ms. Schkolnick replied that this data point is 2011 sales information for the Nissan Leaf only and suggested that the Bay Area's high adoption rate may be attributed to the technology focus of the population, the compatibility of the vehicles with the Bay Area environment, and the Air District's commitment to their implementation. Director Mar and Ms. Schkolnick discuss the cost range for the various types of charging stations and the charges they provide. Director Mar inquired as whether rental car companies are purchasing as well, to which Ms. Schkolnick replied that Enterprise Rent-A-Car and car sharing companies, namely City CarShare, have expressed interest. Damien Breen, Director of Strategic Incentives, indicated that the Mobile Source Committee can anticipate a presentation towards the end of the year on a program focused on upgrading the fleets of cities and counties throughout the Bay Area.

Director Hudson asked if there has been outreach to the building industry with the idea of providing the charger technology as a built-in option in new homes.

Director Wagenknecht noted the lack of progress in Napa and Solano counties as shown in the presentation materials to which Mr. Breen noted that work with Solano is underway, that the District considers both counties to be critical parts of this program, and that 95% of charging is currently done at home which warrants the cautious build-up of public options and is the foundation for the Air District's current focus of updating city and county fleets.

Director Hosterman noted that new stations have been up and running in Alameda County for approximately four weeks, with free use through April, and they have proven quite popular so far.

Director Piepho discussed with Director Ross the software he mentioned previously. Director Piepho responded by asking Air District staff if this is being promoted by the Air District to which Mr. Breen replied that a new electric vehicle readiness website has been developed that will be launched soon and will have links to various resources.

Director Piepho noted that the road maintenance tax is currently applied through the sale of gasoline and as electric vehicles become more common this decreased tax revenue will likely become an issue. Mr. Breen said that this issue has been taken up by various groups and a number of proposals are developing.

Mr. Broadbent offered the Directors the opportunity to text drive a plug-in electric vehicle from the Air District fleet and invited requests for same.

Board action: None; informational only.

CLOSED SESSION:

The Board of Directors adjourned to Closed Session at 11:39 a.m.

14. EXISTING LITIGATION (Government Code Section 54956.9(a))
Pursuant to Government Code Section 54956.9(a), a need existed to meet in closed session with legal counsel to consider the following case:

California Building Industry Association v. Bay Area AQMD, Alameda County Superior Court, Case No. RG-10548693

OPEN SESSION

The Board of Directors resumed Open Session at 11:44 a.m. with no reportable action from the Closed Session.

PUBLIC COMMENT ON NON-AGENDA MATTERS

None.

BOARD MEMBERS' COMMENTS

None

OTHER BUSINESS

15. Report of the Executive Officer/APCO:

Mr. Broadbent reported that a comprehensive review of the 2011-2012 Winter Spare the Air Program will be presented at the next Board of Directors meeting, after which the Board will be invited to provide feedback on some possible refinements for the upcoming year; that the first phase of the new Production System for permit management has gone live and the next phases are on schedule, with a presentation of the system being readied for the upcoming Executive Committee and Board meetings; and finally that the Air and Waste Management Association meeting in San Antonio, Texas is June 19 through 22, and any members interested in attending should contact the Executive Office.

Director Yeager complimented Mr. Broadbent's op-ed piece as published in the San Jose Mercury-News and asked if it has or will be published elsewhere.

Director Piepho asked if the public comment at the Board of Directors February meeting has spurred any action by Air District staff to which Mr. Broadbent responded in the affirmative, reporting that a financial hardship exemption from the wood smoke regulation will be a discussion topic before the Board at the next meeting.

16. Chairperson's Report: None.

17. Time and Place of Next Meeting: Wednesday, March 21, 2012, Bay Area Air Quality Management District Office, 939 Ellis Street, San Francisco, CA 94109 at 9:45 a.m.

18. Adjournment: The Board of Directors meeting adjourned at 11:50 a.m. in honor of Supervisor Hal Brown.

Sean Gallagher
Clerk of the Boards

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson John Gioia and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 10, 2012

Re: Board Communications Received from March 7, 2012 through March 20, 2012

RECOMMENDED ACTION

None; receive and file.

DISCUSSION

A list of communications directed to the Board of Directors received by the Air District from March 7, 2012 through March 20, 2012 if any, will be at each Board Member's place at the March 21, 2012 Board meeting.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Maricela Martinez
Reviewed by: Jennifer C. Cooper

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chair John Gioia and Members
of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 7, 2012

Re: Consideration of Authorization for Execution of Purchase Orders in Excess of $70,000 Pursuant to Administrative Code Division II Fiscal Policies and Procedures Section 4.3 Contract Limitations

RECOMMENDED ACTION

The Board of Directors will consider authorizing the Executive Officer/APCO to execute a purchase order to Entech Corporation in the amount of $47,697 and to Agilent Technologies in the amount of $78,325 for a total of $126,022 for laboratory equipment.

BACKGROUND

The laboratory analyzes samples of ambient air for specific toxic compounds as required by EPA's National Air Toxics Trends Stations grant and in support of various Air District programs. The laboratory recently retired an 11 year old instrument that performed most of these analyses.

DISCUSSION

Staff evaluated instruments from various manufacturers. The Entech/Agilent instrument was selected as the best option to meet Air District needs based on performance, operational experience and its ability to more reliably detect additional compounds with lower minimum detection limits. Funds for this purchase were included in the fiscal year end (FYE) 2012 budget.

Purchase of the Entech/Agilent instruments will:

- result in less instrument downtime,
- provide measurements with greater accuracy and stability, and with lower detection limits,
- increase laboratory efficiency,
- allow the lab to analyze for additional compounds,
- potentially save funds currently spent on contracted analyses due to increased equipment capabilities.

Therefore, staff recommends the purchase of the laboratory instrument from Entech/Agilent because this represents the best overall value to the Air District.

BUDGET CONSIDERATION/FINANCIAL IMPACT

Funds for this purchase were included in the FYE 2012 budget.

Respectfully Submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Jim Hesson
Reviewed by: Eric Stevenson and Jean Roggenkamp

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson John Gioia and Members
of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 7, 2012

Re: Referral of Proposed Budget for Fiscal Year Ending (FYE) 2013 to the Budget & Finance Committee

RECOMMENED ACTION

Refer proposed operating budget for Fiscal Year Ending 2013 to the Budget and Finance Committee for review and consideration.

BACKGROUND

Pursuant to Administrative Code Division II, Section 3.2 Fiscal Policies and Procedures and in compliance with Health and Safety Code Section 40276, the Executive Officer/APCO requests that the Board of Directors refer the proposed budget for FYE 2013 to the Budget and Finance Committee for review and consideration.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: David Glasser
Reviewed by: Jack M. Colbourn

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson John Gioia and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 7, 2012

Re: Consider Reclassifying Positions

RECOMMENDATION

The Board of Directors will consider reclassifying three positions, effective upon Board of Directors' approval.

DISCUSSION

The Air District requests approval to reclassify three vacant positions to three Senior Advanced Projects Advisor positions in the Information Services Division. The Senior Advanced Projects Advisor classification is an existing job classification in the Air District's Classification Plan. The three vacant positions include: one (1) Office Assistant position in the Engineering Division; one (1) Administrative Secretary position in the Information Services Division; and, one (1) Supervising Air Quality Inspector position in the Compliance and Enforcement Division.

These reclassifications will enable the Air District to concentrate its work program and staffing configuration to better meet the needs of the Air District by focusing its resources on Air District-wide cross-divisional software and hardware projects such as the Production System project.

The three vacant and proposed job classifications are represented by the Employees' Association (EA) bargaining unit. There is no increase or decrease in the number of bargaining unit positions. Additionally, the Human Resources staff has conducted and completed meet and confer with the EA in regard to any impacts of these reclassifications.

BUDGET CONSIDERATION/FINANCIAL IMPACT

The annual salary and benefits of the three Senior Advanced Projects Advisor positions is approximately $454,000. The annual salary and benefits of the three vacant positions is approximately $295,000. The difference between the three Senior Advanced Projects Advisor positions amount and the three vacant positions amount is approximately $159,000.

Respectfully Submitted,

Jack P. Broadbent
Executive Officer/APCO

Reviewed by: Jack M. Colbourn

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson John Gioia and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 12, 2012

Re: Report of the Public Outreach Committee Meeting of March 15, 2012

PROPOSED RECOMMENDED ACTION

A) Board of Directors approval of staff recommendations for selected contractor/sub-contractors for the Spare the Air Campaigns' Advertising, Communications & Evaluation Services. The proposed amount set for the overall contract is up to $1,990,000 per contract year, for up to three years, to be broken down as follows:

- Spare the Air Every Day Campaign
  - Advertising $600,000
  - Media Relations $200,000
  - Social Media $50,000
  - Employer Program $150,000
  - Public Opinion Surveys $45,000

- Winter Spare the Air Campaign
  - Advertising $550,000
  - Media Relations $100,000
  - Social Media $50,000
  - Public Opinion Surveys $45,000

- Spare the Air Grants & Incentives Campaign
  - Advertising $200,000

B) None; receive and file.

C) None; receive and file.

BACKGROUND

The Public Outreach Committee will meet on Thursday, March 15, 2012. The Committee will receive the following reports:

A) Contract Award for Spare the Air Campaigns.

B) Update on Plug-In Electric Vehicle Website.

C) Smoking Vehicle Campaign Update.

Attached are the staff reports that will be presented in the Public Outreach Committee packet.

Chairperson Mark Ross will give an oral report of the meeting.

BUDGET CONSIDERATION/FINANCIAL IMPACT

A) Funding for this contract comes from the following sources:
   - Spare the Air Every Day
     - Congestion Mitigation Air Quality (CMAQ) - $895,000 per contract year FYE 2012-15
     - Transportation Fund for Clean Air (TFCA) - $150,000 per contract year FYE 2013-15
   - Winter Spare the Air
     - General Revenue - $745,000 per contract year FYE 2013-15
   - Grants and Incentives
     - Carl Moyer Program, Mobile Source Incentive Fund - $200,000 per contract year FYE 2012-15

B) None.

C) None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Sean Gallagher
Reviewed by: Jennifer C. Cooper

Attachments

AGENDA: 4

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Mark Ross and Members of the Public Outreach Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 7, 2012

Re: Contract Award for Spare the Air Campaigns

RECOMMENDED ACTION:

The Committee will consider recommending Board of Directors approval of staff recommendations for selected contractor/sub-contractors for the Spare the Air Campaigns' Advertising, Communications & Evaluation Services.

The proposed amount set for the overall contract is up to $1,990,000 per contract year, for up to three years, to be broken down as follows:

- Spare the Air Every Day Campaign
  - Advertising $600,000
  - Media Relations $200,000
  - Social Media $50,000
  - Employer Program $150,000
  - Public Opinion Surveys $45,000

- Winter Spare the Air Campaign
  - Advertising $550,000
  - Media Relations $100,000
  - Social Media $50,000
  - Public Opinion Surveys $45,000

- Spare the Air Grants & Incentives Campaign
  - Advertising $200,000

BACKGROUND

The Air District's Communications and Outreach Division relies on contractors to assist with various aspects of its advertising and outreach programs. The Communications and Outreach Division recently completed a Request for Proposal (RFP) process to solicit responses for the following services: Advertising, Media Relations, Social Media, Public Opinion Surveys and Employer Outreach services.

- **Advertising Services:** To develop professional quality broadcast, print and digital advertising/educational materials for a variety of Air District programs.
- **Media/Public Relations Services:** To provide media relations services to promote agency activities.
- **Social Media Services:** To provide social media strategies—including concept, writing, design, production and technical services.
- **Public Opinion Survey Services:** To measure the effectiveness of the Air District's Spare the Air Every Day and Winter Spare the Air campaigns, and assess public behavior patterns/change.
- **Employer Outreach Services:** To encourage employers in the Spare the Air Employer Program to educate their employees about air quality, notify them when a Spare the Air Alert is called and change commute behaviors to benefit air quality.

DISCUSSION

The RFP for Spare the Air Advertising, Communications & Evaluation Services was released on February 24, 2012.

Air District staff performed a thorough evaluation of contractor performance in technical and non-technical areas including: Media Relations/Advertising, Writing/Design, Strategic Planning, Customer Service, Innovation, Program Execution and more. Staff assessed the Air District's communications support requirements for ongoing programs and made adjustments based on program needs.

After evaluating proposals, conducting interviews and checking references, staff will provide recommendations for Board approval.

EVALUATION

Proposals were evaluated on the following criteria:

Technical expertise, size and structure of the firm and personnel assigned to RFP tasks; firm's ability to perform and complete the work in a professional and timely manner.	30%
Experience of the team working on projects of similar scope for other governmental agencies.	20%
Responsiveness of the proposal, based upon a clear understanding of work to be performed.	20%
Cost effectiveness and resource allocation strategy	20%
References of the firm, Green Business certification	10%

BUDGET CONSIDERATION/FINANCIAL IMPACT:

Funding for this contract comes from the following sources:

- Spare the Air Every Day
    - Congestion Mitigation Air Quality (CMAQ) - $895,000 per contract year FYE 2012-15
    - Transportation Fund for Clean Air (TFCA) - $150,000 per contract year FYE 2013-15
- Winter Spare the Air
    - General Revenue - $745,000 per contract year FYE 2013-15
- Grants and Incentives
    - Carl Moyer Program, Mobile Source Incentive Fund - $200,000 per contract year FYE 2012-15

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Kristine Roselius
Reviewed by: Lisa Fasano

AGENDA: 5

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Mark Ross and Members of the Public Outreach Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 1, 2012

Re: Update on Plug-In Electric Vehicles (PEV) Website

RECOMMENDED ACTION:

For information only.

BACKGROUND

Plug-in electric vehicles are an emerging technology with tremendous potential to reduce air pollution and greenhouse gases.

The Air District is committed to helping develop the infrastructure and knowledge that will make plug-in electric vehicles (PEVs) a viable option for large numbers of Bay Area residents and businesses.

DISCUSSION

The Air District's new website (BayAreaPEVReady.org) acts as a PEV information clearinghouse to assist drivers, local governments and infrastructure providers seeking information about PEVs.

The Committee will receive an update about site content as well as plans to launch the site.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Kristine Roselius
Reviewed by: Lisa Fasano

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Mark Ross and Members of the Public Outreach Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 1, 2012

Re: Smoking Vehicle Campaign Update

RECOMMENDED ACTION:

For information only.

BACKGROUND

In 1992, the Air District rolled out its Smoking Vehicle Program, providing residents with a 1-800-EXHAUST phone line to call in complaints about automobiles with excessive tailpipe emissions. Reports of smoking vehicles are identified through Department of Motor Vehicles records and information is sent by the Air District to vehicle owners detailing how they can get their vehicle repaired with a list of certified repair facilities and the impacts of driving a smoking vehicle.

DISCUSSION

The Air District receives calls reporting smoking vehicles to the 1-800-EXHAUST phone line. In 2011 the District received 6,207 smoking vehicle reports, in 2010 we received 8,340.

Although reports of smoking vehicles show a measurable increase when the advertising and messaging campaign is out, reports continue to drop as the vehicle fleet has turned over to newer, cleaner running automobiles and trucks.

The Committee will receive an update about the 2012 Smoking Vehicle Program advertising campaign and plans to retire the program after this season.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Lisa Fasano
Reviewed by: Lisa Fasano

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson John Gioia and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 12, 2012

Re: Report of the Executive Committee Meeting of March 19, 2012

RECOMMENDED ACTION

A) None; receive and file.

B) None; receive and file.

BACKGROUND

The Executive Committee will meet on Monday, February 19, 2012. The Committee will receive the following reports:

A) Quarterly Report of the Hearing Board: Oct-Dec 2011.

B) Update on Production System Replacement of Databank.

Attached are the staff reports that will be presented in the Executive Committee packet.

Chairperson John Gioia will give an oral report of the meeting.

BUDGET CONSIDERATION/FINANCIAL IMPACT:

A) None.

B) None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Sean Gallagher
Reviewed by: Jennifer C. Cooper

Attachments

AGENDA: 4

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

TO: Chairperson John Gioia and Members of the Executive Committee

FROM: Chairperson Thomas M. Dailey, M.D., and Members of the Hearing Board

DATE: February 9, 2012

RE: Hearing Board Quarterly Report – October 2011 to December 2011

RECOMMENDED ACTION:

This report is provided for information only.

DISCUSSION:

Below is Hearing Board activity during the second quarter period, from **October 2011 to December 2011:**

COUNTY/CITY	PARTY/PROCEEDING	REGULATION(S)	STATUS	PERIOD OF VARIANCE	ESTIMATED EXCESS EMISSIONS
Napa/Napa	**Docket No. 3626** – APCO vs. KAPV INC. a California corporation, also *d/b/a* NAPA GAS, NAPA GAS U-HAUL, and IMOLA GAS U-HAUL, a Gasoline Dispensing Facility, Site No. C8262; MOJTABA KARIMABADI, an individual also *d/b/a* NAPA GAS and, NAPA GAS U-HAUL; J. GOLPAD, *a/k/a* JASON GOLPAD, an individual, *d/b/a* NAPA GAS; MELVIN K. LOUIE, Successor Trustee - *Accusation and Request for Order for Abatement; limiting emissions of synthetic solvent from dry cleaning operations and related operations.*	11-16-304.15	Accusation--Hearing Held October 6, 2011—approved Stipulated Conditional Order for Abatement	===	===

COUNTY/CITY	PARTY/PROCEEDING	REGULATION(S)	STATUS	PERIOD OF VARIANCE	ESTIMATED EXCESS EMISSIONS
San Francisco/San Francisco	**Docket No. 3627** – CHEVRON PRODUCTS COMPANY – *Request for a Short Term Variance; applicant's Major Facility Review Permit (Plant A0010, Source S-0679).*	8-5-304.2, 304.3, 321.3.2, and 322.5 2-6-307, Standard Conditions 1.A. and 1.B.2 of MFRP	Hearing scheduled for October 6, 2011; Applicant filed Request for Dismissal on September 27, 2011; filed Order for Dismissal 10/6/2011	October 10, 2011 to November 8, 2011	===
Contra Costa/Martinez	**Docket No. 3532** – TESORO REFINING AND MARKET COMPANY, GOLDEN EAGLE REINERY (B2758) AND AMORCO TERMINAL (B2759) – *Appeal from the Major Facility Review Permit issued on December 1, 2003.*	Final Major Facility Review Permit	Appellant files new appeal on June 28, 2011; requests status report and further continuance; Hearing scheduled for 9/22; rescheduled to 10/13 and again to 11/10; Hearing held 11/10/11; Pro Forma Hearing set for 12/15/11; Appellant requests withdrawal of appeal; hearing canceled	===	===

COUNTY/CITY	PARTY/PROCEEDING	REGULATION(S)	STATUS	PERIOD OF VARIANCE	ESTIMATED EXCESS EMISSIONS
Contra Costa/Richmond	**Docket No. 3524** – CHEVRON U.S.A., INC. – *Request for Dismissal of Appeal from Major Facility Review Permit.*	Final Major Facility Review Permit	Hearing scheduled/re-scheduled for 9/22, 10/13, 11/10/11 (Pro Forma); Appellant requests withdrawal on 9/8/11; hearing canceled; Order for Dismissal filed 10/6/2011	===	===
Contra Costa/Rodeo	**Docket No. 3628** – CONOCOPHILLIPS COMPANY, SAN FRANCISCO REFINERY – *Appeal from Issuance of Final Major Facility Review Permit for Facility No. A0016, issued September 1, 2011.*	Final Major Facility Review Permit	Appeal filed September 29, 2011; Pro Forma hearing held 10/27/11; Evidentiary hearing scheduled for 1/26/12; Appellant requests withdrawal of Appeal 1/19/12; Hearing canceled; Order for Dismissal filed on 1/30/12	===	===
Contra Costa/Richmond	**Docket No. 3629** – CHEVRON PRODUCTS COMPANY, 841 Chevron Way, Richmond, California (Plant No. A0010) – *Emergency Variance from Regulation 8, Rule 2, Section 301*	8-2-301, S-4285	Application filed 11/3/11; granted 11/15/11; Order Granting Emergency Variance filed 11/17/11	11/3/11 to 11/10/11	172.8 lbs. Hydrocarbon

FOURTH QUARTER NOTES (October 2011 – December 2011):

- During the fourth quarter of 2011 (October to December), the Hearing Board held 3 hearings and processed a total of 8 Orders, 2 of which were Accusations (3626, 3623), 2 were Appeals (3524, 3628), 3 Variances (3585, 3627. 3617), 1 Emergency Variance (3629) and 4 Requests for Withdrawals or Dismissals (3628, 3627, 3532 and 3524).
- The Hearing Board collected a total of $14,837.09 during the fourth quarter of 2011.

Respectfully submitted,

Thomas M. Dailey, M.D.
Chair, Hearing Board

Prepared by: Lisa Harper
Reviewed by: Jennifer Cooper

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson John Gioia and Members of the Executive Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 7, 2012

Re: Update on Production System Replacement of Databank

RECOMMENDED ACTION

None; receive and file.

DISCUSSION

Staff will present the current status of this multi-year project, and a brief description of the next milestones. In December of 2006, staff presented the plan for implementation of the new Production System. At that time, staff indicated that execution of the plan would be accompanied by detailed reports on the project status and accomplishments.

BUDGET CONSIDERATION/FINANCIAL IMPACT

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Jeffrey McKay

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson John Gioia and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 12, 2012

Re: Report of the Stationary Source Committee Meeting of March 19, 2012

RECOMMENDED ACTION

A) None; receive and file.

B) None; receive and file.

BACKGROUND

The Stationary Source Committee will meet on Monday, March 19, 2012. The Committee will receive the following reports:

A) Proposed Amendments to Regulation 9, Rule 10: NOx and CO from Boilers, Steam Generators and Process Heaters in Petroleum Refineries.

B) Update on Lehigh Southwest Cement Plant.

Attached are the staff reports that will be presented in the Stationary Source Committee packet.

Chairperson John Avalos will give an oral report of the meeting.

BUDGET CONSIDERATION/FINANCIAL IMPACT

A) None.

B) None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Sean Gallagher
Reviewed by: Jennifer C. Cooper

Attachments

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Avalos and Members
of the Stationary Source Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 2, 2012

Re: Proposed Amendments to Regulation 9, Rule 10: NOx and CO from Boilers, Steam Generators and Process Heaters in Petroleum Refineries

RECOMMENDED ACTION

None; receive and file.

BACKGROUND

Regulation 9, Rule 10 (Regulation 9-10) limits nitrogen oxides (NOx) and carbon monoxide (CO) emissions from boilers, steam generators and process heaters operating in petroleum refineries. This regulation was adopted on September 16, 1992 and last amended on December 15, 2010 to implement Control Measure SSM 10 in the 2010 Clean Air Plan.

Regulation 9-10 includes a refinery-wide, average NOx emission limit for most heaters that were permitted prior to 1994, and includes source-specific NOx limits for the remaining pre-1994 heaters that are classified as CO boilers. These limits have reduced refinery heater NOx emissions by as much as 26 tons per day, which is the largest NOx reduction attributable to a single District NOx rule.

During the rule development process that led up to the 2010 amendments, refinery operators and District staff discussed possible Regulation 9-10 amendments that would incentivize replacement of older, less efficient heaters. Replacement of older heaters is desirable because new heaters have significantly lower NOx emissions than the allowable limit in Regulation 9-10, as well as better energy efficiency, resulting in lower carbon dioxide (CO_2) emissions. CO_2 is the primary greenhouse gas and reductions will be necessary to meet AB32 requirements.

Subsequent to the 2010 amendments, District staff has been consulting with refinery operators to develop a heater replacement incentive provision. Staff is preparing draft amendments for a public workshop to solicit public input on such a provision.

DISCUSSION

Staff will provide the Committee with the following information:

- A description of affected equipment and their emissions;
- Background on current rule requirements;
- Draft amendments to Regulation 9, Rule 10;
- Rule development process to date; and
- Remaining steps to a public workshop and hearing.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Julian Elliot
Reviewed by: Henry Hilken

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Avalos and Members
of the Stationary Source Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 9, 2012

Re: Status Report on Lehigh Southwest Cement Plant

RECOMMENDED ACTION

None; receive and file.

BACKGROUND

The Stationary Source Committee has requested periodic status updates on selected Bay Area facilities. The Lehigh Southwest Cement Plant, located in unincorporated Cupertino at the end of Stevens Creek Boulevard, is the only cement manufacturing plant located in the Bay Area.

DISCUSSION

Staff has prepared the attached Fact Sheet for the Lehigh facility. At the upcoming committee meeting staff will provide a status report on air quality issues associated with Lehigh including:

- Background information,
- Title V permit renewal status,
- New and upcoming emissions controls and monitors,
- Updated facility Health Risk Assessment,
- Results of ambient air monitoring in the vicinity of the Lehigh facility,
- Facility compliance status,
- Quarry Reclamation Plan Amendment status,
- Next steps.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Brian Bateman
Reviewed by: Jeff McKay

Attachment

LEHIGH SOUTHWEST CEMENT PLANT
BAAQMD Site #A0017
24001 Stevens Creek Boulevard
Cupertino, CA 94014

FACT SHEET

March 5, 2012

Background

- The Lehigh Southwest Cement Plant is located in unincorporated Cupertino at the end of Stevens Creek Boulevard. Mining at the site dates back to the 1880's, and the cement plant was established in 1939.

- The facility excavates limestone from an on-site quarry for use as a raw material in cement manufacturing. The limestone, and other raw materials, are crushed into a fine powder and blended in the correct proportions. This blended raw material is heated in a pre-heater and rotary kiln where it reaches temperatures of about 2,800 degrees Fahrenheit. The fuel used to heat the kiln is currently petroleum coke. The material formed in the kiln, known as "clinker", is cooled and then ground and blended with gypsum to form Portland cement. In addition to cement, the facility also produces and sells construction aggregates.

- Nitrogen oxides (NO_x), sulfur dioxide (SO_2), and particulate matter (PM), are the primary criteria air pollutants emitted from cement manufacturing. Small quantities of volatile organic compounds (VOC), including the toxic air contaminant (TAC) benzene, are also emitted from the kiln. TAC emissions also include trace metals such as mercury, cadmium, chromium, arsenic, and nickel, and hydrochloric acid (HCl). The kiln exhaust is equipped with continuous emissions monitors (CEMs) to determine compliance with applicable emission limitations, and pollutants with CEMs include NO_x and SO_2. A CEM has also recently been installed to determine mercury emissions from the kiln exhaust.

- PM and metallic TAC emissions are controlled at the facility by fabric filtration, which is used at various material crushing, grinding, and loading operations, and at the kiln, which is the largest source of emissions. Additional emission controls, which focus on controlling mercury emissions, include a kiln mill dust collector (KMDC) dust shuttling system (operational since May 2010), and an activated carbon injection (ACI) system (operational since May 2011). A lime slurry injection (LSI) system has also been installed to reduce emissions of HCl and visible emissions.

- Lehigh is subject to a number of Bay Area Air Quality Management District ("District"), State, and federal air quality rules and regulations that are delineated in the facility's Title V Permit. A Title V Permit is a compilation of all existing air quality requirements that apply to a stationary source (facility) including emissions limits and standards, monitoring, record keeping, and reporting requirements.

- In 2007, Santa Clara County began a process to amend Lehigh's Reclamation Plan, which is required under the State's Surface Mining and Reclamation Act (SMARA) to ensure compliance with State and local mining laws. The County is acting as the Lead Agency under the California Environmental Quality Act (CEQA) for this action, and issued a Draft Environmental Impact Report (DEIR) for the project on December 23, 2011, with a public comment period extending through February 21, 2012. The project description for the Reclamation Plan Amendment in the DEIR has been revised to exclude a new quarry pit, which had been a component included in previous proposals issued.

Public Comments/Issues

- In November 2007, District staff met with representatives of the West Valley Citizen Air Watch (WVCAW) and worked to answer questions from the group and other members of the public about the Quarry Reclamation Plan Amendment proposal, and other air quality issues associated with the facility.

- On October 22, 2008, and June 11, 2009, District staff participated in community meetings organized by Santa Clara County to answer questions about the facility and the Reclamation Plan Amendment. A variety of concerns were expressed at these meetings including the potential location of a new quarry pit close to residential areas, the use of petroleum coke as a fuel, visible emissions from the kiln, general dust emissions and particulate deposition, emissions of toxic air contaminants including mercury and hexavalent chromium, emissions from truck traffic, and the facility's compliance history.

- The District conducted a public hearing in Cupertino on September 17, 2009, to solicit comments on the draft Title V permit renewal for the Lehigh facility. Approximately one hundred individuals or groups provided comments at the hearing, and many additional comments were received in writing.

- Members of the public have raised concerns regarding an Notice of Violation (NOV) issued by the U.S. EPA to the Lehigh facility on March 9, 2010, for alleged violations of the Clean Air Act's Prevention of Significant Deterioration (PSD) permit program. The NOV was part of a national review of PSD applicability for the cement manufacturing industry.

Facility Status

A. Permits

- Lehigh's initial Title V permit was issued on November 5, 2003. Title V permit renewals are required every five years, and the existing Title V permit continues in force until the District takes final action on the renewal application. On July 30, 2009, the District issued an initial draft Title V permit renewal for the Lehigh facility. On

January 5, 2010, the District withdrew this initial draft Title V permit renewal. This was done because EPA had proposed significantly more stringent standards for mercury and other TACs from cement plants in amendments to 40 CFR 63, Subpart LLL, National Emission Standards for Hazardous Air Pollutants (NESHAP) from the Portland Cement Manufacturing Industry. The proposed EPA NESHAP amendments were published on May 6, 2009, and the final amendments were published on September 9, 2010 (the emission standards of the amended NESHAP do not become effective, however, until September 9, 2013). The requirements of this amended NESHAP were incorporated into a revised draft Title V permit renewal, and the draft permit and Statement of Basis were re-issued by the District for public comment on January 7, 2011, with the comment period ending on March 25, 2011. Since that time, District staff has responded to public comments and posted the responses to the District website. The draft Title V permit renewal, including the Statement of Basis and responses to comments, was submitted to EPA on February 16, 2012 for a 45-day review period which ends March 31, 2012. Final action on the Title V permit renewal will be taken after considering any comments received from EPA.

- On May 3, 2011, the District issued a permit for the operation of an Activated Carbon Injection system to control mercury emissions from Lehigh's cement kiln. On July 8, 2011, the District issued a minor revision to incorporate these additional controls and emission limits into Lehigh's Title V permit. On October 17, 2011, the District issued a permit for two synthetic gypsum feeders. On January 9, 2012, the District issued a minor revision to incorporate the applicable requirements for these sources into Lehigh's Title V permit.

B. Compliance

- From July 1, 2004 through December 31, 2011, there were 33 violations at the Lehigh facility that resulted in the issuance of 27 Notices of Violation (NOVs) by the District. The violations can be characterized as emissions-related, administrative, or permit-related in nature. There were 19 emissions-related violations; most were issued for excessive visible emissions of dust or smoke from various facility sources. The facility expeditiously took corrective action and brought these violations into compliance. There were eight administrative violations, which included various recordkeeping deficiencies and late reporting of required reports. Lehigh took corrective action on these violations and brought them into compliance. The six permit-related violations documented unpermitted material stockpiles and synthetic gypsum feeders. Lehigh has obtained the necessary permits and is currently in compliance with District permit requirements. Staff is currently investigating several SO_2 excesses from the cement kiln reported by the facility in September and October 2011. SO_2 excesses had not previously been a compliance issue during this review period. In summary, Lehigh has been in intermittent compliance, similar to many other Title V facilities; there is currently no ongoing violation, or pattern of recurrent violation that represents ongoing noncompliance.

- The NOV issued by U.S. EPA to Lehigh on March 9, 2010, concerns a series of physical modifications made to the facility between 1996 and 1999. EPA alleges that these modifications should have undergone pre-construction PSD permit review, but the owners of the facility at the time failed to apply for a PSD permit, which would have required additional emissions controls for NO_x and SO_2. This NOV is similar to other EPA enforcement actions against various cement plants in other states. EPA has recently informed District staff that the Lehigh NOV remains an active investigation by EPA without final resolution.

- EPA did not include in its NOV any projects at the Lehigh facility that occurred after EPA adopted major reforms to the PSD regulations on December 31, 2002. According to EPA, "[t]hese reforms were aimed at providing much needed flexibility and regulatory certainty, and at removing barriers and creating incentives for sources to improve environmental performance through emissions reductions, pollution prevention, and improved energy efficiency" (*Supplemental Analysis of the Environmental Impact of the 2002 Final NSR Improvement Rule*, U.S. EPA, Nov. 21, 2002). The reforms modified PSD applicability tests which, in some cases, had resulted in projects being identified as a major modification even though the project decreased emissions (because of the program's "actual-to-potential" applicability test and "last two years" baseline emissions procedure, both of which were eliminated with the reforms).

C. Toxic Air Contaminants

- District staff has conferred with staff of Monterey Bay Unified Air Pollution Control District (MBUAPCD) and South Coast Air Quality Management District (SCAQMD) regarding the reason for elevated levels of hexavalent chromium reported downwind of cement plants located in Davenport and Oro Grande, California. It is believed that these elevated hexavalent chromium levels are the result of the use of steel slag as a raw material and/or the use of uncovered clinker storage piles. The Lehigh facility uses a naturally occurring iron ore that has much lower chromium levels than steel slag, and also utilizes enclosed silos rather than open storage piles for clinker storage.

- The District required that Lehigh collect additional data regarding hexavalent chromium, mercury, other metallic TACs, and crystalline silica, in fugitive dust and other sources at the facility in addition to the kiln. This comprehensive TAC emissions inventory update was submitted to the District on March 30, 2009. After review of these data, the District required Lehigh to revise mercury emission estimates from the kiln by using a more conservative material balance approach (the prior approach for estimating mercury emissions had been based on stack testing as specified in State guidelines). Lehigh was then required by the District to prepare a comprehensive updated Health Risk Assessment (HRA), based on the revised TAC emissions inventory, under the requirements of the state Air Toxics Hot Spots (ATHS) program. The HRA was required to be based on recently updated HRA guidelines issued by Cal/EPA's Office of Environmental Health Hazard Assessment

(OEHHA) in accordance with the mandate of the Children's Environmental Health Protection Act. Revised HRA procedures include more health protective Reference Exposure Levels (RELs) for mercury and several other TACs, and the use of age sensitivity factors for estimating cancer risks.

- The updated HRA was submitted by Lehigh in September 2010, and District staff subsequently noted several discrepancies and/or errors and requested revisions. A revised HRA was submitted in March 2011. The HRA included multiple emissions scenarios, including a "2011 Production" scenario that considers additions of sorbent (lime and activated carbon) injection to the kiln abatement system that have been implemented, as well as a projected future 2013 scenario that represents additional risk reduction measures necessary to comply with the NESHAP (e.g., a new or modified kiln dust collector with a higher single exhaust stack, and tighter emission standards for mercury and other TACs).

- The updated HRA indicates that, based on the emissions represented by the 2011 Production scenario, risk levels are below the thresholds requiring public notification established by the District under the ATHS program. Risks will be further reduced based on the modifications to be made to comply with the NESHAP in 2013. Review by District staff indicated that the HRA was prepared in accordance with the ATHS program guidelines. In addition, OEHHA staff reviewed the HRA document and provided comments, but did not note any significant issues. The Lehigh facility remains a "tracking facility" under the ATHS program, and is required to periodically update their air toxics emission inventory. Changes in operation and/or increases in emission rates may require the facility to update the HRA in the future.

D. Ambient Air Monitoring

- Due to concerns about elevated hexavalent chromium air concentrations found near some cement plants, the U.S. EPA and the District installed ambient air monitoring equipment at Stevens Creek Elementary School, located approximately two miles from Lehigh, to measure hexavalent chromium as part of EPA's School Air Toxics Monitoring Initiative. The EPA provided the instruments and initial laboratory analysis, and the District installed and operated the monitoring equipment. The monitoring commenced on July 30, 2009, and continued until August 30, 2010. A total of 72 daily samples were taken at this site on a once every 6th day sampling schedule. EPA concluded that hexavalent chromium air concentrations at the site were below levels of concern for short-term and long-term exposures, and did not clearly indicate influence of a nearby source.

- On October 28, 2008, the District began operating an ambient air monitor in the vicinity of the Lehigh facility adjacent to Stevens Creek Boulevard (near the intersection of Prado Vista Drive) to determine if truck traffic and dust associated with the facility were having an adverse impact on PM levels in the nearby community. This monitor continuously recorded particulate matter of 10 microns or less (PM_{10}) in

the air. This monitor operated for approximately two years and recorded average PM_{10} levels that were less than the levels at the District's San Jose monitoring site (located about 10 miles east of the Cupertino site). Days with elevated PM_{10} concentrations at both the Cupertino and San Jose sites occurred in the wintertime PM season when wood burning has been identified as a significant source of PM air concentrations in the Bay Area.

- The District has established a comprehensive ambient air monitoring site located about three quarters of a mile from the Lehigh facility at Monta Vista Park near the intersection of South Foothill Boulevard and Voss Avenue in Cupertino. District staff participated in a community meeting to discuss the new monitoring site at the Monta Vista Community Center on April 28, 2010.

- The Monta Vista sampling site began operating on September 1, 2010, and measures air concentrations of a broad array of criteria air pollutants (e.g., $PM_{2.5}$, PM_{10}, CO, NO_2, SO_2, and ozone), TACs (e.g., a variety of metals including mercury, and a variety of organic gases including benzene), and meteorological conditions (e.g., wind speed, wind direction, and temperature). (Benzene and mercury have been identified by the District as being the primary contributors to health risk resulting from TAC emissions from the Lehigh facility).

- After collecting an entire year of data through the end of August of 2011, District staff developed a summary and analysis of the results. Portions of this follow:

  GASES: Cupertino air quality levels were well below all applicable State and National Ambient Air Quality Standards (NAAQS) for gaseous criteria pollutants including ozone, CO, SO_2, and NO_2. In general, levels of criteria pollutants were in the middle of the distribution of Bay Area air monitoring sites, with as many locations measuring levels higher as locations measuring lower than Cupertino. For ozone, levels at Cupertino were below the national standard and similar to Napa and Vallejo. (The District has been designated "non-attainment" for the state and national ambient air quality standards for ozone). NO_2 levels were similar to levels at other suburban locations, including Vallejo, Redwood City and Livermore. The same was true for SO_2 emissions with measurements similar to San Pablo and Concord. CO measurements were among the lowest in the Bay Area, with only the rural location at Bethel Island being lower.

  PARTICULATE MATTER: Ambient air quality standards have been established for $PM_{2.5}$ and PM_{10}. For both $PM_{2.5}$ and PM_{10}, there is a 24-hour standard based on daily concentrations, and an annual standard based on the average of all 24-hour concentrations over a one-year period. (The District has been designated as "non-attainment" for the 24-hour and annual state PM_{10} standards, the annual state $PM_{2.5}$ standard, and the 24-hr national $PM_{2.5}$ standard). Cupertino PM levels were among the lowest in the Bay Area, and did not exceed the 24-hour $PM_{2.5}$ NAAQS nor the 24-hour PM_{10} NAAQS, with levels similar to Redwood City and Gilroy. The annual average $PM_{2.5}$ levels were also below the NAAQS, and only slightly higher than the

more stringent annual State standard, with levels similar to, but lower than, Livermore.

LEAD: Cupertino lead levels were less than one percent of the State standard, less than 10 percent of the recently revised national standard, and less than levels in San Francisco.

TACs: The District estimated health risks using the ambient monitoring data and health effect values (cancer potency factors, and non-cancer RELs) established by OEHHA. Health risk summaries were provided as follows: cancer risk, chronic non-cancer risk, 8-hour chronic non-cancer risk, and acute non-cancer risk. Health risks were based on the following exposure pathways where applicable under OEHHA HRA guidelines: inhalation, dermal absorption, soil ingestion, mother's milk ingestion, and homegrown produce ingestion. Non-inhalation pathway exposures were estimated based on measured pollutant concentrations and conservative default exposure assumptions established in OEHHA guidelines. Per recently adopted OEHHA guidelines, the estimated cancer risks include an Age Sensitivity Factor to account for inherent increased susceptibility to carcinogens during infancy and childhood.

The calculated lifetime cancer risk at the Cupertino site was approximately 400 in one million. Compounds that contributed most significantly to cancer risk were diesel PM, benzene, 1,3-butadiene, carbon tetrachloride and formaldehyde. This is consistent with analyses of data collected at other urban monitoring sites. These pollutants are emitted primarily from mobile sources, with the exception of carbon tetrachloride. There are no known local sources of carbon tetrachloride due to the phase-out of this compound as a stratospheric ozone-depleting compound. Measured levels of carbon tetrachloride in Cupertino are consistent with global background levels observed at other monitoring sites.

Estimated chronic non-cancer risk was represented by hazard quotient and hazard index. A hazard quotient is the ratio of the observed concentration of a particular compound to the compound's REL. RELs are concentrations at or below which no adverse non-cancer health effects are anticipated to occur in the general human population, including sensitive individuals. The hazard index is taken as the sum of the hazard quotients for each compound that affects the same target organ system (e.g., respiratory system, nervous system, etc.). A hazard index at or below 1 indicates that no adverse effects would be anticipated to occur. A hazard index above 1 does not necessarily indicate adverse health effects.

The 8-hour hazard indices were based on concentrations for the normal 8-hour exposure period for workers, and for children at schools and daycare facilities, that are repeated over an annual period. Note that 8-hour monitoring data are not available, but these concentrations were conservatively estimated by assuming that the entire 24-hour sample was collected over a single 8-hour period (i.e., 8-hour concentrations were assumed to be three times the measured 24-hour

concentration). The acute hazard indices were based on maximum concentrations for a 1-hour period. Note that 1-hour monitoring data are not available, but these concentrations were conservatively assumed to be 7.5 times the maximum 24-hour concentration.

The chronic hazard index based on Cupertino air monitoring data was about 1. The 8-hour chronic hazard index, and the acute hazard index, were both less than 1.

E. Other Activities

- District staff participated in Study Sessions held by the Cupertino City Council to discuss issues associated with the Lehigh facility on January 12, 2010, and July 20, 2010.

- District staff participated in Public Information Forums held by the Town of Los Altos Hills to discuss the Lehigh facility on June 6, 2011, and January 6, 2012. At the most recent Public Information Forum, consultants for the Town summarized the findings of their review of the updated HRA completed for the Lehigh facility, and indicated that no significant deficiencies had been identified

- District staff has begun rule development on Stationary Source Measure 9: Cement Kilns, from the District's 2010 Clean Air Plan (CAP). This rule development project is evaluating more stringent standards for NO_x emissions and other air pollutants for the Lehigh facility. A draft rule (District Regulation 9, Rule 13) was issued on November 17, 2011, and a public workshop was held on December 12, 2011 at the Monta Vista High School in Cupertino. Staff is expected to present the rule to the District's Board of Directors for consideration of adoption in the second quarter of 2012.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson John Gioia and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 12, 2012

Re: Report of the Legislative Committee Meeting of March 21, 2012

PROPOSED RECOMMENDED ACTION

The Committee will recommend positions on new bills to the Board of Directors.

BACKGROUND

The Legislative Committee will meet on Wednesday, March 21, 2012. The Committee will be briefed on the consideration of new bills.

Attached is the staff report that will be presented to the Legislative Committee for your review.

Chairperson Tom Bates will give an oral report of the meeting.

BUDGET CONSIDERATION/FINANCIAL IMPACTS:

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Sean Gallagher
Approved by: Jennifer C. Cooper

Attachment(s)

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson Bates and Members
of the Legislative Committee

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 6, 2012

Re: DISCUSSION OF NEW BILLS

RECOMMENDED ACTION:

The Committee will discuss new bills, and consider recommending positions on them to the Board of Directors.

BACKGROUND

The Legislature responded to its February 24, 2012 bill introduction deadline with close to 2,000 new bills. Staff have reviewed these bills, and will bring the most significant to the Committee for its consideration. Generally, bills have to be in print for 30 days prior to their first hearing. April is the busiest month for policy committees, since authors face either an April 27, 2012 or May 11, 2012 deadline for their bills to be passed out of policy committees.

DISCUSSION

Staff has prepared and attached a lengthy list of all bills with potential air quality implications. Staff is bringing some of these measures to the Committee with recommended positions, as noted on the list. Staff may present additional measures for the Committee to consider, as more information becomes available from the author's offices and sponsors between the date of the preparation of this memorandum and the Committee's meeting.

BUDGET CONSIDERATION/FINANCIAL IMPACT:

None.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Thomas Addison

Attachments

BAAQMD BILL DISCUSSION LIST

March 2012

BILL NO.	AUTHOR	SUBJECT	POSITION (Positions in italics are staff recommendations)
AB 819	Wieckowski	Allows non-standard bikeways to be constructed in some circumstances	
AB 1532	Perez	Establishes Greenhouse Gas Reduction Account for cap-and-trade moneys	
AB 1537	Cook	Would sunset new state regulations with economic costs over $1M after two years, unless Legislature passes a bill deciding otherwise	*Oppose*
AB 1549	Gatto	Assigns new tasks on permit streamlining to Office of Permit Assistance, including mediation of disputes, and would require their involvement in local agency decisions	
AB 1608	Wieckowski	Clean Vehicle Rebate Project	
AB 1613	Donnelly	Eliminates smog check on transfer of vehicle ownership	*Oppose*
AB 1627	Dickinson	Requires new CEC standards for reducing vehicle miles traveled (VMT)	
AB 1702	Logue	AB 32 spot bill	
AB 1721	Donnelly	Requires first violations of air quality laws to result only in a warning	*Oppose*
AB 1836	Fletcher	Air Quality Improvement Program spot bill	
AB 1900	Gatto	Affects PUC and CEC and requirements around methane gas from landfills	
AB 1906	Nestande	AB 32 market-based compliance mechanisms spot bill	
AB 1922	Lara	Exempts certain heavy-duty commercial vehicles from regular smoke inspections	*Oppose*
AB 1959	Williams	Would require California Building Stds. Commission to consider adopting standards for toxic air contaminants as part of mandatory minimum building standards	
AB 2024	Mendoza	Reduces the number of vehicles subject to ARB's In-Use On-Road diesel regulation	*Oppose*
AB 2045	Perea	Applies to expedited permits and fees in the San Joaquin Valley Air District	
AB 2091	B. Berryhill	Imposes new requirements on state agencies with regulations using new or emerging technology or equipment	*Oppose*

AB 2135	Blumenfield	Requires CA Building Standards Commission to adopt model ordinance and guidelines for solar electric residential and commercial installations	
AB 2173	Skinner	Liberalizes existing MTC regional gas tax authority in several ways	
AB 2200	Ma	States legislative intent to enact legislation on HOV lanes	
AB 2234	Hill	Would extend net energy metering for solar to public agencies	
AB 2245	Smyth	Would exempt bikeways within existing right-of-way from CEQA review	
AB 2249	Buchanan	Allows existing incentives for solar thermal non-residential pool heating	
AB 2257	Achadjian	Narrows the circumstances in which a landfill can be called a nuisance	
AB 2289	Jeffries	Changes exemption process for kit cars exempted from Smog Check	
AB 2339	Williams	Requires PUC, in consultation with CEC and ARB, to work to increase solar and geothermal heating and cooling	
AB 2347	Achadjian	AB 32 spot bill	
AB 2390	Chesbro	Intent bill to create incentives for forest thinning used for biomass and electrical generation	
AB 2404	Fuentes	Creates Local Emission Reduction Fund with cap-and-trade AB 32 funds	
AB 2405	Blumenfield	Would allow “green stickered” vehicles (plug-in hybrids) into High Occupancy Toll lanes without charge, regardless of occupancy	
AB 2412	Swanson	Air Quality Improvement Program spot bill	
AB 2488	Williams	Smog Check gross polluters spot bill	
AB 2499	Conway	Heavy duty vehicle smoke inspection spot bill	
AB 2563	Smyth	Requires ARB to consider adopting compliance offset protocols for AB 32, and sets limits on percentages of compliance obligations that can be met with offsets	
AB 2581	Conway	HOV lane spot bill	
AB 2583	Blumenfield	Has CEC fund alternative fuel infrastructure in public parking lots	
AB 2605	Cedillo	Allows certain city attorneys to enforce stationary source air pollution requirements	*Oppose*
AB 2631	Fletcher	Electric vehicle parking and charging spot bill	
AB 2644	Butler	Require EV parking standards to be included in next building standards update	
AB 2652	Furutani	Smog Check spot bill	
SB 52	Steinberg	CEQA streamlining for beneficial greenhouse gas reduction projects	

SB 878	DeSaulnier	Requires the Bay Area regional agencies and the Joint Policy Committee to report to the Legislature on certain things	Watch
SB 901	Steinberg	Targets AB 118 vehicle retirement funding to dirtiest vehicles in federal non-attainment areas	
SB 1076	Emmerson	Makes changes to ARB's greenhouse gas tire pressure regulation	
SB 1127	Vargas	Requires South Coast AQMD to weaken an industrial metal lubrication rule	*Oppose*
SB 1128	Padilla	Expands grants from CA Alternative Energy and Advanced Transportation Financing Authority to also allow 'advanced manufacturing' projects	
SB 1130	DeLeon	Enacts Commercial Building Energy Retrofit Financing Act of 2012	
SB 1139	Rubio	Carbon Capture and Storage Act of 2012	
SB 1149	DeSaulnier	Spot bill on the Metropolitan Transportation Commission	
SB 1221	Lieu	States legislative intent to reduce health impacts from air pollution from regional sources such as ports, airports, and highways	
SB 1222	Leno	States legislative intent to streamline local permitting of solar electric installations	
SB 1224	La Malfa	Ends smog checks for 1976 through 1981 vehicles	*Oppose*
SB 1230	Runner	Requires Occupational Safety and Health Standards Board to adopt standards for diesel emission reduction control equipment required by ARB regulation	*Oppose*
SB 1257	Hernandez	Eliminates utility user tax for electric transit bus fast chargers	
SB 1283	Alquist	San Francisco Bay Area Sea Level Rise Planning Act	
SB 1339	Yee	Authorizes BAAQMD and MTC to enact a transit commute benefits requirement	Sponsor
SB 1394	Lowenthal	Eliminates some biennial reporting requirements for CalEPA and related agencies	
SB 1414	Dutton	Office of Administrative Law regulatory review spot bill	
SB 1417	Hancock	Transit Priority Project spot bill	
SB 1445	Cannella	Motor vehicle registration fee spot bill	
SB 1455	Kehoe	Has ARB and CEC work together on state alternative fuel plan	
SB 1545	DeSaulnier	Prohibits spending of public funds on development or improvement of 390 Main St. until state audit is completed, and the issues raised are addressed	*Oppose*
SB 1572	Pavley	Establishes Greenhouse Gas Reduction Account for spending cap-and-trade funds	

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson John Gioia and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 14, 2012

Re: First of Two Public Hearings to Consider Adoption of Proposed Regulation 8: Organic Compounds, Rule 53: Vacuum Truck Operations; Amendments to Regulation 2 Permits, Rule 1: General Requirements; and Adoption of a Negative Declaration pursuant to the California Environmental Quality Act

RECOMMENDED ACTION

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

- Because amendments have been made to the text of the rule that was originally made available to the public, conduct an initial public hearing on March 21, 2012 to hear a presentation on proposed Regulation 8, Rule 53: Vacuum Truck Operations and amendments to Regulation 2, Rule 1: General Requirements and take public comment;
- Continue the public hearing to a subsequent meeting at which the Board would consider taking the following actions:
    - Adoption of proposed Regulation 8, Rule 53: Vacuum Truck Operations;
    - Adoption of proposed amendments to Regulation 2, Rule 1: General Requirements; and
    - Adoption of a Negative Declaration pursuant to the California Environmental Quality Act (CEQA) for the proposed rule and amendments.

BACKGROUND

The proposed rule will implement control measure SSM-5 in the 2010 Clean Air Plan. Regulation 8, Rule 53 will limit organic vapor emissions from vacuum trucks when loading materials with high volatility.

In researching potential controls, staff found that there was limited information available on emissions from vacuum truck operations. Consequently, District source test teams visited several affected facilities and conducted a total of 32 source tests in order to establish emissions rates for different types of materials that are typically loaded into vacuum trucks. From that set of data, staff identified certain materials that produce considerably more vapor emissions from vacuum trucks than others. These are the materials regulated in the rule.

The proposed rule, although consistent with permit conditions in Texas, the South Coast, and with similar federal standards, is the first rule in the country specifically addressing vacuum truck emissions.

DISCUSSION

Regulation 8, Rule 53 would regulate organic compound emissions from vacuum truck operations at five types of facilities including petroleum refineries, bulk plants, bulk terminals, marine terminals, and organic liquid pipeline facilities by setting emission standards that include the following:

- 500 parts per million (ppm) emission limit from the exhaust of vacuum trucks or control equipment;
- Liquid leak standard of no more than 3 drops per minute; and,
- 500 ppm standard for vapor leaks from vacuum truck equipment.

The proposed limits would become effective April 1, 2013 and would apply only to vacuum trucks that load materials which are defined by the rule as regulated materials. These are gasoline, aviation gasoline, gasoline blending stock, naphtha, transmix and certain mixtures that include these materials.

The rule allows the use of a positive displacement pump and/or gravity feed methods in lieu of using controls and equipment in order to meet the emission limits. The rule will also require recordkeeping of regulated materials, crude oil and recovered oil and monitoring of emissions concentrations when abatement equipment is used.

The proposed amendments to Regulation 2, Rule 1, Section 113 will exempt vacuum truck operations that will be subject to the requirements of Regulation 8, Rule 53 from District permitting requirements, thereby maintaining consistency with Regulation 2, Rule 1 currently. Control equipment used to limit vacuum truck emissions will also be exempt from permitting requirements.

Staff estimates that total organic emissions from Bay Area vacuum truck operations at the facilities to be regulated by the rule are 1.50 tons per day (TPD). Staff estimates that emissions from operations involving regulated materials at these facilities are 1.24 TPD. The proposed rule will reduce organic emissions by 1.05 TPD, representing an 85% reduction in current emissions from regulated materials. Toxic emissions from vacuum truck operations would also be reduced. Cost effectiveness for the proposed rule is estimated to range from $2,566 to $3,069 per ton of emissions reduced.

RULE DEVELOPMENT PROCESS

The process to bring this proposal to the Board of Directors has been a comprehensive process involving extensive research, numerous source tests, discussions with the Western States Petroleum Association (WSPA), affected facilities, environmental services providers, control equipment providers, vacuum truck manufacturers, and consultation with other regulatory agencies such as the California Air Resources Board, US EPA, South Coast AQMD, Tehama County APCD, Texas Commission on Environmental Quality, and the New Jersey Department of Environmental Protection. In the development of this proposal, District staff:

- Met with 8 affected facilities including petroleum refineries and bulk terminals as well as WSPA;
- Met with 6 environmental companies that provide vacuum truck service to affected facilities;
- Met with 4 companies that provide vacuum truck controls and equipment;
- Held meetings and conference calls, and met and corresponded via telephone calls, emails and letters, with 11 additional affected facilities, 7 additional companies that provide vacuum truck service in the Bay Area, and companies that manufacture vacuum trucks, companies that manufacture vacuum truck control equipment, and environmental consultants;
- Developed the economic analysis based on cost information from affected facilities as well as vacuum truck service providers;
- Hosted two public workshops to inform and solicit comments from the affected industries and interested public on the proposed Rule 8-53. The workshops were held at the City of Martinez City Hall on July 21, 2011 and at the District office on July 25, 2011. Stakeholders that attended the workshops included representatives from affected facilities, WSPA, companies that provide vacuum truck service, providers of vacuum truck control equipment, and environmental consultants.
- Provided information to the Stationary Source Committee on the rule development process on September 29, 2011 and on January 9, 2012.

A socioeconomic analysis prepared by Bay Area Economics of Emeryville, California has found that the costs of the rule would not create significant economic dislocation, loss of jobs, or impact small business. Pursuant to the California Environmental Quality Act, a CEQA analysis has been prepared by Environmental Audit, Inc., of Placentia, California. This analysis concludes that the proposed rule would not have any significant adverse environmental impacts. A Negative Declaration pursuant to CEQA is proposed for adoption.

Final proposed Regulation 8, Rule 53, final proposed amendments to Regulation 2, Rule 1, a staff report, a CEQA initial study and Negative Declaration, and a socioeconomic analysis were posted for public review and comment on February 17, 2012. Public comments on the proposed rule, and staff responses, are attached.

CHANGES TO THE RULE SINCE PUBLICATION

Subsequent to noticing the rule, staff received minor comments from US EPA, and numerous comments from the Western States Petroleum Association (WSPA). Most comments requested clarifications in the rule, and, as a result of the comments, staff proposes some changes to the proposed rule published on February 17, 2012. They are included in the attached regulatory draft, additions denoted by the underlines and deletions denoted by strikethroughs. The comments and staff responses are included in Appendix B. Because of the proposed changes, staff recommends that the Board open the public hearing and consider testimony at the March 21 public hearing. In accordance with California Health and Safety Code Section 40726, District staff recommends that the Board adopt proposed Regulation 8, Rule 53: *Vacuum Truck*

Operations, amendments to Regulation 2, Rule 1: *General Requirements*, and the CEQA Negative Declaration at the next Board of Directors meeting.

BUDGET CONSIDERATIONS/FINANCIAL IMPACTS

None. The District already inspects the affected facilities for compliance with other rules. The adoption of this rule will not require additional District resources.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: William Thomas Saltz
Reviewed by: Henry Hilken

Attachments:

Proposed amendments to Regulation 8, Rule 53: Vacuum Truck Operations
Proposed amendments to Regulation 2, Rule 1: Permits, General Requirements
Staff Report, including Appendices:

A. Emissions Inventory
B. Comments and Responses
C. Socioeconomic Analysis
D. CEQA Initial Study and Negative Declaration

REGULATION 8
ORGANIC COMPOUNDS
RULE 53

VACUUM TRUCK OPERATIONS

INDEX

REGULATION 8
ORGANIC COMPOUNDS
RULE 53
VACUUM TRUCK OPERATIONS

8-53-100 GENERAL

8-53-101 Description: The purpose of this rule is to limit the emissions of organic compounds from the use of vacuum trucks to move materials at petroleum refineries, bulk plants, bulk terminals, marine terminals, and organic liquid pipeline facilities.

8-53-102 Applicability: This rule applies to the following facilities:

102.1 Petroleum refineries;
102.2. Bulk plants;
102.3 Bulk terminals;
102.4 Marine terminals;
102.5 Organic liquid pipeline facilities.

8-53-103 Exemption, Emergencies: Vacuum trucks responding to spills, equipment failures, and other emergency situations shall be exempt from the requirements of this rule, provided that (1) use of equipment capable of complying with the rule would delay the response, and (2) the delay would pose a risk of significant harm to facility equipment, personnel, the public, or the environment.

8-53-104 Limited Exemption, Positive Displacement Pump or Gravity Feed Loading: A loading event in which gravity or a positive displacement pump is used to move regulated materials into a vacuum truck shall be exempt from the requirements of Sections 8-53-301 and 8-53-501.

8-53-105 Exemption, Secondary Treatment Processes: Vacuum truck activities at secondary treatment processes, as defined in Regulation 8, Rule 8, Section 208, shall be exempt from this rule.

8-53-200 DEFINITIONS

8-53-201 Air Mover: A specialized type of vacuum truck that uses a combination of vacuum and air flow to load a variety of material types into the truck.

8-53-202 Affected Facility: A facility to which this rule applies pursuant to Section 8-53-102.

8-53-203 Aviation Gas: Gasoline suitable for use in piston-driven aircraft.

8-53-204 Background Concentration: The ambient concentration of TOC determined at least 3 meters (10 feet) upwind from the vacuum truck blower exhaust, as determined by a hydrocarbon analyzer pursuant to Section 8-53-501.

8-53-205 Bulk Plant: A distribution facility that is subject to Regulation 8, Rule 39 or to Section 302 of Regulation 8, Rule 6.

8-53-206 Bulk Terminal: A distribution facility that is subject to Regulation 8, Rule 33 or to Section 301 of Regulation 8, Rule 6.

8-53-207 Control Equipment: Equipment used to reduce TOC emissions from vacuum truck operations in order to comply with emission limits set forth in Section 8-53-301 of this rule, including, but not limited to, carbon adsorption systems, internal combustion engines, thermal oxidizers, refrigerated condenser systems, and liquid scrubbers.

8-53-208 Crude Oil: A naturally occurring mixture consisting predominantly of hydrocarbons and/or sulfur, nitrogen and oxygen derivatives of hydrocarbons that is removed from the earth in a liquid state or is capable of being so removed.

8-53-209 Gasoline: Any petroleum-derived, volatile mixture of hydrocarbons suitable for use as a fuel in a spark-ignited, internal combustion engine.

8-53-210 Gasoline Blending Stock: Any organic liquid used as a component of gasoline, including, but not limited to aromatic or alcohol octane boosters and oxygenates, isomerate, reformate, alkylate, straight run gasoline, cat gasoline, pyrolysis gasoline, FCC gasoline and light hydrocrackate.

8-53-211 **Loading Event:** The loading at a single location within an affected facility of regulated materials into a vacuum truck or other container through a vacuum truck operation. The resumption of loading at the same location after an interruption shall not be considered a separate loading event.

8-53-212 **Marine Terminal**: Any facility or structure constructed to load or unload organic liquid bulk cargo into or off of marine tank vessels.

8-53-213 **Naphtha**: A general term for a variety of crude oil fractions in the gasoline boiling range that are used as feeds and products including but not limited to straight run naphtha, coker naphtha, cat cracked naphtha, and hydrocracked naphtha.

8-53-214 **Organic Compound:** Any compound of carbon, excluding methane, carbon monoxide, carbonic acid, metallic carbides or carbonates and ammonium carbonate.

8-53-215 **Organic Liquid Pipeline Facility:** Any pipeline used to transport petroleum, petroleum products, or petroleum product blending stock, along with any associated breakout stations.

8-53-216 **Petroleum Refinery:** Any facility that processes petroleum products as defined in North American Industry Classification System code number 32411, Petroleum Refineries.

8-53-217 **Positive Displacement Pump:** Equipment that, for each cycle of operation, draws in fluid at a constant volume and then forces that exact volume of fluid into a discharge line. For the purposes of this rule, a diaphragm pump is considered to be a positive displacement pump.

8-53-218 **Regulated Material:** A regulated material is any of the following:

218.1 Gasoline, aviation gasoline, gasoline blending stock, naphtha;

218.2 Transmix, slop, or any other hydrocarbon mixture that includes a material listed in Section 8-53-218.1~~; or~~ if

2.1 For a mixture without significant water content, the true vapor pressure of the mixture is greater than 25.8 mmHg (0.5 psia) as determined pursuant to Section 8-53-602, or

2.2 For a mixture with significant water content, the water content is less than 90% as determined pursuant to Section 8-53-603.

218.3 Any material collected during dewatering of a tank storing any material listed in Sections 8-53-218.1 or 8-53-218.2.

Crude oil is not a regulated material.

8-53-219 **Slop:** Any mixture of petroleum materials that does not meet product specifications and may not be used or distributed without further processing.

8-53-220 **Splash Loading:** A method of transferring material into a tank, vessel, or other type of container in which the transferred material exits the transfer pipe, hose, or other outlet above the level of the container's contents during all or most of the transfer.

8-53-221 **Tank Dewatering:** The process of drawing water from storage tanks via a valve or similar device.

8-53-222 **Total Organic Compounds (TOC):** Organic compounds and methane.

8-53-223 **Transmix:** A mixture of hydrocarbons resulting from (1) the sequential transmission of batches of materials through a pipeline and mixing at the interface between different materials, or (2) the collection for re-refining of material that is not loaded, typically because it does not meet a fuel specification or has become contaminated.

8-53-224 **Vacuum Truck:** Portable equipment with an affixed barrel or tank that relies on the creation of a pressure differential, typically through use of a pump or blower, to pneumatically load materials into the barrel or tank of the equipment.

8-53-225 **Vacuum Truck Operation:** The movement of regulated material into a vacuum truck or into any other container through use of a vacuum truck. For purposes of this rule, the use of other means, typically gravity feed or an auxiliary pump, to push or pull materials into a vacuum truck shall be considered a vacuum truck operation.

8-53-300 STANDARDS

8-53-301 **Emission Limit:** Effective ~~January~~ April 1, 2013, for any loading event, the owner or operator of a facility subject to this rule shall control emissions so that the TOC

concentration does not exceed 500 ppmv, expressed as methane (C_1), above background, as measured at the exhaust outlet of a vacuum truck operation or, if an auxiliary control device is used to control emissions from a vacuum truck operation, at the exhaust outlet of the control device unless:

301.1 A second concentration reading taken within 60 seconds fails to confirm the exceedance, or

301.2 A second concentration reading taken within 60 seconds confirms a TOC concentration in excess of 500 ppmv, but the loading event is shut down within 3 minutes after the second reading.

8-53-302 Liquid Leaks: Effective ~~January~~ April 1, 2013, for any loading event, the owner or operator of a facility subject to this rule shall not use a vacuum truck or associated equipment that leaks liquid at a rate in excess of three drops per minute unless the leak is discovered by the operator and eliminated within 3 minutes of discovery or unless the loading event is shut down within 3 minutes of the discovery of the leak.

8-53-303 Vapor Leaks: Effective ~~January~~ April 1, 2013, for any loading event, the owner or operator of a facility subject to this rule shall not use a vacuum truck or associated abatement device that leaks organic vapor in excess of 500 ppmv, expressed as methane (C_1), above background unless the leak is discovered by the operator and minimized to a concentration below 500 ppmv within 3 minutes after discovery or unless the loading event is shut down within 3 minutes after the discovery of the leak.

8-53-304 Unloading of Regulated Material: Effective ~~January~~ April 1, 2013, the owner or operator of a facility subject to this rule shall meet the following requirements for unloading of regulated material from a vacuum truck at the facility where the vacuum truck was loaded:

304.1 ~~If regulated material is unloaded into a tank, vessel or other type of container, splash loading shall not be employed~~ Material shall be unloaded into a tank, vessel or sump that meets the control requirements in Regulation 8, Rule 5 or Regulation 8, Rule 8.

304.2 If regulated material is unloaded into a sump, regulated material shall be promptly cleaned from the sump, and sump contents shall be promptly pumped into storage.

8-53-400 ADMINISTRATIVE REQUIREMENTS

8-53-401 Loading Event Schedule Reporting Requirements: Effective ~~January~~ April 1, 2013, upon request by the APCO or the designee of the APCO, the owner or operator of an affected facility subject to this rule shall provide a list of scheduled loading events and the following information for each event:

401.1 Loading event start date and time;

401.2 Facility name, plant number (if applicable), and source number (if applicable), tank, pipeline, or reservoir address, and equipment location;

401.3 Vacuum truck company name, owner/operator's name, and telephone number;

401.4 Control equipment company name, control equipment type, operator's name and telephone number if the control equipment is operated by someone other than the vacuum truck owner/operator; and,

401.5 Tank, pipeline, box, container, or reservoir capacity, estimated volume and type of material to be loaded.

The list shall include loading events that are scheduled within thirty (30) days. The list shall be provided to District staff within three (3) working days and may be provided via hard copy or electronically. Changes to loading event schedules shall be reported to District staff no less than 24 hours prior to loading events.

8-53-500 MONITORING AND RECORDS

8-53-501 Emissions Monitoring Requirement: Effective ~~January~~ April 1, 2013, the owner or operator of an affected facility using a vacuum truck operation shall monitor and record emissions as follows:

501.1 When TOC emissions from a vacuum truck operation are controlled primarily by technology other than a carbon adsorption system, emission concentrations from the control device shall be measured using the method specified in Section 8-53-601 and recorded as follows:

1.1 Conduct one measurement for each loading event before the ~~barrel~~ vacuum truck is approximately 20% full. Conduct an additional measurement before the ~~barrel~~ vacuum truck is approximately 60% full. If a vacuum truck is already 20% full prior to a loading event, conduct an initial measurement as soon as possible after the start of the loading event and an additional measurement before the ~~barrel~~ vacuum truck is approximately 60% full. If a vacuum truck is already 60% full prior to a loading event, conduct one measurement as soon as possible after the start of the loading event.

1.2 Record the information required by Section 8-53-502.

501.2 When TOC emissions from a vacuum truck operation are controlled primarily by a carbon adsorption system, emission concentrations from the control device shall be measured using the method specified in Section 8-53-601 and recorded as follows:

2.1 Commence emission measurements within 2 minutes of startup for each loading event. Additional measurements shall be performed approximately every 10 minutes during loading thereafter;

2.2 When a TOC ~~S~~stream is switched to a back-up or replacement carbon vessel, a new TOC emission measurement must occur within 2 minutes of the carbon vessel replacement.

2.3 Record the information required by Section 8-53-502.

501.3 An alternative monitoring plan may be submitted and approved by the APCO.

501.~~3~~4 The owner or operator of an affected facility shall retain records and lists required by this Section for two years and shall make them available for inspection by the APCO upon request.

8-53-502 Recordkeeping Requirement: A person subject to this rule shall keep the following records:

502.1 Effective ~~January~~ April 1, 2013, record the following information for each loading event:

1.1 The date, time of commencement, and duration of the loading event;

1.2 The type and volume of regulated materials loaded;

1.3 Whether loading was by vacuum, positive displacement pump, or gravity;

1.4 Where vacuum truck control equipment or external control equipment is used, record the make and model of the control equipment, the results of the emission measurements required by Section 8-53-501, and the make, model, and serial number of the device used to measure the TOC concentrations;

1.5 Where loading was by positive displacement pump, the make and model of the pump.

502.2 Effective ~~January~~ April 1, 2013, record the daily volume of crude oil and oil recovered from centrifuging that is loaded into vacuum trucks.

502.3 Effective April 1, 2013, keep records if a true vapor pressure analysis or a percent volume analysis is used to determine whether material loaded is a regulated material as per Section 8-53-218 .

502.~~3~~4 The owner or operator of an affected facility shall retain records required by this Section for two years and shall make them available for inspection by the APCO upon request.

8-53-600 MANUAL OF PROCEDURES

8-53-601 Measurement of TOC Concentrations: Measurements of TOC concentration for determining compliance with the limit set forth in Section 301 of this rule shall be conducted in accordance with USEPA Reference Methods 21 or 25A; or BAAQMD

Manual of Procedures, Volume IV, ST-7, Non-methane Organic Carbon Sampling. If USEPA Reference Method 21 is used to determine compliance, the portable analyzer shall use flame ionization detection and shall meet the specifications and performance criteria of, and shall be calibrated in accordance with, EPA Reference Method 21 (40 CFR 60, Appendix A). When more than one test method or set of test methods is specified for any testing, noncompliance with any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of this rule.

8-53-602 Analysis of Materials, True Vapor Pressure: Materials sampled pursuant to Section 8-53-218.2.1, shall be analyzed for true vapor pressure at loading temperature as prescribed in the Manual of Procedures, Volume III, Lab Method 28: Determination of Vapor Pressure of Organic Liquids from Storage Tanks.

8-53-603 Analysis of Materials, Percent Water Volume: Materials sampled pursuant to Section 8-53-218.2.2 shall be analyzed as prescribed in ASTM D96: Test Methods for Water and Sediment in Crude Oil by Centrifuge Method (Field Procedure), ASTM D1796: Water and Sediment in Fuel Oils by the Centrifuge Method (Laboratory Procedure) or ASTM D6304: Karl Fisher Water in Petroleum Products. Alternatively, percent water volume may be observed and calculated from a mixed, representative sample allowed to settle in a graduated cylinder.

REGULATION 2
PERMITS
RULE 1
GENERAL REQUIREMENTS

2-1-113 Exemption, Sources and Operations:

113.2 The following sources and operations are exempt from the requirements of Sections 2-1-301 and 302:

2.1 Road construction, widening and rerouting.

2.2 Restaurants, cafeterias and other retail establishments for the purpose of preparing food for human consumption.

2.3 Structural changes which do not change the quality, nature or quantity of air contaminant emissions.

2.4 Any abatement device which is used solely to abate equipment that does not require an Authority to Construct or Permit to Operate.

2.5 Architectural and industrial maintenance coating operations that are exclusively subject to Regulation 8, Rules 3 or 48, because coatings are applied to stationary structures, their appurtenances, to mobile homes, to pavements, or to curbs. This does not apply to coatings applied by the manufacturer prior to installation, nor to the coating of components removed from such structures and equipment.

2.6 Portable abatement equipment exclusively used to comply with the tank degassing or vacuum truck control requirements of Regulation 8, Rules 5, ~~and/or Regulation 8, Rule~~ 40, or 53.

2.7 Equipment that transports, holds or stores California Public Utilities Commission regulated natural gas, excluding drivers.

2.8 Deleted May 17, 2000

2.9 Deleted May 17, 2000

2.10 Deleted May 17, 2000

2.11 Teaching laboratories used exclusively for classroom experimentation and/or demonstration.

2.12 Laboratories located in a building where the total laboratory floor space within the building is less than 25,000 square feet, or the total number of fume hoods within the building is less than 50, provided that Responsible Laboratory Management Practices, as defined in Section 2-1-224, are used. Buildings connected by passageways and/or corridors shall be considered as separate buildings, provided that structural integrity could be maintained in the absence of the passageways and/or corridors and the buildings have their own separate and independently operating HVAC and fire suppression systems. For the purposes of this subsection, teaching laboratories that are exempt per Section 2-1-113.2.11 are not included in the floor space or fume hood totals. In addition, laboratory units for which the owner or operator of the source can demonstrate that toxic air contaminant emissions would not occur, except under accidental or upset conditions, are not included in the floor space or fume hood totals.

2.13 Maintenance operations on natural gas pipelines and associated equipment, provided that emissions from such operations consist solely of residual natural gas that is vented after the equipment is isolated or shut down.

2.14 Space heating units that are not subject to Regulation 9, Rule 7, where emissions result solely from the combustion of natural gas or liquefied petroleum gas (e.g. propane, butane, isobutane, propylene, butylenes, and their mixtures) of less than 20 million BTU per hour heat input. Incinerators operated in conjunction with such sources are not exempt.

2.15 Asbestos and asbestos containing material renovation or removal conducted in compliance with Regulation 11, Rule 2 and Regulation 3.

2.16 Closed landfills that have less than 1,000,000 tons of decomposable solid waste in place and that do not have an operating landfill gas collection system.

2.17 Closed landfills that have not accepted waste for at least 30 years and that never had a landfill gas collection system.

2.18 Construction of a building or structure that is not itself a source requiring a permit.

2.19 Vacuum trucks subject to Regulation 8, Rule 53 and processing regulated material as defined in that rule.

(Adopted 10/19/83; Amended 7/17/91; 6/7/95; 5/17/00; 11/15/00; 5/2/01; 7/19/06)

Bay Area Air Quality Management District

939 Ellis Street

San Francisco, CA 94109

Staff Report

Proposed

Regulation 8, Rule 53: VACUUM TRUCK OPERATIONS, and

Amendments to Regulation 2, Rule 1: Permits

February 2012

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Planning, Rules and Research Division

ACKNOWLEDGEMENTS

The following District staff members participated in the development of the proposed amendments to this rule, and deserve recognition for their important contributions:

Robert Bartley -- Technical

George Bradbury -- Technical

Ken Kunaniec -- Technical

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STAFF REPORT
Regulation 8, Rule 53: Vacuum Truck Operations

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I. Executive Summary

This staff report summarizes information regarding a proposed new Bay Area Air Quality Management District (District) Regulation 8, Rule 53: *Vacuum Truck Operations*, which is intended to limit emissions of total organic compounds (TOC) from vacuum trucks. A vacuum truck is an industrial vacuum on wheels used to collect materials, primarily liquids and semi-solids, and transfer them, typically to another part of an industrial facility. Vacuum trucks are widely used to remove trash from parking lots, clean out sewers and water mains for maintenance work, and remove waste from septic tanks and portable toilets. However, if the materials transferred contain petroleum, petroleum products, or other hydrocarbon liquids, vacuum truck operations have potential to release significant ozone-forming compounds into the ambient atmosphere.[1]

Regulation 8, Rule 53 would apply only to vacuum truck operations at certain types of facilities and only to operations that involve specific organic materials, defined in the rule as "regulated materials." These are materials that have been identified through District source tests as likely to produce significant ozone-forming emissions during the loading process. The proposed rule would reduce organic emissions by establishing an emission limit that would apply at the vapor exhaust outlet of the vacuum truck or associated equipment. In addition, the rule would establish a limit for vapor leaks and for liquid leaks from vacuum truck equipment. The proposed rule would also reduce toxic air contaminant (TAC) emissions that are part of the organics, such as benzene, toluene, xylene and hexane.

The rule is intended primarily as an ozone control measure. Organic compounds contribute to the formation of ground-level ozone, which is the primary ingredient in smog. Ozone is formed from the photochemical reaction of oxides of nitrogen (NOx) and organic compounds. Ozone can result in reduced lung function, increased respiratory symptoms, increased airway hyper-reactivity, and increased airway inflammation. In addition, organic compounds can contribute to the secondary formation of particulate matter (PM). Currently, the San Francisco Bay Area is not in attainment of the State air quality standards for ozone and PM. As a result, the California Clean Air Act requires the District to implement all feasible measures to reduce emissions of ozone precursors, including organic compounds. The proposed rule's emission standard is consistent with the only current emissions standard for vacuum truck organic vapor emissions in California.[2]

The District committed to examining potential reduction of organic compound emissions from vacuum truck operations in Control Measure SSM-5 of the District's Bay Area 2010 Clean Air Plan, which sets forth a plan to achieve the California ozone standards as well as other air quality objectives. Because virtually no work had been done by any regulatory agency to quantify vacuum truck emissions, District staff conducted 32 emissions tests of vacuum truck operations, mainly at Bay Area refineries. The tests showed that emissions vary widely, depending primarily on the volatility of the material moved, but also on other variables that cannot be readily identified. Based on the tests, District staff was able to identify certain very volatile

materials – gasoline, aviation gasoline, gasoline blending stock, naphtha, and mixtures involving any of these materials – that consistently produced relatively high emissions when moved by vacuum truck. These highly volatile materials are the "regulated materials" to which the proposed rule would apply.

Because of the wide variation in test results and because most facilities do not closely track quantities of materials moved by vacuum truck, estimates of emissions and emission reductions for the proposed rule involve significant uncertainty. However, District staff was able to group test results for several broad categories of materials and average the results to obtain emission factors for each category. To determine quantities of materials moved in each category, staff relied on data available for one refinery and scaled the data for other facilities to arrive at totals in each category. Based on this approach, staff estimates that total emissions from Bay Area vacuum truck operations at the facilities to be regulated by the rule are 1.50 tons per day (TPD). Staff estimates that emissions from operations involving regulated materials at these facilities are 1.24 TPD. Appendix A details the derivation of emission estimates from vacuum truck operations.

Staff estimates that Regulation 8, Rule 53 would reduce TOC emissions by 1.05 TPD. TAC emissions from vacuum truck operations would also be reduced.

The rule would take effect on April 1, 2013. Facilities would comply with the rule by using vacuum trucks equipped with on-board emission controls or by coupling emission control technology to an uncontrolled truck. As an alternative, facilities could also comply by using a positive displacement pump (PD pump) to load materials into the truck instead of relying on suction from the vacuum truck's blower. Facilities would be required to monitor compliance with the rule's emission standard during loading operations and keep records regarding vacuum truck operations.

In order to ensure that the proposed rule is cost effective, it has been structured so that control requirements only apply to high-volatility materials. Most vacuum truck operations are relatively brief. The average duration of the operations for which the District conducted source tests was 26 minutes. The cost of requiring controls for such brief operations can only be justified when emissions are significant. For example, for the 20 lowest-emitting operations tested (mostly involving wastewater or oils), average total organic emissions were 0.42 lbs. By contrast, for the three highest-emitting operations tested (all involving gasoline), average total organic emissions were 129 lbs. The actual costs of control are expected to be roughly $3000 per ton, consistent with other District regulatory requirements. In addition, a socio-economic analysis by a District consultant has determined that Regulation 8, Rule 53 can be implemented without significant economic dislocation or loss of jobs.

As required by the California Environmental Quality Act (CEQA), the District has prepared an initial study to analyze potential environmental impacts of the proposed rule. The initial study concludes that there would be no significant adverse impacts associated with adoption of the rule, and no comments on the CEQA initial study and Negative Declaration have been received.

Subsequent to noticing the rule, staff received extensive comments from the Western States Petroleum Association (WSPA). Most comments requested clarifications in the rule, and, as a result of the comments, staff proposes some changes to the proposed rule published on February 17, 2012. The proposed rule has proposed additions underlined and proposed deletions stricken through. The comments and staff responses are included in Appendix B. Because of the proposed changes, staff recommends that the Board open the public hearing and consider testimony at the March 21, 2012 public hearing. In accordance with California Health and Safety Code Section 40726, District staff recommends that the Board adopt proposed Regulation 8, Rule 53: *Vacuum Truck Operations* and the CEQA Negative Declaration at the next Board of Directors meeting.

II. Background

A. Introduction

Vacuum truck services are used throughout the Bay Area by a variety of industries. They are used to remove materials from storage tanks, vessels, sumps, boxes, and pipelines; to transfer materials from one container to another; and to transport materials from one location to another within the same facility. Occasionally, vacuum trucks transfer materials to an offsite location, such as a landfill. Vacuum trucks are also used in the cleaning of equipment such as tanks, vessels, and barges. The types of industries that utilize vacuum truck services include petroleum refineries, marine terminals, industrial wharfs, gasoline dispensing facilities, gasoline bulk terminals, gasoline bulk plants, gasoline cargo tanks, gas well and oil well fields, pipelines, railcar loading facilities, soil remediation projects, truck loading racks, auto dismantlers, and pipelines that deliver gasoline, natural gas, crude oil, petroleum products, and ethanol.

In addition to servicing industrial facilities, vacuum trucks are also used by many other entities in the Bay Area. Vacuum trucks are used to transport waste from restaurants, dairies, septic systems, and portable toilets. Government agencies, including cities and towns, the San Francisco Public Utilities Commission, and CalTrans, use vacuum trucks to service spills on streets, highways, bodies of water, sewers, catch basins, lift station wet-wells, wastewater treatment plants, septic tanks, waterlines, drainage systems, and other projects.

Vacuum truck services have been used throughout the Bay Area for over fifty years. When they are used to transport volatile organic liquids such as in refineries and terminals, the operations emit organic vapors into the ambient air. In some cases, vacuum truck operations in refineries and terminals have been controlled, to reduce odors or reduce the potential to form a flammable vapor cloud. Approximately 40 facilities in the Bay Area will be subject to the provisions of Regulation 8, Rule 53. They include petroleum refineries, bulk plants, bulk terminals, marine terminals, and organic liquid pipeline facilities.

The total number of vacuum trucks that operate in the Bay Area varies from day to day. A few facilities own and operate their own vacuum trucks, while most facilities contract the services of vacuum truck companies. Industry sources, including vacuum truck operators and control equipment suppliers, have informed staff that the total number of vacuum trucks operating daily in the Bay Area generally fluctuates between 125 and 150 trucks.[3] The total number of trucks that operate on a given day depends on the specific needs of Bay Area companies. Some vacuum truck operations are routine and are scheduled to load specific materials virtually daily, while other vacuum truck operations load various types of materials on an intermittent or as-needed basis. When several vacuum trucks are required for a major job such as a refinery turnaround, or to respond to a major event, such as a crude oil spill in the San Francisco Bay for example, some vacuum truck companies may mobilize additional vacuum trucks from other parts of the state or, if necessary, from nearby states.

B. Vacuum Truck Operations Overview

A vacuum truck is a transportable, truck-mounted, industrial vacuum system designed to load materials into the truck's containment vessel which is called a barrel or tank. Vacuum trucks are commonly referred to by a variety of other names including "super-suckers", "vac-jets", and "air-movers". Vacuum trucks are manufactured to load materials at different flow rates and capacities. They must be capable of loading different types of materials into their barrels under a variety of conditions.

Blower

A vacuum truck's pump or "blower" is used to create a vacuum to extract materials and load them into the vacuum truck's barrel. Pumps and blowers are usually powered by the vehicle's engine through an auxiliary drive and universal shaft. Vacuum pumps can also be driven by an auxiliary on-board engine. In some instances, an on-board engine can be the vacuum source (pump) as well as the vapor abatement device. Pumps, engines and blowers typically come in one of three design types: a sliding vane pump, a liquid ring pump, or rotary lobe blower. Each type is designed to operate under specific applications and operational parameters. The maximum vacuum and flow that is attainable for any given pump is dependent on barometric pressure and elevation above sea level as well as the pump's design limitations.

Extraction & Emissions

Materials are typically drawn into a vacuum truck through suction lines, and sometimes with a device called a "stinger" attached to the suction line (a non-flexible extension on a flexible suction line). Suction lines usually range in size from 2 inches to 4 inches in diameter and are of various lengths. Figure 1 is an image of hoses used for a vacuum truck loading event that was extracting slop from a tank.

Figure 1
Image of Vacuum Truck Hoses

Image Source: BAAQMD Staff

Emissions come from loading of materials containing hydrocarbons contained in sludge, recovered oil, slop oil, crude oil, gasoline, petroleum distillates, feed stock, blending stock, water used to clean tanks and vessels, wastewater, and various mixtures and slurries.

During some loading events, vacuum truck operators may completely submerge the suction nozzle into the material during the loading process, while other events may require that the suction line (hose) be directly connected to tanks, vessels, or containers, thus eliminating or minimizing the introduction of air (and vapors) into the truck's barrel. In some instances, the suction nozzle at the end of the suction line is partially submerged into the material that is being loaded, consequently bringing a combination of air and material (liquids/solids) into the barrel. Sometimes, this is done to increase the velocity of incoming air which can help lift the liquid/solid material more so than the vacuum alone. The same technique is used when a spill is cleaned up.

The significance of the introduction of air into the loading event is that the extra turbulence generates additional vapors within the barrel and ultimately more TOC emissions. This turbulence increases a liquid's surface area, thus allowing more liquid to change into a vapor state until the saturation point is reached and "evaporation" can no longer take place.

The fill capacity for a standard vacuum truck can range anywhere from 2520 gallons (60 barrels) to 5040 gallons (120 barrels) or more. District staff has observed total fill times that range from 3 minutes to 131 minutes. Figure 2 is a basic diagram of a vacuum truck that highlights critical components. Figure 3 shows a vacuum truck servicing a sewer. Figure 4 is an image of a large vacuum truck trailer which has a fill capacity capable of 9,000 gallons.

Figure 2
Illustration of a Typical Vacuum Truck

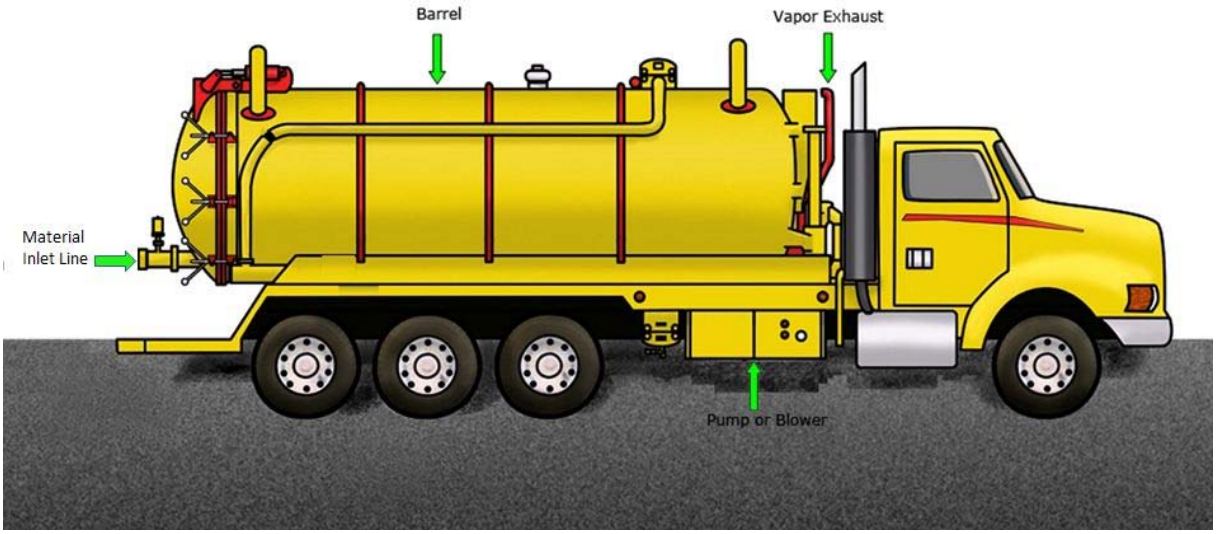

Image Source: thevactrukboy.com

Figure 3
Vacuum Truck Servicing a Municipal Sewer

Image Source: Google.com/teamelmers.com

Figure 4
Vacuum Truck Trailer with a
Fill Capacity of 9,000 Gallons

Image Source: Clean Harbors Facility in Martinez

Emissions occur when hydrocarbon vapors in the barrel's headspace – the air trapped above the material in the bottom portion of the barrel – are displaced into the ambient air. As material is loaded into the barrel, the volume of the incoming material displaces an equal volume of vapor in the headspace, which is typically vented out of the vacuum device's exhaust uncontrolled. Different operational factors affect the rates of emissions. They can include: the volumetric flow rate of the material being loaded into the vacuum truck, the vapor pressure of the material, the temperature within the vacuum truck's barrel, and the extent to which the material is being agitated while being loaded into the vacuum truck.

In addition to the vapors that are emitted from a vacuum truck's exhaust outlet or from the control devices connected to vacuum trucks, organic emissions can occur during transport of materials, during unloading, and during cleaning of vacuum barrels.

C. Controlling Vacuum Truck Emissions

A variety of technologies are available to limit organic emissions from vacuum truck operations. Most of them can achieve capture and control efficiencies that are greater than 95 percent. Technologies include carbon adsorption systems, internal combustion engines, thermal oxidizers, refrigerated condensers and liquid scrubbers. Sometimes control technologies are combined. For example an internal combustion engine can be combined with a chiller, or carbon adsorption can be combined with a scrubber.

Some controls can be integrated into vacuum trucks, but most vacuum trucks in the Bay Area are not equipped with control equipment. However, vacuum truck operations do commonly use outboard carbon adsorption systems, thermal oxidation, or internal combustion engine technologies. Such control technologies are typically connected as a "skid-mount" or "portable

trailer unit". Control equipment is generally used for safety reasons, to control odors, or to comply with requirements in the Code of Federal Regulations.

The following is a brief discussion of each technology available for controlling vacuum truck emissions.

Carbon Adsorption Systems

A carbon adsorption system is a system that is composed of a tank or vessel containing a specific amount of activated carbon onto which organic gases or vapors molecularly adhere as they flow through the particles. Activated carbon is a form of carbon that has been processed to make it extremely porous. Its porosity results in a very large internal surface which enables it to adsorb gases within its structure. The degree to which activated carbon adsorbs organic vapors is affected by the temperature, humidity, flow-rate, concentration, and molecular structure of the gas. High vacuum truck blower discharge temperatures may actually release previously adsorbed compounds, thus allowing emissions to vent into the ambient air. According to various industry sources, it may take anywhere from 2 to 10 pounds of carbon to control 1 pound of TOC.[4] Figure 5 is an image of a pile of activated carbon. The carbon has the physical consistency of small pieces of gravel. It is also available in a more granulated form. The image in Figure 6 is a microscopic cross-section of a single particle of activated carbon that illustrates the molecule's large surface area. This image depicts the flow of organic molecules into the finger-like cavity of a carbon particle where they adhere to the cavity's walls.

Figure 5
Activated Carbon Material

Image Source: www.water.siemens.com

Figure 6
Cross-Section of Activated Carbon

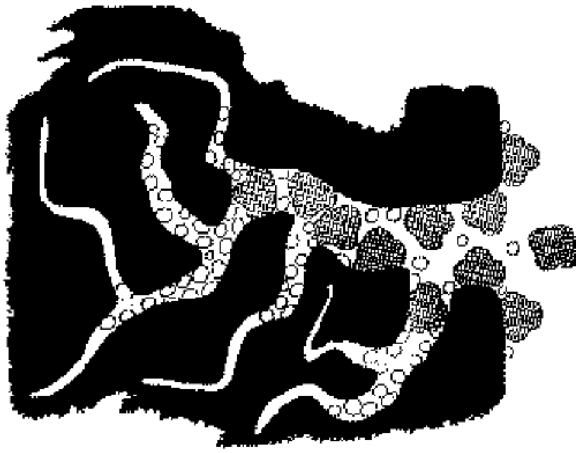

Image Source: www.carbtrol.com/voc

When observing Bay Area vacuum truck operations that used activated carbon to control organic emissions, staff normally observed two types of carbon adsorption systems. One type was a small-to-intermediate sized container integrated into the vacuum truck that contained 200 - 300 pounds of carbon. It was typically used to control two types of loading events: 1) those that lasted a short duration because a small amount of material containing hydrocarbon were loaded

into the vacuum truck barrels; and 2) those that included hydrocarbon-containing materials that were loaded into the vacuum truck barrel at relatively low flow rates. In each case, the carbon adsorption system was used to reduce odors.

A second type of carbon adsorption is a larger, portable system that includes two or three vessels, each containing 1,000 lbs of activated carbon. This type of system can control larger volumes with high organic concentrations compared to the smaller vessels. When staff observed this type of system in operation, it was being used to comply with federal requirements for hazardous air pollutants (NESHAP).

Portable carbon adsorption is best used for the control of emissions from small cleanup operations like spills. Emissions from large operations like the degassing and cleaning of a large crude oil tank would quickly overwhelm the capacity of most portable carbon adsorption units. Once a carbon adsorption unit has reached its holding limit, "breakthrough" occurs, and emissions pass through unabated. Changing out carbon vessels on a frequent basis can become cost prohibitive.

Carbon adsorption units should be monitored for breakthrough. On more than one occasion, staff observed breakthrough that occurred when carbon adsorption controls were used on vacuum truck loading events. In such situations, the organic vapor exhaust streams were not being monitored frequently enough to detect breakthrough before it occurred. In one case, in spite of an unusually low exhaust flow-rate (3-4 scfm), the organic emission concentrations were determined to be approximately 80,000 ppmv after the carbon adsorption unit reached breakthrough. Thus the emissions that should have been abated went straight through the carbon vessel and into the ambient air uncontrolled. This could have been avoided had the operator monitored the emissions from the carbon adsorption unit more frequently and been able to replace the carbon before breakthrough.

Figure 7 is an image of a portable carbon adsorption system. The two carbon vessels, each containing 1,000 lbs. of activated carbon, can be transported to locations where vacuum truck operations occur.

Figure 7
Portable Carbon Adsorption Unit

Image Source: http://www.vocpollutioncontrol.com

Under certain circumstances, carbon adsorption can be a less expensive technology compared to other control methods, primarily when it is used to control vapor emissions from materials containing relatively low organic compound concentrations. However, carbon adsorption is limited by virtue of the dimensions of portable carbon vessels because they must be sized to allow for sufficient residence time to maximize adsorption efficiency. Temperature and humidity also affect carbon's ability to adsorb. When carbon adsorption systems are used to control emissions from loading events with materials that have high organic concentrations, there is some risk of spontaneous combustion due to temperature increase.

Internal Combustion Engines

Internal combustion engine technology is currently available to control organic vapor emissions. The equipment contains the vacuum source and vapor control device in one unit mounted on a truck. Internal combustion engines that are utilized to control organic vapors from vacuum trucks have a large cubic inch displacement and are able to run on compressed gas such as propane. When an internal combustion engine is used to control organic vapor emissions, it initially runs on propane and then switches to the incoming organic vapors as the primary fuel source. In some applications, the engines can power a refrigerated condenser (or "chiller") to condense a portion of the organic vapor stream back to liquid.

In a Southern California demonstration observed by District staff, the refrigerated condenser was powered by the truck's engine using the extracted organic vapors as the primary fuel source. Emissions were monitored from the control device's exhaust with a portable engine analyzer that was previously source-tested, as required by the South Coast Air Quality Management District (SCAQMD), to confirm the accuracy of the instrument readings. While loading transmix (a material blend containing primarily gasoline and diesel fuels) into a vacuum truck, emissions were reduced by over 99.6%. The engine/chiller vapor control equipment abated approximately 33 lbs. of potential organic vapor emissions for this 10 minute loading event.[5] Figure 8 is a diagram of an engine/chiller combination unit integrated into a vacuum truck. The small reddish-orange circles depict the flow of organic vapors as they flow from right to left in the vacuum truck's barrel. Some of the vapors are captured by the chiller (see #3 in the diagram) while the majority of the remaining vapors are combusted by the internal combustion engine (see #4 in the diagram).

Figure 8
Vacuum Truck with a Combination
Internal Combustion Engine-Refrigerated Condenser
Control Device

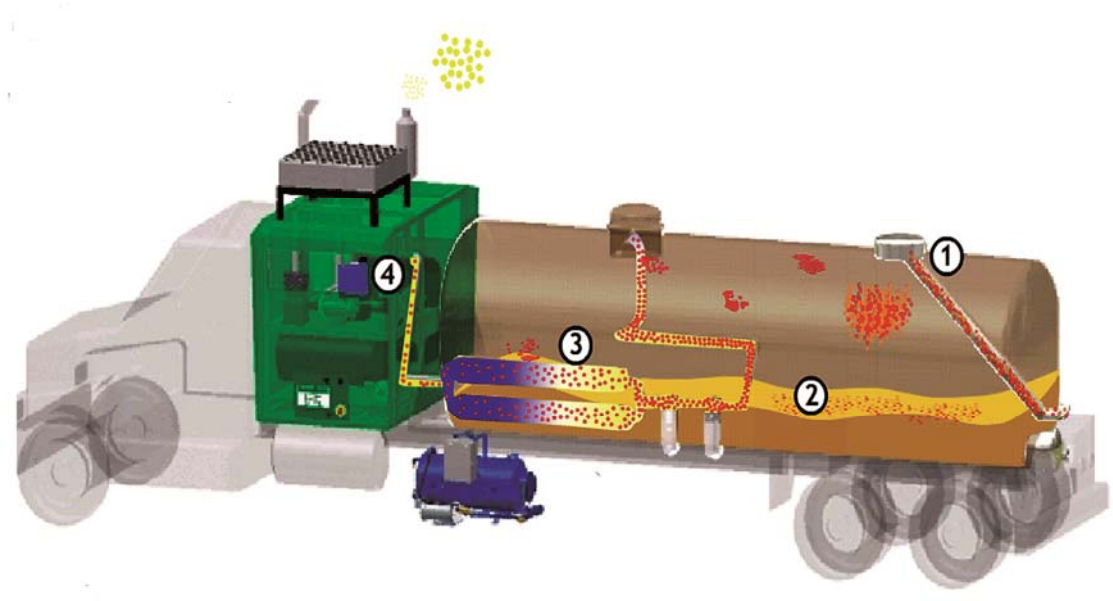

Image Source: http://www.fieldspecialtiesinc.com/projects-equipment-media/

① Stream of liquid, solids and vapors are drawn into vacuum truck tank.
② Liquids and solids drop out of stream. Vapors flow upward toward vacuum pump intake and are then exhausted downward into chiller vapor destruction system.
③ Vapor stream is drawn through chiller where some vapors are condensed back into a liquid state.
④ Remaining vapors flow to truck engine where they are combusted by more than 99.6%.

Thermal Oxidizers

Portable or "skid-mounted" thermal oxidizers are used to control emissions in vapor streams containing hydrocarbons diluted down to less than 50% of the lower explosive limit (LEL) at controlled flow rates to meet National Fire Protection Association (NFPA 86) Safety Guidelines. Thermal oxidizers are sometimes referred to as "afterburners." Thermal oxidizers are a type of incinerator that destroys emissions by raising the temperature of the organic materials in the vapor stream above their auto–ignition point in the presence of oxygen, and maintains the high temperature for a sufficient amount of time to complete the combustion of the materials to carbon dioxide and water. Time, temperature, turbulence (for mixing), and the availability of oxygen are all factors that affect the rate and efficiency of the combustion process. Organic vapor destruction efficiency depends upon design criteria which include chamber temperature, residence time, inlet concentration, compound type, and degree of mixing. Typical design efficiencies range from 98% and above depending on system requirements and characteristics of the vapor stream. Figure 9 is an image of a portable thermal oxidizer.

Figure 9
Portable Thermal Oxidizer

Image Source: ENVENT Corporation

Refrigerated Condenser Systems

A refrigerated condenser system can be effective in reducing organic vapor discharge. It is a device that cools a vapor emission stream containing hydrocarbons by changing it from a vapor state to a liquid state. The condensed organic vapors can be recovered for transportation or refining, preventing their release to the ambient air. A refrigerated condenser works best on emission streams containing high concentrations of volatile organic emissions. They are less effective on dilute streams (i.e., where the air flow is much greater than organic vapor flow).

A refrigerated condenser functions by exposing influent organic vapor streams to a chilled heat exchanger surface, causing the organic vapors to condense on the cold heat exchanger (or heat transfer) surface. As the organic vapor stream condenses, it loses volume, which produces a lower vapor concentration near the heat exchanger surface. The condensation process is assisted by turbulence in the emission stream that also brings the emission stream close enough for heat transfer and subsequent condensation of the organic vapors. Figure 10 is an image of a refrigerated condenser system, which includes a blower, compressor and after-cooler.

Figure 10
Portable Refrigerated Condenser

Image Source: geoinc.org

Liquid Scrubbers

Organic emissions can be controlled effectively by liquid scrubbing technology via a chemical process known as absorption. A variety of wet scrubber designs are used to extract gaseous pollutants from vacuum truck vapor streams: packed towers, bubble tray towers, sparging scrubbers, and a new wet scrubber process called hydraulic amalgamation. Usually, the exhaust stream from a vacuum truck is introduced at the bottom of the scrubber tower. The gas stream flows upward through the tower where the organic compounds come into contact with the absorptive chemicals. Packed towers and bubble tray towers are designed to introduce the waste gas into the tower chamber where a liquid absorption chemical is introduced through a series of spray nozzles that emit liquid droplets downward in a counter direction to the stream. The interaction between the upward flowing waste gas and the downward flowing liquid absorption chemical creates an environment for the absorption process. Sparging scrubbers and hydraulic amalgamation scrubbers introduce the waste gas through a submerged reaction chamber. The interaction between the waste gas and the absorption liquid within the reaction chamber creates an environment in which the organics are absorbed.

A high hydrocarbon-to-liquid contact ratio is essential to maximize the efficiency of the absorption process. Physical absorption depends on properties of the exhaust stream and the liquid such as density and viscosity, as well as specific characteristics of the hydrocarbons in the exhaust stream. These properties are temperature dependent: lower temperatures generally favor absorption of hydrocarbons by solvent. Absorption is also enhanced by higher liquid-gas ratios and higher concentrations in the hydrocarbon stream. Chemical absorption may be limited by the rate of reaction, although the rate-limiting factor is typically the physical absorption rate, not the chemical reaction rate. Figure 11 is an image of a vacuum truck that has a combination of liquid scrubbing and carbon adsorption control technologies designed into the truck.

Figure 11
Vacuum Truck Containing a Combination of a
Liquid Scrubber and Carbon Adsorption Control Device

Image Source: PSC Industrial Outsourcing, LLP

To achieve desired hydrocarbon control objectives, some companies provide custom designed systems that utilize combinations of control technologies discussed above. The control technologies referenced in Figure 11 are an example of such an approach. In order to comply with the proposed 500 ppmv TOC emission limit in Regulation 8, Rule 53, client-specific configurations may sometimes be necessary.

Alternative Methods for Reducing TOC Emissions

Two alternative loading methods can result in significant emission reductions from vacuum truck loading and at lower cost than using the control technologies discussed above. The two methods are loading with a positive displacement pump and gravity loading, both of which produce less agitation of the loaded material than loading with the vacuum truck blower.

The first method involves use of an external positive displacement pump, a submersible pump, or a diaphragm pump. In this staff report, all three types of pumps are referred to as a positive displacement pump (PD pump). A PD pump can introduce material into a vacuum truck barrel with significantly less agitation than is generated by a vacuum truck blower.

Different PD pumps are manufactured with different types of parts for different performance standards, depending on specific material loading requirements. Thus, the cost to purchase or rent PD pumps can vary. For instance, if gasoline is going to be loaded into a vacuum truck, the PD pump must be fitted with more expensive parts that are resistant to the corrosive nature of that chemical. A material known as viton – a special polymer – is typically used for PD pump diaphragms used for gasoline loading events.

PD pumps may not be appropriate for all vacuum truck operations for a variety of reasons:

- They take longer to complete loading events, which is a disadvantage if a job is large enough to require the loading of several vacuum trucks or more in succession;
- PD pumps are not powerful enough to load very viscous materials under certain situations;
- PD pumps require more set up time (typically 30 min - hour); and,
- Diaphragm ruptures will result in leaks or spills. Sometimes compressors fail which result in downtime for the PD pump.

Research did not identify any test data comparing vacuum truck emissions when using the blower to emissions when using a PD pump for loading. In order to determine the extent of emission reductions likely to result from use of a PD pump, staff examined the United States Environmental Protection Agency loading loss equations and emission factors for loading into tank trucks. This information is found in EPA's AP-42, *Compilation of Air Pollutant Emission Factors*, Chapter 5.2. Using the equations in AP-42, gasoline with a Reid vapor pressure of 7 psia (typical for California gasoline), would be expected to emit approximately 10 pounds per thousand gallons (0.42 pounds per barrel) when loaded into a vacuum truck using a PD pump. By contrast, District source tests conducted to develop the emissions inventory for this rule (see Appendix A) showed that vacuum truck loading of gasoline and naphtha produced average emissions of 2.41 pounds per barrel. If these results are representative, a PD pump would be expected to reduce emissions by 83%. To determine whether actual measurements would show similar results, staff conducted one vacuum truck source test involving gasoline loading in which 20 barrels of gasoline were loaded using the vacuum truck's blower and 20 barrels were loaded with a PD pump. With the blower in operation, emissions were 0.45 pounds per barrel. Using the PD pump, emissions were 0.10 pounds per barrel, a reduction of 78%.

A second alternative for reducing emissions is to use a gravity feed method in which liquid moves from a higher elevation into a vacuum truck through the force of gravity. This method can be employed, for example, when material must be moved from an elevated tank or vessel. This method is expected to result in emission reductions equal to those achievable through use of a positive displacement pump.

For both the positive displacement and gravity feed methods, District staff considered whether restrictions on flow rate might be necessary. This concern was based on the idea that higher flow rates might produce greater agitation and greater emissions. However, calculations and research suggest that emissions are typically lower at higher flow rates because quicker loading allows less time for vapor growth.[6] As a result, the proposed rule does not limit flow rates when these methods are used.

Another alternative method of loading materials into a vacuum truck involves the creation of vacuum pressure inside a vacuum truck barrel and then shutting off the blower prior to opening the inlet valve to draw in the material. The blower is turned on for less than 1 minute one additional time partway through the loading event. Although this method is promising, additional testing would be necessary for the loading of a variety of materials under a variety of conditions before staff could conclude that the method reduces vacuum truck emissions.

Lastly, for certain vacuum truck operations, a vapor line (hose) could be used to return organic vapors to the tanks the materials originated from. This method is called a vapor balancing. In order for this method to comply with the rule, the tank that is receiving the rerouted vapors must be connected to a control device that is actively controlling the vapors. This method is not common.

III. Regulatory Proposal

Currently, the District does not regulate vacuum truck emissions. Regulation 2, Rule 1, Section 103.1 exempts vacuum truck operations from permitting requirements. However, permits may be required for control equipment used to limit organic vapor emissions from a vacuum truck. Regulation 8, Rule 53, is a new rule.

A. Proposed Regulation 8, Rule 53: Vacuum Truck Operations

The proposed emission limits in Regulation, Rule 53 would be consistent with the only current air quality regulation in California that limits organic vapor emissions from vacuum truck operations — SCAQMD Rule 1149. Whereas Rule 1149 exclusively limits VOC emissions from vacuum trucks that are utilized during the cleaning or degassing of storage tanks and pipelines, Regulation 8, Rule 53 would limit organic vapor emissions, including methane, from five types of industrial facilities that utilize vacuum truck service for a variety of operations and equipment types.

The emission limits in Regulation 8, Rule 53 are also consistent with Texas Commission on Environmental Quality (TCEQ) permitting requirements for vacuum truck operations associated with maintenance, startup and shutdown operations at refineries.[7] In addition, the federal National Emission Standard for Benzene Waste Operations found in 40 C.F.R., Part 61, Subpart FF includes a similar emission limit that applies to vacuum truck operations used for waste disposal.[8]

The proposed rule for vacuum truck operations, Regulation 8, Rule 53, would apply in petroleum refineries, gasoline bulk terminals, gasoline bulk plants, marine terminals and organic liquid pipeline facilities. These facilities are responsible for the majority of organic liquid transfers using vacuum trucks.

Regulation 8, Rule 53 is a new rule that will reduce TOC and TAC emissions in three ways: (1) by limiting organic vapor emissions from vacuum truck blower exhaust, (2) by limiting organic vapor emissions from vacuum truck equipment vapor leaks, and (3) by limiting liquid leaks from vacuum truck equipment. Table 1 lists the proposed emission limits for vacuum truck loading events. The rule will exempt vacuum truck operations that respond to emergency situations.

Table 1
Proposed TOC Emission Limits for Vacuum Truck Loading Events

Standard Type	Current Standard	Emission Standard Effective April 1, 2013
Emission Leak Limit—from blower exhaust or connected equipment	None	500 ppmv
Liquid Leak Limit—from equipment such as hoses and connectors	None	3 Drops Per Minute (no more than)
Vapor Leak Limit—from equipment such as stingers, hoses, and connectors	None	500 ppmv

The emission limit requirements in the proposed rule would apply to the specified facilities that use vacuum trucks to load regulated materials. Regulated materials are defined as gasoline, aviation gas, gasoline blending stock, naphtha, and any mixture that includes any of these materials. Sample testing allows for exclusion of heavier materials and materials with high water content. Crude oil is not a regulated material at this time.

Other materials moved by vacuum trucks in refineries may be cost effective to control. For that reason, record keeping requirements for some additional materials (crude oil and recycled oil) have been included in rule requirements. If data developed in response to these record keeping requirements and through further source tests show that emissions from other materials may be cost-effectively controlled, further amendments may be considered.

Additional requirements for vacuum truck operations include the following:

- Reporting requirements for scheduled loading events upon request by the APCO;
- Monitoring requirements for emissions from vacuum trucks or control technologies when applicable;
- Recordkeeping requirements to assist staff in assuring compliance with the rule;
- Use of District-approved measurement methods.

Under the rule, the facilities that use or contract for use of vacuum trucks would be responsible for complying with the provisions of Regulation 8, Rule 53. Regulation 8, Rule 53 is proposed to become effective on April 1, 2013.

B. Amendments to Regulation 2, Rule 1: Permits, General Requirements

Vacuum truck operations currently do not require permits. Amendments are proposed to Regulation 2: Permits, Rule 1: General Requirements so that vacuum trucks will not be required to be permitted with the adoption of Rule 53. Vacuum trucks are temporary contractors in the regulated facilities, used temporarily at any one location, and, so are not appropriate for permits. The current exemption is based on Regulation 2, Rule 1, Section 103 that exempts sources for which a Regulation 8 rule does not exist. Exceptions exist for sources only subject to some general standards found in Regulation 8, Rules 1 and 2 and for Regulation 8, Rule 3: Architectural Coatings. However, with the adoption of proposed Regulation 8, Rule 53, this

exemption will no longer apply. Staff has proposed minor amendment to Regulation 2, Rule 1 to continue to exempt these vacuum truck operations from requiring District permits.

IV. Emissions and Emission Reductions

A. Emissions Inventory

The development of an emissions inventory requires information on emission rates for an activity (i.e., the expected emissions for a given unit or volume of the activity) combined with information on the frequency or volume of the activity. Neither type of information was readily available for vacuum truck operations at the beginning of this rule development effort. In order to estimate vacuum truck emissions and potential reductions for the proposed rule, staff developed emission factors and estimates of vacuum truck activity.

To develop emission factors, District staff conducted thirty-two source tests on vacuum trucks moving various petroleum products. Some tests found low emissions, particularly for those products that contain high amounts of water. Other tests found significant emissions, particularly for those products that contain high vapor pressure petroleum products such as gasoline. Despite significant variation in results, even among similar materials, staff was able to group the results into general material categories and develop emission factors.

To develop activity data, staff relied on data from one refinery that was more detailed than data available from other sources and scaled the data to derive estimates of total activity. Using the emission factors and this activity data, the District developed emissions estimates for vacuum truck operations in the facilities that would be subject to the proposed rule. Total organic emissions from those facilities subject to the rule are **1.50 TPD**. The emissions inventory is explained in greater detail in Appendix A.

B. Emission Reductions

Organic emissions from vacuum truck operations at facilities that the rule would regulate are 1.50 TPD. These emission estimates include throughput that is already controlled or minimized through use of external abatement equipment, PD pumps, or gravity feed (approximately 20% is already controlled). Total emissions from moving materials to be regulated by the rule that are currently uncontrolled are **1.24 TPD**.

Based on discussions with facilities that will become subject to the rule, staff estimates that 50% of vacuum truck operations that will be subject to the proposed rule will be controlled with external abatement equipment such as carbon adsorption or thermal oxidization. These devices have an efficiency of at least 95%. The other half of vacuum truck operations subject to the proposed rule will be minimized by the use of PD pumps or gravity feed. For these operations, staff used an efficiency of 75% to calculate the emission reductions. Emission reductions are calculated as follows:

(Uncontrolled emissions) x (% to be controlled by abatement equipment) x (abatement efficiency) +
(Uncontrolled emissions) x (% to be controlled by PD pumps) x (PD pump control efficiency) =

(1.24) x (50%) x (.95) + (1.24) x (50%) x (.75) = **1.05 TPD**

Emissions reductions of 1.05 ton per day represents an 85% reduction in emissions from moving regulated materials and a 70% reduction of overall organic emissions from vacuum truck operations at the regulated facilities. Emissions for TACs, such as benzene, toluene, xylene, hexane, and possibly GHG emissions will also be reduced.

V. Economic Impacts

A. Compliance Costs and Cost Effectiveness

The rule as proposed has been structured to be cost effective. Highly volatile liquids, such as gasoline, emit high rates of organic emissions when moved into vacuum trucks. However, source testing has found that many materials moved by vacuum trucks in petroleum refineries, such as wastewater, emit at a very low rate and are thus not cost effective to control. The rule defines those materials that source tests have shown to have high emissions so that they can be clearly identified within the context of refinery, bulk plant, bulk terminal, marine terminal and pipeline facility operations. An analysis of cost effectiveness follows.

Costs

Control Costs

Staff estimates that 24 vacuum trucks operate in the affected facilities daily. This number is derived from discussions with facility representatives, vacuum truck and vacuum truck control equipment operators and field observations. Of these 24 vacuum trucks, 22 operate in refineries. The remaining 2 operate in gasoline bulk terminals, bulk plants, marine terminals and organic liquid pipeline facilities. Much of the vacuum truck activity in refineries, however, is not conducted on materials that the rule would regulate.

As detailed in Appendix A: Emissions Inventory, 13.5% of the vacuum truck throughput in refineries is of regulated material and about 75% of the throughput in other facilities is of regulated material. Staff used these figures to estimate costs for refineries and other facilities.

Consequently, the number of vacuum truck operations in refineries that will be subject to the rule per day is 22 x 13.5% = 2.97 (3 trucks per day). The number of vacuum truck operations in other facilities that will be subject to the rule is 2 x 75% = 1.5 trucks per day. The total number of vacuum trucks that will be loading regulated materials on a daily basis at all facilities subject to Regulation 8, Rule 53 is 3 + 1.5 = 4.5 trucks/day. As discussed under Emissions and Emissions Reductions, above, the percentage of trucks that are already controlled or that use positive displacement pumps is 20%. Therefore, additional costs will be incurred by 4.5 – (0.20 x 4.5) = 3.6 vacuum trucks on a daily basis.

Staff obtained cost estimates from representatives of several companies that supply abatement equipment that is currently used at Bay Area, South Coast Air Basin and Texas refineries. Table 2 reflects the range of typical daily costs to rent abatement equipment that is most commonly used in the Bay Area as well as the daily cost to rent PD pumps. Gravity feed, an alternative to use of a PD pump, will be used in some applications, when material is at a higher elevation than the vacuum truck barrel. Because gravity feed does not use any extra equipment, there is no associated cost. For the purpose of this analysis, any use of gravity feed is not considered.

Table 2
Daily Compliance Costs

Control Technology	Cost – Equipment Rental
Positive Displacement pump	$80 – $105 /day
Thermal incineration	$4900 – $5780 /day
Carbon adsorption	$400 – $515 /day

As previously indicated, 50% of the time PD pumps or gravity feed will be used and 50% of the time abatement equipment will be used to comply with the provisions of the rule. Industry currently uses thermal oxidation to control emissions about 10% of the time. So, staff estimates that carbon adsorption will be used the remaining 40% of the time.

Given the range of costs, a high and a low cost have been estimated on a daily basis as follows:

(Trucks / day that will need to be controlled) x (% control equipment) x (costs of control) = Costs / day

Low Costs of Control Equipment

(3.6 trucks /day)(50% PD pumps)($80) + (3.6 trucks/day)(10% thermal incineration)($4900) + (3.6 trucks/day)(40% carbon adsorption)($400) = $144 + $1764 + $576 = $2,484/day.

High Costs of Control Equipment

(3.6 trucks /day)(50% PD pumps)($105) + (3.6 trucks/day)(10% thermal incineration)($5780) + (3.6 trucks/day)(40% carbon adsorption)($515) = $189 + $2,081 + $742 = $3,012/day.

Monitoring Costs

In addition to the costs of control, there are costs associated with the monitoring requirements. Although some facilities have environmental personnel available to conduct monitoring, others do not. Monitoring is only required when abatement equipment is used, not when a PD pump or gravity feed is used. Staff has allocated a daily cost of $85 to assist with emissions monitoring, but it will be required on all loads of regulated materials, not just the additional loads that are currently uncontrolled. If PD pumps or gravity feed is used on 50% of 4.5 trucks per day, costs for personnel are:

(4.5 trucks per day) x (50%) x ($85) = $191/day

Emissions monitoring will also require the use of a handheld monitoring device. Some facilities such as refineries and gasoline bulk terminals already own this type of equipment because it is used to measure emissions for compliance with organic vapor emission limits in other District regulations. Staff estimates that at least 4 to 5 additional handheld monitoring devices, and possibly up to a maximum of 14 units will have to be purchased, although they can be rented, or monitoring can be performed under the contract to provide the vacuum truck service. The monitoring devices cost from $2,000 to $3,000 per unit. For the cost analysis, staff used a median cost of $2,500. The cost for 14 facilities to purchase handheld monitoring devices to comply with Section 8-53-501 is $35,000. The cost of the monitoring devices has been amortized over 5 years, the minimum life expectancy. Consequently, the daily cost for monitoring is $19 per day.

Total Costs

Total costs are the sum of control costs, personnel costs and monitoring costs:

Low Cost
$2484 + $191 + $19 = $2694 per day

High Cost
$3012 + $191 + $19 = $3222 per day

Yearly Costs

The daily costs have been multiplied by 365 to derive the yearly costs.

Low Cost
($2964) x (365) = $983,310

High Cost
($3222) x (365) = $1,176,030

Refineries will incur 91.6% of the costs. Terminals, bulk plants, and organic liquid pipeline facilities will incur 8.4% of the costs. These are based on the throughput information that was used to calculate emissions and activity costs. Of the 8.4%, 8.38% of the total costs are expected to be incurred in bulk terminals and marine terminals. Bulk plants, with two tenths of a percent of the gasoline throughput that bulk terminals have, and organic liquid pipeline facilities, will incur 0.02% of the total costs. Bulk plants are typically small businesses, and analyzed as such in the socioeconomic analysis.

Cost Effectiveness

Cost effectiveness is the sum of costs to comply with the proposed rule on a daily basis divided by the expected emissions reduction on a daily basis. Cost effectiveness (C.E.) is expressed by the following equation:

C.E. = Costs / emissions reductions

Low Cost = $2694 / 1.05 ton = $2566 / ton

High Cost = $3222 / 1.05 ton = $3069 / ton

The rule is very cost effective. District organic compound control rules typically range from several thousand to over fifteen thousand dollars per ton of emissions reductions, and rules to reduce oxides of nitrogen, NOx, typically range from about seven to around twenty thousand dollars per ton of emissions reduced.

B. Socioeconomic Impact Analysis

Section 40728.5 of the California 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." Bay Area Economics of Emeryville, California has prepared a socioeconomic analysis of the proposed amendments to Regulation 8, Rule 53.

The analysis concludes that the proposed rule would not have a significant economic impact or cause regional job loss. District staff has reviewed and accepted this analysis. The socioeconomic analysis is attached as Appendix B.

C. Incremental Cost Analysis

Health and Safety Code Section 40920.6 requires an air district to assess the incremental cost-effectiveness for a regulation that identifies more than one control option to meet the same emission reduction objectives. Incremental cost-effectiveness is defined as the difference in costs divided by the difference in emission reductions between one level of control and the next. As discussed above, the cost-effectiveness for the requirement to use control technology to comply with emission limits for vacuum truck operations that load only regulated materials is estimated to be from $2566 to $3069 per ton of emissions reduced.

To calculate the incremental cost effectiveness, the cost of controlling all organic liquids (including non-regulated materials such as wastewater with some organic content and diesel fuel and oils with a low vapor pressure) was calculated.

The throughput information, detailed in Appendix A, provides an estimate of 3,229,799 barrels per year of all materials moved by vacuum trucks in refineries in a year. Refineries represent 91.6% of the vacuum truck activity among the regulated facilities. Other facilities have much less vacuum truck activity and a lower percentage of vacuum truck operations that would not be hauling regulated materials, so they are not included in the calculations. The regulated materials in refineries constitute 436,022 barrels, so the non-regulated materials represent the remaining 2,793,777 barrels. Utilizing the emission factor of 0.082 lbs / barrel, the emissions from non-regulated materials are 0.31 tons per day.

To control this material, all vacuum trucks used in the refineries would need to utilize abatement equipment, or PD pumps or gravity feed, and be monitored, as explained above. Costs to control 3,229,799 barrels of material per day would increase proportionally, to a range from $19,954 to $23,865 per day. The emissions reductions, calculated as before, would total 1.26 tons per day. Consequently, the cost effectiveness of controlling all vacuum truck material in

refineries would be from $15,836 per ton to $18,940 per ton of emissions reduced. This is still within the range of cost effectiveness of other District rule adoptions.

However, the cost effectiveness of the additional increment controlled is significantly higher. The calculation of incremental cost effectiveness is expressed as follows:

Total Costs – Recommended Costs = Incremental Costs

($19,954 to $23,865) – ($2566 to $3069) = $17,428 to $20,796

Total emissions reductions (E.R.) – Recommended E.R. = Incremental E.R.

1.26 tons per day – 1.05 ton per day = 0.21 tons per day

Incremental Costs / Incremental Emissions Reductions = Incremental Cost Effectiveness

$17,428 / 0.21 tons per day = $82,990 per ton of emissions reduced

$20,796 / 0.21 tons per day = $99,029 per ton of emissions reduced

Given the range of incremental cost effectiveness from $82,990 to $99,029 per ton of emissions reduced, only the defined "regulated materials" are recommended for control at this time.

VI. Environmental Impacts

A. California Environmental Quality Act

Pursuant to the California Environmental Quality Act, the District has caused an initial study for proposed Regulation 8, Rule 53 to be prepared by Environmental Audits of Placentia, CA. The assessment concludes that the proposed rule would not result in adverse environmental impacts. A copy of the study and draft Negative Declaration is attached as Appendix C.

B. Greenhouse Gas Emissions

In June, 2005, the District's Board of Directors adopted a resolution that recognizes the link between global climate change and localized air pollution impacts. Climate change, or global warming, is the process whereby emissions of anthropogenic pollutants, together with other naturally-occurring gases, absorb infrared radiation in the atmosphere, leading to increases in the overall average global temperature.

While carbon dioxide (CO2) is the largest contributor to global warming, methane, halogenated carbon compounds, nitrous oxide, and other greenhouse gas (GHG) species also contribute to climate change. Gases in the atmosphere can contribute to the greenhouse effect both directly and indirectly. Direct effects occur when the gas itself is a GHG. While there is relative agreement on how to account for these direct effects of GHG emissions, accounting for indirect effects is more problematic. Indirect effects occur when chemical transformations of the original compound produce other GHGs, when a gas influences the atmospheric lifetimes of methane,

and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation).

Organic compounds have some direct global warming effects; however, they may also be considered greenhouse gases due to their indirect effects. Organic compounds react chemically in the atmosphere to increase concentrations of ozone and may prolong the life of methane. The magnitude of the indirect effect of organic compounds is not well quantified and depends on local air quality. Global warming not only exacerbates ozone formation, but ozone formation exacerbates global warming because ozone absorbs infrared radiation. Consequently, reducing organic compounds to make progress towards meeting California air quality standards for ozone will help reduce global warming.

Adoption of Regulation 8, Rule 53 will not result in any adverse impact on the emissions of greenhouse gases. The proposed methods of control include technologies such as carbon adsorption, thermal oxidizers, refrigerated condensers, absorption, and internal combustion engines; also by minimizing emissions via the use of an alternative method of loading materials into vacuum trucks with a positive displacement pump.

On average, control equipment or PD pumps are currently used 20% of the time to minimize emissions. Facilities have indicated that they would prefer to utilize PD pumps instead of control technology to comply with the emission requirements in the proposed rule. There would be a minimal increase in energy demand to implement these amendments and, therefore, the proposal will not generate additional greenhouse gases.

VII. Regulatory Impacts

A. California Health and Safety Code 40727.2 Impacts

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

Adoption of Regulation 8, Rule 53, would not conflict with any existing federal or District requirement. In some cases, materials moved by vacuum trucks in petroleum refineries may be subject to the federal National Emission Standard for Benzene Waste Operations, 40 C.F.R., Part 61, Subpart FF. The federal rule requires emission from waste transfer of petroleum products containing benzene to be controlled to 500 ppm, which is consistent with the proposed limit in Regulation 8, Rule 53.

In addition, District Regulation 8, Rule 5: Storage of Organic Liquids, requires controls of vapor space emissions in floating roof tanks to be controlled when tanks are being degassed for cleaning and maintenance. The portable controls used for this operation are the same as those used for vacuum trucks. The emission standard in Regulation 8, Rule 5 is also 500 ppm.

B. Senate Bill 288 Conformity

Senate Bill (SB) 288, later codified in the California Health and Safety Code commencing at §42500, prohibits air districts from making changes to their new source review rules that would make the rule less stringent than it was on December 30, 2002, unless certain conditions were met. Currently, District Regulation 2, Rule 1: Permits, General Requirements exempts sources that are not regulated by a Regulation 8 rule, provided that the emissions from these sources do not exceed 10 pounds per day or 150 pounds per year. Regulation 8, Rule 53 is a new rule and its adoption will mean that this exemption no longer applies to vacuum trucks operations. To maintain consistency with current permitting requirements, staff has proposed an exemption in Regulation 2, Rule 1, Section 113 to exempt vacuum truck operations that will be subject to the requirements of Regulation 8, Rule 53. Section 113 exempts specified sources and operations from having to obtain a permit. To the existing exempt sources, staff has added, "Vacuum trucks subject to Regulation 8, Rule 53 and processing regulated material as defined in that rule." In addition, staff has proposed an exemption for portable abatement equipment used to control emissions from vacuum trucks, consistent with the existing exemption for abatement equipment used for tank degassing.

These exemptions are not in conflict with SB 288 provisions. Vacuum truck operations are currently exempt. Moreover, the exemption is narrowly tailored so that only those trucks subject to the control requirements will be specifically exempted. Other trucks used outside of Regulation 8, Rule 53 facilities and not subject to the control requirements will still be subject to permitting if emissions exceed the thresholds. Emissions from vacuum trucks subject to Regulation 8, Rule 53 will decrease. Consequently, no sources will escape permitting and new source review with the addition of these exemptions to Regulation 2, Rule 1.

VIII. Rule Development Process

Air District staff from the Planning, Legal, Technical, Engineering, and Compliance and Enforcement Divisions developed Regulation 8, Rule 53 through a rule development process that began in 2010. In June 2010, staff requested through the Western States Petroleum Association (WSPA) that Bay Area refineries provide vacuum truck material throughput information as well as technical information regarding vacuum truck operations. From February 2011 until October 2011, the District conducted thirty-two source tests on vacuum truck operations involving a variety of materials, equipment, and processes.

District staff met with representatives from various Bay Area facilities that would be subject to the rule and conducted site visits. Staff reviewed and discussed regulatory language with staff at the other agencies that have regulated vacuum trucks: the South Coast Air District, the Texas Commission of Environmental Quality, and the New Jersey Department of Environmental Protection. Staff also discussed vacuum trucks with vacuum truck manufacturers and organic vapor control equipment service providers.

Staff met with WSPA on June 14, 2011 to discuss basic rule concepts. A draft rule, a workshop report, and workshop notice were posted on the District's web site on July 7, 2011, and the

notice was mailed to 68 businesses, facilities, vacuum truck service providers, interested persons, and companies that provide control technologies for vacuum truck VOC emissions. A public workshop was conducted at the City of Martinez City Hall on July 21, 2011, and a second was held at the District offices on July 25, 2011 to solicit comments on the draft proposal. Thirty-five parties attended the first workshop and twenty-one parties attended the second workshop.

Comments on the draft addressed:

- Cost information for the proposed rule;
- Vacuum truck loading of materials containing high water content and/or low vapor pressure that result in low organic vapor emissions;
- Reporting requirements for vacuum truck loading events; and,
- The effective date for the rule.

After reviewing workshop comments and the District source test results, staff developed a revised draft of the rule that applies only to those materials that result in the most significant emissions when loaded into vacuum trucks. Reporting requirements for scheduled loading events have been modified to address stated concerns. The proposed rule's effective date, April 1, 2013, will give industry sufficient time to implement control technologies and train staff to familiarize themselves with the new rule.

On September 29, 2011, and January 9, 2012 staff gave presentations to the District's Stationary Source Committee regarding the status of the rule.

Staff has analyzed the cost effectiveness of the rule and has determined that a cost range of $2964 per ton to $3222 per ton of emissions reduced is cost effective. Staff has re-examined the issue of whether the responsibility to comply with the provisions of the rule should be with the facility or the vacuum truck operator. Staff has confirmed that consistent with BAAQMD fugitive emission rules, and, consistent with Title V permitting requirements, the requirement for facilities to comply with the requirements in Regulation 8, Rule 53 is appropriate.

Staff reviewed and considered all comments received at the public workshops and subsequent to workshops and made revisions to the proposal as appropriate. Staff continued discussions with industry representatives and other regulatory agencies and again met with WSPA on December 20, 2011 to discuss applicability, timing and definitions for the draft rule.

Staff published the proposed rule on February 17, 2012 in preparation of the public hearing. Staff received three questions about the rule's applicability, minor comments from EPA on February 29 and comments from WSPA on March 9. WSPA had a number of comments, mostly suggestions for clarifications. Staff incorporated some, but not all of the suggestions. Staff responses to specific comments are iterated in Appendix B: Comments and Responses. The proposed rule contains the changes that staff recommends in strikethrough/underline format. Staff recommends that the public hearing be opened and testimony taken at the March 21, 2012 meeting, and that the rule, with changes, be adopted at the next Board meeting in accordance with California law regarding noticing for public hearings.

IX. Conclusions

Pursuant to Section 40727 of the California Health and Safety Code, the proposed rule amendments must meet findings of necessity, authority, clarity, consistency, non-duplication, and reference before the Board of Directors adopt, amend, or repeal a rule. The proposed Rule is:

- Necessary to protect public health by reducing ozone precursors to meet the commitment of Control Measure SSM5 of the Bay Area 2010 Clean Air Plan;
- Authorized by California Health and Safety Code Sections 40000, 40001, 40702, and 40725 through 40728;
- Clear, in that the rule specifically delineates the affected industry, compliance options, and administrative requirements for industry subject to this rule, so that its meaning can be easily understood by the persons directly affected by it;
- Consistent with other California air district rules, and not in conflict with state or federal law:
- Non-duplicative of other statutes, rules, or regulations; and,
- Implementing, interpreting and making specific and the provisions of the California Health and Safety sections 40000 and 40702.

A socioeconomic analysis prepared by Bay Area Economics has found that the proposed amendments would not have a significant economic impact or cause regional job loss. District staff have reviewed and accepted this analysis. A California Environmental Quality Act analysis prepared by Environmental Audit, Inc., concludes that the proposed amendments would not result in adverse environmental impacts. District staff have reviewed and accepted this analysis as well. The CEQA Negative Declaration was made available for public comments and no comments were received.

The proposed Rule has met all legal noticing requirements, has been discussed with the regulated community and other interested parties, and reflects the input and comments of many affected and interested parties. California Health and Safety Code Section 40726 does not allow a district board to adopt a rule with changes to the text that are "so substantial so as to significantly affect the meaning of the proposed rule or regulation." Although staff believes that most of the changes are not substantial, and that the meaning and intent of the rule has not been changed, District staff recommends that the Board adopt proposed Regulation 8, Rule 53: *Vacuum Truck Operations* and the CEQA Negative Declaration at the next Board of Directors meeting.

X. References

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23. Consultation with Mr. Joe Sunday, Tehama County APCD, April 2011.
24. Safe Operation of Vacuum Trucks, American Petroleum Institute Recommended Practice 2219, 3rd Edition, November 2005.
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29. Consultation with Mr. Chris Longo, GEM Mobile Treatment Services, July 2010.
30. Consultation with Mr. Jeff St. Amant, Vapor Point, July 2010.
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32. Consultation with Mr. Steven Hancock, Mr. Ron L. Jones, and Sandra Stanford of Clean Harbors, June 2010.

33. Consultation with Mr. Elliot Moorhead, Nanovapor Fuels Corporation, May 2010.
34. Multiple Consultations with Mr. Steve Sellinger, Envent Corporation, March 2010.
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Appendices

A. Emissions Inventory
B. Socioeconomic Analysis
C. CEQA Analysis

Appendix A

Emissions Inventory

APPENDIX A EMISSIONS INVENTORY

The development of an emissions inventory requires information on the emission rates for an activity (i.e., the expected emissions for a given unit or volume of the activity) combined with information on the frequency with which the activity is conducted. Neither type of information was readily available for vacuum truck operations at the beginning of this rule development process. In order to estimate vacuum truck emissions and potential reductions for the proposed rule, staff developed emission factors and estimates of vacuum truck activity.

Emission Rates

Virtually no information on vacuum truck emission rates was available when District staff began this rule development effort. For many types of emissions sources, the United State Environmental Protection Agency has conducted research and has developed emission estimation methodologies that are available in its AP-42, *Compilation of Air Pollutant Emission Factors*. No AP-42 methodology is available for vacuum trucks, although a method is available for estimating emissions from loading hydrocarbon liquids into cargo tank trucks such as those that transport gasoline to gas stations (AP-42, Chapter 5.2). This AP-42 method may be useful in estimating emissions from loading hydrocarbon liquids into vacuum trucks, but it probably underestimates emissions when significant agitation or "lifting" of liquids is involved, as is common in vacuum truck operations. In addition, because an important factor in the AP-42 methodology is the vapor pressure of the material being loaded, the approach is probably not useful for mixtures of hydrocarbons and water because the vapor pressure of such mixtures is difficult to measure or estimate. Given the prevalence of aqueous mixtures among the materials moved by vacuum trucks, the AP-42 method appears to have limited utility.

Lacking any existing emission rate information, District staff conducted 32 source tests of vacuum truck operations, primarily at Bay Area refineries. The tests were conducted by District personnel from fall 2010 to fall 2011. The tests presented many scheduling difficulties, because much vacuum truck activity is unplanned and is conducted as needed for maintenance and clean-up activities. In addition, most activity is very brief, typically lasting less than a half-hour and involving relatively small quantities of materials. Of the 32 tests conducted, the majority involved wastewater and waste oils. A small number involved gasoline and other volatile materials. The test results are set forth in Table A-1 on the following two pages.

Table A - 1: Summary of Vacuum Truck Source Tests

Source Test #	Facility	Location	Date	Duration (mins)	Flowrate (SDCFM)	TOC (ppm as $C_{1)}$	TOC (lbs)	TOC (lbs/hr)	Notes
11050	Tesoro	Tank # 622	09/15/10	13	15	3	0.00003	0.00014	Processed low sulfur diesel
11051	Tesoro	Naptha pipeline # 107	09/15/10	60	8	83,500	1.70	1.70	Tanks 876 & 432; Processed Naptha & Natural Gas
11054	Tesoro	Tank # 701	09/22/10	24	118	4,760	0.56	1.40	Rated capacity of vac was 350 sdcfm. Processed Waterborne light crude.
11070	Valero	Pump # 602	10/21/10	4	76	3,400	0.043	0.65	Processed unspecified material.
11070	Valero	Transmix valve # 94959	10/21/10	3	45	3,370	0.019	0.38	Processed transmix.
11070	Valero	Waste area	10/21/10	4	38	34,700	0.22	3.30	Processed unspecified material.
11070	Valero	Reclaim pump site	10/21/10	9	0	1,750	0	0.0	Processed reclaimed material
11163	Chevron	Bioreactor inlet	03/23/11	36	150	58,200	12.7	21.17	Estimated TOC pounds for event is 127. Processed Oil layer from pond.
11164	Chevron	Tank # 3194	03/23/11	20	170	32,900	4.6	13.80	Processed heavy FCCU Feed.
11165	Chevron	Vessel # 265388	03/23/11	12	70	23,600	0.9	4.50	Processed recovered oil.
11175	Conoco Phillips	Odor Compressor Filter	03/30/11	11	174	28,400	0.41	2.24	Processed waste oil from filters.
11178	Conoco Phillips	Unit # 100, Tank # 501	03/30/11	27	20	419	0.01	0.02	Processed skimmed oil from water treatment plant.
11179	Chevron	250 ft pond	04/06/11	27	95	501	0.05	0.11	Processed oil layer from pond.
11180	Chevron	Cutter Rack - Low Flow	04/06/11	31	19	24,300	0.63	1.22	Processed cutter diesel.
11181	Chevron	Cutter Rack - High Flow	04/06/11	13	35	11,600	0.24	1.11	Processed cutter diesel.
11182	Chevron	Tank # 3126	04/07/11	24	173	18,370	1.37	3.43	Estimated TOC pounds for event is 57. Processed reclaimed oil.
11188	Chevron	Tank # 3126	04/20/11	15	136	6,240	0.46	1.84	Estimated TOC pounds for event is 20. Processed reclaimed oil containing cutter diesel.
11189	Chevron	Vessel # 254822	04/20/11	18	24	37,600	0.54	1.80	Estimated TOC pounds for event is 4. Processed recovered oil.
11200	Shell	API Sand Filter	04/21/11	12	88	3,600	0.17	0.85	Processed recovered oil.
11201	Shell	Tank # 544	04/21/11	46	20	37,500	1.43	1.87	Assumed max. Q = 20 scfm & carbon to be saturated. Processed a water/crude oil mix.
11201	Shell	Tank # 544	04/21/11	36	20	34,200	1.03	1.72	Used assumed max. Q = 20 scfm. Processed a water/crude oil mix.

Source Test #	Facility	Location	Date	Duration (mins)	Flowrate (SDCFM)	TOC (ppm as $C_{1)}$	TOC (lbs)	TOC (lbs/hr)	Notes
11202	Shell	FRAC Tank	04/21/11	8	95	12,000	0.38	2.85	Processed recovered oil.
11203	Shell	Lake	04/21/11	28	95	4,600	0.5	1.07	Processed recovered oil.
11214	Kinder Morgan	Tanks 8 & 9	05/10/11	54	41	178,000	17.4	19.33	Processed transmix.
12022	Plains - Martinez	Tank 100-8-37	08/23/11	26	244	196,000	55	126.9	Processed "carbob"
12023	Chevron	Tank # 3076	08/24/11	83	110	142,000	53.5	38.67	Processed slop + cutter; 65 bbls. T.O. abated truck
12028	Chevron	Tank # 254591	08/31/11	10	71	3,050	0.09	0.54	API separator sludge
12031	Chevron	Bioreactor inlet	08/31/11	11	106	58,900	2.84	15.49	Processed waste oil.
12048	Chevron	JP8 Fuel Filters V-810- A&B	09/27/11	131	13.7	331,984	21.5	9.85	Processed 15 barrels of JP8 fuel
10249	Chevron	Tank # 1637	09/27/11	29	160	1,872,592	326	674.5	Processed 12 barrels of regular unleaded gas.
12052	Valero	Tank # 1805	10/12/11	9	28	185,000	2.0	13.0	Processed 20 barrels of transmix using DP.
12052	Valero	Tank # 1805	10/12/11	8	88	319,000	8.9	69.4	Processed 20 barrels of transmix using vacuum.
Averages	**32 Tests**			**26.3**	**79.6**	**117,251**	**16.10**	**32.33**	

Table Notes:
All facilities are refineries except Kinder Morgan and Plains-Martinez, which are bulk terminals.
All data in each row come from the source test report listed in the first column.
Duration indicates both the duration of the event and of the source test.

Though measured emission rates varied significantly even for loading operations involving similar materials, the test results could be grouped into two major categories: (1) wastewaters and waste oils, which produced relatively low emissions when loaded, and (2) gasoline and gasoline blending stocks, which produced relatively high emissions when loaded. This result is not unexpected given the significant difference in volatility between the two categories of materials. The AP-42 methodology for tank truck loading would predict a similar difference in the two categories, in part because one of the primary terms in the equations is the vapor pressure of the material being loaded.

Using data from the source tests, staff derived two emission factors: (1) a "wastewater / waste oil" emission factor, and (2) a "gasoline / light product" emission factor. The derivation of each factor is set forth in Table A-2 and A-3, below. Emission factors are expressed as pounds of emissions per barrel of material loaded (lbs TOC/bbl). To derive the emission factors, staff used those source tests for which material quantity or a means of estimating quantity was available. In many cases, the quantity estimates are approximations because exact quantities are not recorded by vacuum truck instrumentation or source test instruments.

Table A - 2: Wastewater / Waste Oil Emission Factor

ST#	Facility	Location	Emission Factor (lbs/bbl)	Material
11054	Tesoro	Tank #701	0.027	Waterborne crude
11163	Chevron	Bioreactor inlet	0.475	Oily layer on pond
11165	Chevron	Vessel #265388	0.072	Recovered oil
11175	ConocoPhillips	Odor compressor filter	0.013	Waste oil
11178	ConocoPhillips	Unit #100, Tank #501	0.003	Skimmed oil
11179	Chevron	250 ft pond	0.003	Pond oil layer
11180	Chevron	Cutter rack – low flow	0.19	Cutter diesel
11181	Chevron	Cutter rack – high flow	0.04	Cutter diesel
11182	Chevron	Tank #3126	0.044	Reclaimed oil
11188	Chevron	Tank #3126	0.019	Reclaimed oil / cutter diesel
11189	Chevron	Vessel #254822	0.126	Recovered oil
11200	Shell	API sand filter	0.011	Recovered oil
11202	Shell	Frac tank	0.022	Recovered oil
11203	Shell	Lake	0.030	Recovered oil
12031	Chevron	Bioreactor inlet	0.150	Waste oil
Average			**0.082**	

Table A - 3: Gasoline / Light Product Emission Factor

ST#	Facility	Location	Emission Factor (lbs/bbl)	Notes
11051	Tesoro	Naptha pipeline #107	1.19	Naptha
11070	Valero	Transmix valve #94959	0.002	Transmix
11214	Kinder Morgan	Tanks 8&9	2.39	Transmix
12022	Plains – Martinez	Tank 100-8-37	1.27	Gasoline
12049	Chevron	Tank #1637	11.44	Gasoline
12052	Valero	Tank #1805	0.10	Transmix
12052	Valero	Tank #1805	0.45	Transmix
Average			**2.41**	

Emission Rates With Controls

The emission rates discussed above are uncontrolled emission rates, the rates at which emissions would be released without the use of any technology to control emissions. As discussed in section II.C of the staff report, a number of technologies are available to reduce emissions. For the purpose of this inventory, control technologies other than positive displacement pumps are assumed to reduce emissions by 95%. Positive displacement pumps are assumed to reduce emissions by 75%.

Petroleum Refinery Throughput

According to refinery operators, a Bay Area petroleum refinery will generally retain anywhere from 2 to 7 vacuum trucks on their premises every day. For the Bay Area refineries taken together, approximately 22 vacuum trucks operate daily. When a refinery performs a turnaround, many more vacuum trucks may be necessary. A large turnaround may employ 20 additional trucks or more for several weeks.

Refineries do not closely track quantities and types of materials moved by vacuum trucks. This appears to be because little of the material leaves the site, which would require hazardous waste manifests and much more detailed documentation. In addition, many of the vacuum truck operations are unscheduled and are performed as needed for maintenance operations. Among the Bay Area refineries, Chevron keeps the most thorough records of the types and amounts of materials that are loaded into vacuum trucks on a daily basis. Chevron uses a job form that generically identifies the pickup and drop-off locations for vacuum truck loading events and, for many operations, identifies the type and amount of material. Chevron's records indicate that they move approximately one million barrels of materials with vacuum trucks annually, although not

all vacuum truck activity appears to be recorded on job forms. Nevertheless, the Chevron data set was the best available information on refinery vacuum truck operation.

The District estimated vacuum truck throughput for the other Bay Area refineries by scaling the Chevron data based on the ratio of each refinery's capacity to Chevron's capacity. Table A-4 below shows the 2008 crude oil refining capacity for each Bay Area Refinery as provided by the California Energy Almanac and the corresponding fraction of Chevron's capacity.

Table A - 4: 2008 Crude Oil Capacity of Bay Area Refineries

Bay Area Refinery	2008 Refining Capacity (Barrels/Day)	Fraction of Chevron Capacity
Chevron U.S.A. Inc., Richmond Refinery	242,900	1.000
Tesoro Refining & Marketing Company, Golden Eagle (Avon/Rodeo) Refinery	166,000	0.683
Shell Oil Products US, Martinez Refinery	155,600	0.641
Valero Benicia Refinery	144,000	0.593
ConocoPhillips, Rodeo San Francisco Refinery	76,000	0.313

Chevron estimated that 2% of the materials moved were light hydrocarbons, such as gasoline, ethanol, or transmix. These are the regulated materials subject to the provisions of the rule. Vacuum truck operators contacted during source tests thought that light hydrocarbons constituted a larger share of the activity. Responses from over 15 drivers queried ranged from 20% to 30%. Given the uncertainty about the light hydrocarbon share, District staff selected the midpoint between the average driver response, 25%, and the Chevron response, 2%, assuming for purposes of the inventory that 13.5% of vacuum truck throughput is "regulated material."

Table A-5 illustrates the estimated gross yearly overall throughput for materials serviced at Bay Area refineries as well as the yearly throughput for regulated materials that will be subject to the provisions of Regulation 8, Rule 53.

Table A - 5: Vacuum Truck Material Throughput at Bay Area Refineries

Refinery	Total Throughput of **All Materials** (barrels/yr)	Regulated Material (13.5% of total – barrels/yr)
Chevron	1,000,000	135,000
Tesoro	683,409	92,260
Shell	640,593	86,480
Valero	592,836	80,032
ConocoPhillips	312,961	42,450
Total	**3,229,799**	**436,022**

Emissions from some loading of materials are already controlled, which must be reflected in the inventory estimates. Refineries estimated that they utilize external control technology to minimize emissions from approximately 5% of the vacuum truck operations. Two refineries currently use positive displacement (PD) pumps a significant percentage of the time. Overall, the District estimates that controls and PD pumps combined are used on approximately 20% of vacuum truck operations at Bay Area refineries. This estimate is based on communications with refineries, District staff observations while conducting source tests at refineries, and communications with vacuum truck operators.

Terminals, Bulk Plants and Organic Liquid Pipeline Facility Throughput

Bulk terminals, marine terminals, bulk plants, and organic liquid pipeline facilities do not use vacuum trucks nearly as much as Bay Area petroleum refineries do. Based on limited feedback from facilities as well as vacuum truck service providers, staff estimates that approximately 2 vacuum trucks operate per day at all terminals, bulk plants, and organic liquid pipeline facilities combined. As with refineries, few records of vacuum truck operations are kept in these facilities.

Based on partial throughput information, as well as interviews with vacuum truck operators and companies that provide control technology service, staff estimates that each terminal, bulk plant, and organic liquid pipeline facility has a yearly average throughput of 250 barrels of regulated material into vacuum trucks for a total of 10,000 barrels from these facilities taken together. These facilities tend to load a much greater percentage of refined products into vacuum trucks than do refineries because terminals exclusively deal with refined product. Thus the “gasoline / light product” emission factor was used to calculate emissions.

Very limited information was available regarding the use of control technology for vacuum truck operations at these facilities. A few terminals were able to provide estimates regarding the frequency with which controls and PD pumps are used. Based on

this information and additional information from vacuum truck operators, District staff estimate that, for loading events involving regulated materials, terminals already utilize control equipment for approximately 3% of events and PD pumps for approximately 17% of events. This same percentage was applied to marine terminals and organic liquid pipeline facilities.

Emissions Calculations

Refineries

Emissions from vacuum truck operations in refineries involving regulated materials are calculated as follows:

(Regulated material throughput) x (emission factor) / (2000 lb/ton) x (365 days/yr) =
(436,022 barrels/yr) x (2.41 lbs/barrel) / (2000 lb/ton) x (365 days/yr) = 1.44 tons per day

Of the regulated material processed by vacuum trucks, some is already controlled. Based on communications with refinery representatives, staff estimates that 15% of vacuum truck loads are already controlled by PD pumps and 5% of vacuum truck loads are already controlled by external abatement equipment, so emissions from regulated materials equal:

1.44 **x** 15% **x** (1 - .75)(PD pump reduction) = (emissions after use of PD pump) +
1.44 **x** 5% **x** (1 - .95)(abatement reduction) = (emissions after use of abatement) +
1.44 **x** 80% (remaining uncontrolled emissions) = **1.21 tons per day**

The estimated emissions for non-regulated materials in refineries, most of which is waste water, is calculated as follows:

Non-regulated material throughput x emission factor =
2,793,777 barrels/yr x 0.082 lbs/barrel = 0.31 tons per day.

The extent to which either PD pumps or abatement equipment are used for non-regulated materials is unknown, however, should the use of PD pumps and abatement control be consistent with estimates for the regulated materials, organic emissions would be calculated as follows:

0.31 **x** 15% **x** (1 - .75)(PD pump reduction) = (emissions after use of PD pump) +
0.31 **x** 5% **x** (1 - .95)(abatement reduction) = (emissions after use of abatement) +
0.31 **x** 80% (remaining uncontrolled emissions) = **0.26 tons per day**

The total emissions from vacuum truck operations at refineries from both regulated and non-regulated materials are **1.21 + 0.26 = 1.47 tons per day**.

Other Facilities

Emissions from vacuum truck operations in for other facilities (bulk terminals, plants, marine terminals and pipeline facilities) involving regulated materials are calculated as follows:

(Regulated material throughput) x (emission factor) / (2000 lb/ton) x (365 days/yr) =
(10,000 barrels/yr) x (2.41 lbs/barrel) / (2000 lb/ton) x (365 days/yr) = 0.03 tons per day

As at refineries, some of the vacuum truck operations are already controlled or conducted with PD pumps. Based on communications with facility representatives, staff estimates that only 3% of vacuum truck loads are already controlled by PD pumps, but that 17% of vacuum truck loads are already controlled by external abatement equipment. Emissions from regulated materials equal:

0.033 **x** 3% **x** (1 - .75)(PD pump reduction) = (emissions after use of PD pump) +
0.033 **x** 17% **x** (1 - .95)(abatement reduction) = (emissions after use of abatement) +
0.033 **x** 80% (remaining uncontrolled emissions) = **0.027 tons per day**

These facilities also have occasion to load materials mixed with water, such as from a sump after a spill. The total throughput is estimated to be about 75% regulated materials and 25% non-regulated materials. The emissions for these non-regulated materials are negligible (less than 1/1000 of a ton per day), so are not included.

Total Emissions

Staff estimates organic emissions from vacuum trucks in all facilities designated by the rule to be **1.47 + 0.027 = 1.497 (1.50) tons per day.** This does not include vacuum truck emissions at other facilities not subject to the rule.

Passive emissions also occur from vacuum trucks. When vacuum trucks are loaded with materials and drive to another location, emissions can occur passively from the truck's barrel. Organic emissions can also occur when material are unloaded from vacuum trucks. These emissions are not included in this inventory.

Appendix B

Comments and Responses

Appendix B COMMENTS AND RESPONSES

During the public comment period, staff received two written comments and three questions on the proposed rule. A summary of the comments and staff responses is provided below. Following the summary and responses are copies of the comments.

Chevron Richmond Technology Center, February 21, 2012 via telephone/e-mail.

Comment: Ms. Goff of Chevron Richmond Technology Center asked whether the Center was subject to the rule. Although the Richmond Technology Center is closely aligned with Chevron, it is not part of the refinery.

Response: Staff informed Ms. Goff that she was not subject to the proposed rule.

Plains Products Terminals, Wednesday, February 22, 2012 via telephone/e-mail.

Comment: Mr. Nepote of Plains Products Terminals, a gasoline bulk terminal, asked whether a vapor balance system can be used to control vacuum truck emissions.

Response: Staff responded that they could use this type of system, as long as the vapors were vented back to the terminal's emissions abatement system.

US EPA, received Wednesday, February 29, 2012 via e-mail.

Comment: Ms. Law of US EPA Region IX requested that the full title of a test method be added to Section 8-53-601 and the following language be added where the rule specifies both a District and an EPA test method: "When more than one test method or set of test methods are specified for any testing, noncompliance with any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of this rule."

Response: Staff has added this language, which is consistent with all other District rules.

Chevron, received Wednesday, March 7, 2012 via telephone.

Comment: Ms. Li of Chevron asked whether Chevron's bioreactor could be exempted. The bioreactor is part of the secondary wastewater treatment system.

Response: Staff responded that the wastewater treatment system is not intended to be included in the control requirements of the rule.

Western States Petroleum Association, received Friday, March 9, 2012 via e-mail.

Western States Petroleum Association (WSPA) submitted a four page comment letter and an 11 page table of rule language suggestions. WSPA also submitted a 7 page memorandum from Environmental Resources Management (ERM), a contractor to WSPA, analyzing costs of compliance based on specific source tests that the District conducted, and a spreadsheet iterating

the cost calculations. Below are the responses to the WSPA letter and ERM memorandum. Following the responses to the letter, below, is WSPA's suggested rule language table which includes staff's responses.

Comment 1: "The proposed definition of 'regulated material' could be interpreted to include wastewater or other nonvolatile materials with just a miniscule amount of volatile material; the environmental impact of requiring vacuum truck controls on these materials would likely outweigh the benefit of controlling the emissions."

Response: The rule is not intended to control emissions of water/regulated material mixtures. The definitions of regulated material, transmix and slop only address hydrocarbon mixtures. In spite of an attempt to clarify the language from the workshop draft, it seems to still cause confusion. Staff has added an exemption specifically for wastewater as suggested in the WSPA rule language table.

Comment 2: "There is no low volume exemption for this rule."

Response: WSPA has argued that a low volume exemption is warranted because a low volume of material emits only a small amount of emissions, the control would not be cost effective and the environmental benefit would be minimal. In addition, language has been suggested in the WSPA rule language table exempting 5 barrels (210 gallons) volume of material if the use of a PD (positive displacement) pump or gravity feed is not available "due to technical, safety or feasibility issues." Staff does not support a low volume exemption. During the rule development process, staff observed many low volume vacuum truck activities, however, refinery staff were unable to provide any information as to the number or volume of materials loaded. Given WSPA's suggested definition of low volume (210 gallons per loading event), low volume vacuum truck activities could make up the majority of activity on a given day. While for an individual low volume vacuum truck loading event, emissions may be small, additively, emissions could be significant. WSPA did not elaborate on the "technical, safety or feasibility issues" that would preclude the use of a PD pump or gravity feed. A Shell refinery representative informed staff that PD pumps were used exclusively at the Shell refinery, except for vacuum truck loads from the API separator, wastewater pond and recovered oil stored in FRAC tanks (used for temporary storage). (These three exceptions mentioned at Shell are not proposed to be regulated by the rule.) A Tesoro refinery representative told staff that PD pumps were used for all vacuum truck loading at Tesoro. This method is used, according to Tesoro refinery personnel, because of safety reasons, to prevent odors or formation of a volatile and potentially explosive vapor cloud. Staff believes that PD pumps are an inexpensive and technically feasible way to control emissions from low volumes of materials. The proposed rule contains an emergency provision, Section 8-53-103, that exempts vacuum truck activity for equipment failures and other emergencies where moving large volumes of material quickly may be necessary.

Comment 3: "The standard of 500 PPM outlet concentration of total organics (including methane) will not always be technically achievable."

Staff does not agree. The types of control equipment examined in the staff report, carbon adsorption and incineration, as well as refrigerated condensers and incineration in a truck engine, are all technologies that are well known and have been demonstrated to be capable of controlling emissions such as gasoline vapors to a high level of abatement efficiency. WSPA states that (based on District source test 12049) the abatement efficiency would have to be in excess of 99.97% to reach a 500 ppm emission limit. Abatement efficiency is calculated on the basis of pounds/hour basis, not a concentration basis. Typically, carbon adsorbs a very high percentage of hydrocarbons while vacant bonding sites remain. The percentage adsorbed depends on the type of carbon, residence time and environmental factors, such as temperature and humidity. District source tests have recorded many high concentrations of organic materials (such as in gasoline bulk terminals) that have been abated by carbon adsorption, reducing outlet concentrations below 500 ppm. Successful carbon abatement requires that there be a low enough air flow through the abatement device (sufficient residence time) for the adsorption to take place and that sufficient adsorption sites remain. However, once sites no longer remain or residence times are not met, concentrations can increase very rapidly. Proper selection of canister size for the operation and proper monitoring of the emissions at the outlet can avoid high emissions concentrations. Also, EPA's National Emission Standard for Benzene Waste Operations requires that emissions of waste liquids that contain benzene (a toxic air contaminant that is a component of gasoline) be abated to 500 ppm, further supporting that the proposed limit is achievable.

WSPA also alleges that the District's proposed standard of total organics (TOC) is not consistent with existing requirements in South Coast (a requirement to abate vacuum truck exhaust used for tank degassing) and Texas (a 500 ppm standard in refinery permits) because those rules stipulate only non-methane organics, hence the District rule may not be achievable. District refinery rules stipulate total organics, including District Regulation 8, Rule 18, which controls emissions from equipment leaks. Hence, the proposed limit is consistent with other District rules. Furthermore, methane is a powerful greenhouse gas, so if a liquid waste were identified that contains methane, it should be controlled.

Comment 4: "There is insufficient time to implement this rule on all of the affected sources by January 2013."

Response: WSPA suggests that the rule become effective on April 1, 2013, approximately one year from the date of adoption. Staff recommends this change to the effective date.

Comment 5: "The activity data and emissions reductions presented in the February 2012 staff report are too high."

Response: WSPA questions staff's estimates of the amount of regulated material loaded into vacuum trucks and the emissions from that material. WSPA further questions the difference between estimated percent of loads of regulated materials provided by the vacuum truck operators (20% to 30%) and by refinery staff (2%) and states that the staff report does not explain the difference. Staff spent well over a year investigating vacuum truck activity and emissions, during which time refinery staff asserted that they did not know how much material or what type was being loaded. The one exception was Chevron refinery staff, that kept records based on job logs. Staff used these records to estimate throughputs for the other refineries. Staff averaged the two estimates, from refineries and from discussions with vacuum truck operators, to derive the estimated percentages of regulated materials. Staff believes that the throughput of regulated materials is at least 13.5% (the average, used in Appendix A). In a typical refinery, about 40% of the production is gasoline, and leaks and minor spills happen throughout the process. This supports the idea that a significant percentage of the volume of material moved by vacuum trucks will be regulated.

Regardless of total emissions, costs of controls are not based on total emissions, but on daily costs based on what control equipment is likely to be used, based on discussion with refinery operators. If total amounts of regulated material loaded into vacuum trucks are less, the overall costs of control would also be less, but the rule would be equally cost effective.

WSPA also states that the emission factor includes an "outlier" that is an order of magnitude higher than the other factors. That test proved to be of almost pure gasoline, and there is no reason to suspect that the test was flawed, so emissions of gasoline loaded into vacuum trucks would be consistent with this test. A previous test on gasoline (source test #12022) exceeded the capacity of the measuring equipment, consequently the emissions from that test are greater than indicated by the reported emission factor. The biggest outlier in the data (source test #11070) was on actually the low side, nearly two orders of magnitude lower than the other factors. If staff excluded both these outliers, the average emissions factor would be 1.08, which would make the cost effectiveness higher, but the rule would still be cost effective. An emission factor of 1.08 instead of 2.41 (lower emissions per the same volume of material loaded) would mean that the cost effectiveness of the rule varies between $5725 and $6848 per ton. Finally, the WSPA letter states that the District excluded one test of regulated material that had very low emissions. That test (source test #12023) had low emissions because the vacuum truck was abated.

Comment 6: "The workshop report omits significant costs."

Response: WSPA states that the report omits costs of addressing the Method 21 monitoring requirements including direct personnel time for monitoring events as well as personnel training and calibration time. WSPA states that the report does not consider planning requirements including estimation of likely emissions in advance to select appropriate controls and meet

applicable safety and monitoring requirements. Also, WSPA states that the costs of regeneration and disposal of carbon are not included.

Refinery representatives stated that they would probably monitor for compliance rather than have vacuum truck operators document compliance with the requirements of the rule. Refinery personnel have already been trained in EPA Method 21 procedure and monitors are already owned by refineries. They are used to monitor the thousands of valves, flanges and connectors subject to Regulation 8, Rule 18. Calibration service costs $1400 to $1600 per year and certified training can be accomplished in approximately four hours. Finally, the external rental costs for carbon adsorption equipment include costs for regeneration or disposal of carbon. As stated in the report, some refineries already have portable carbon abatement for use throughout the refinery. Thus, staff believes that the analysis incorporates all significant compliance costs.

Environmental Resources Management (ERM) Memorandum

Comment: Along with the WSPA comment letter, WSPA submitted a memorandum entitled "BAAQMD Proposed Regulation 8-53, Vacuum Truck Operations – Review of Cost Effectiveness." The ERM memo analyzes the cost associated with five of the District source tests: 1) Jet fuel filters V-810 A&B (source test #12048), 2) Tank #1637 Unleaded gasoline (source test #12049), 3) Bioreactor inlet (source test #11163), 4) Tank #1805 diesel/gasoline (source test #12052), and 5) Tank #544 water/crude tank (source test #11201).

Response: ERM's conclusions are that the rule would not be cost effective to require abatement of the first source test, the third source test or the fifth source test. Without analyzing the numbers that ERM used to determine costs, staff generally agrees at this time. The rule does not propose to regulate the materials tested in these source tests, jet fuel, wastewater in secondary treatment and crude oil (or crude oil/water mixes). The ERM analysis finds that it is cost effective to regulate the material in the second source test. Again, staff agrees, and proposes to regulate gasoline. In the fourth source test, a two-part test was conducted to establish the difference in emissions between uncontrolled emissions and use of a PD pump. The ERM memo found that "positive displacement might be an appropriate mitigation option, as it reduced emissions by 7.9 lbs or almost 90%. Based on this test, staff added positive displacement and gravity feed as alternative control methods to emissions abatement.

From: Goff, Naomi Sue [mailto:NSGoff@chevron.com]
Sent: Tuesday, February 21, 2012 1:10 PM
To: William Saltz
Subject: RE: Public Hearing For Vacuum Truck Rule

Hi Will,

I hope you enjoyed your President's Day holiday. Thank you for keeping me apprised of the status of 8-53. We would very much appreciate a letter specifying that our facility is not subject to the provisions of Regulation 8, Rule 53.

I appreciate your willingness to seek feedback from our facility and from stakeholders in general.

Thanks again for your assistance. Best regards,

Naomi

Naomi Goff
Chevron ETC *HES Operations Unit*
Environmental Specialist
Richmond Technology Center
Phone: (510) 242-1189
Email: NSGoff@chevron.com

From: William Saltz [mailto:wsaltz@baaqmd.gov]
Sent: Friday, February 17, 2012 2:57 PM
To: Goff, Naomi Sue
Subject: Public Hearing For Vacuum Truck Rule

Hello Naomi

I wanted to let you know that the District has scheduled a public hearing on the 21st of next month for the proposed adoption of the vacuum truck rule. All of the public documents pertinent to the draft rule are located on the following web page: http://www.baaqmd.gov/Divisions/Planning-and-Research/Rule-Development/Current-Regulatory-Public-Hearings.aspx

Let me know if you have any question.

Very Truly Yours
Will-

William Thomas Saltz
Air Quality Specialist
Rule Developer
Direct: 415.749.4698
Email: wsaltz@baaqmd.gov

Dan Belik

To: William Saltz
Subject: RE: Vapor Balance Systems for Vacuum Truck Loading

From: John-Paul Nepote [mailto:JNepote@paalp.com]
Sent: Wednesday, February 22, 2012 2:32 PM
To: William Saltz
Subject: Vapor Balance Systems for Vacuum Truck Loading

Will,

In the staff report for the new vacuum truck a vapor balance system is briefly discussed. At the Plains Products Terminal in Martinez, we do occasionally load vacuum trucks with transmix. Our transmix tank (S-9) is a fixed roof tank that vents vapors to our thermal oxidizer. We have been utilizing carbon to control the emissions, however, we would like to explore a vapor balance system routing the vapors either directly back to Tank 9 or into our vapor control piping upstream of the oxidizer blowers.

Our vapor control system works on a pressure sensor to begin the oxidizer. We would prefer to have the system operate in this manner. Alternately, we can turn on the oxidizer and begin destruction of vapors during the vacuum truck loading. We do not have a CEMS on our oxidizer to monitor ppm emissions, however, we do monitor temperature.

Please contact me to discuss this further. Thank you,

John-Paul Nepote
Sr. Env., Reg. Comp., and Safety Specialist
Plains Products Terminals LLC
925-228-3227
925-228-5617 fax

Dan Belik

From: Andrew Steckel <Steckel.Andrew@epamail.epa.gov>
Sent: Wednesday, February 29, 2012 11:45 AM
To: Dan Belik; mguzzett@arb.ca.gov
Cc: Nicole Law
Subject: EPA comment on Bay Area Rule 8-53

United States Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105-3901

February 29, 2012

Transmittal of EPA Rule Review Comments

To: Dan Belik, Bay Area Air Quality Management District
dbelik@baaqmd.gov

Mike Guzzetta, California Air Resources Board
mguzzett@arb.ca.gov

From: Andrew Steckel, Rulemaking Office Chief
steckel.andrew@epa.gov

Re: Bay Area AQMD Draft Rule 8-53 Vacuum Truck Operations, dated 2/8/12

We are providing comments based on our preliminary review of the draft rule identified above. We recognize and support the District's innovative efforts to reduce emissions from this category. Please direct any questions in this regard to me at (415) 947-4115 or to Nicole Law at (415) 947-4126.

Recommendations

1. References to EPA-approved state or local methods should include the full title of the test method. Please include the full title, "Non-methane Organic Carbon Sampling," when referencing BAAQMD Manual of Procedures, Volume IV, ST-7.

2. We recommend adding a statement in the Manual of Procedures section that states, "When more than one test method or set of test methods are specified for any testing, noncompliance with any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of this rule."

Western States Petroleum Association
Credible Solutions • Responsive Service • Since 1907

Guy Bjerke
Manager, Bay Area Region & State Safety Issues

VIA ELECTRONIC MAIL

March 9, 2012

Mr. William Saltz
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

Re: Comments on Proposed Reg. 8-53 – Vacuum Trucks

Dear Mr. Saltz:

The Western States Petroleum Association (WSPA) is a non-profit trade association representing twenty-six companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in California and five other western states. These operations include the use of vacuum trucks. WSPA appreciates the opportunity to comment on the Bay Area Air Quality Management District's (BAAQMD's) proposed Regulation 8, Rule 53, "Vacuum Truck Operations".

WSPA appreciates the fact that BAAQMD's February 17 draft proposal addresses many of the concerns that WSPA identified with the original draft rule language. However, we still have several concerns with the latest draft of the proposed rule that was released on February 17 (and accompanying staff report), several of which were previously identified in our comments made during the rule workshops last summer and in our August 12, 2011 comment letter. Some of the key issues are listed below. Proposed revisions to the rule have been provided to address a number of these issues.

The proposed definition of "regulated material" could be interpreted to include wastewater or other nonvolatile materials with just a miniscule amount of volatile material; the environmental impact of requiring vacuum truck controls on these materials would likely outweigh the benefit of controlling the emissions.

WSPA made this comment in our August 12, 2011 comment letter and our concern has not been completely addressed. The staff report states that "In order to ensure that the proposed rule is cost-effective, it has been structured so that control requirements only apply to high-volatility materials." However, Sections 8-53-218.2 and 218.3 of the proposed rule may

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unintentionally require the regulation of low-volatility mixtures that contain any amount of volatile components, regardless of how low the concentrations of those volatile components are. For example, while Test Number 11070 in the District's February 2012 staff report was for a "regulated material" (see Table A-3), Table A-1 data show that the hydrocarbon concentration was lower than that for the unregulated materials that are listed in Table A-2. Uncontrolled VOC emissions for Test 11070 were just 0.019 lb (8.6 grams which is about the same amount of NO_x that a heavy-duty truck emits when traveling one mile.[1] This means that the environmental benefit of controlling the VOC emissions from that event is very likely less than the environmental costs associated with heavy-duty diesel truck travel associated with transporting the collected VOC to (and unloading the VOC at) a handling/disposal facility (or emissions of GHG, NO_x, etc. associated with thermally destroying it).

There is no low volume exemption for this rule.

Similar to the comment above, it does not make sense to control a very small quantity of emissions. For example, in Table A-3 of the District's staff report, Test 11051 involved regulated material and had emissions of 1.19 lb/bbl, but based on the data in Table A-1, only 1.7 lb of TOC was emitted during that transfer (corresponding to 1.4 barrels of material transferred). These emissions are not on the same order of magnitude as the 326 lb that was emitted in Test #12049, and are not cost-effective to control.

The standard of 500 ppm outlet concentration of total organics (including methane) will not always be technically achievable.

WSPA raised this issue with the District previously in verbal comments at the workshops held last summer and in our December meeting with staff. The District staff report indicates that the control efficiency for thermal oxidizers can be greater than 98% and shows a case in which an internal combustion engine controlled emissions by 99.6%. However, even this very high control efficiency will not always be sufficient to achieve a 500 ppmvC_1 outlet concentration. For example, the staff report identifies one instance in which the inlet concentration was 1,872,592 ppmvC_1, and reducing that concentration to 500 ppmvC_1 would require a 99.97% control efficiency. The staff report also states that the District believes that the standard of 500 ppmvC_1 is consistent with SCAQMD Rule 1149 and Texas permitting requirements; however, those rules specify 500 ppmvC_1 of VOC (not TOC), and control efficiencies for components such as methane and ethane (which are TOC but not VOC) are considerably lower for some of the control technologies (i.e., carbon adsorption and refrigerated condenser systems). In addition, TCEQ Chapter 115, Sections 115.540-.549 also allows for alternative means of compliance in lieu of meeting the 500 ppmvC_1 TOC standard. Some of the controls identified in the staff report (e.g. carbon, refrigerated condensers, and scrubbers) are particularly ineffective at controlling methane and ethane, and the extent to which these are present in low concentrations is not easily determinable. In addition, without revising the emission limit allowance to

[1] See, for example, the California Air Resources Board's EMFAC database, available from http://www.arb.ca.gov/msei/modeling.htm.

incorporate a control efficiency limit the cost effectiveness analysis is likely inaccurate and significantly understated.

There is insufficient time to implement this rule on all of the affected sources by January 2013.

The majority of vacuum trucks available are not equipped with controls and we are concerned that there is an insufficient supply of controls for the quantity of sources covered by the current rule (even if applicability were limited as we have suggested above). Our concern about the implementation timeframe can be address by simply modifying the compliance deadline from January 1, 2013 to one year from the date that the rule is adopted. This time is necessary for equipment modifications to be made, contracts with vacuum truck and emission control suppliers to be revised, and procedures and training to be conducted to ensure facilities are prepared to operate within the requirements for 8-53.

The activity data and emissions reductions presented in the February 2012 staff report are too high.

In Table A-5 of the District's staff report, the District estimates that the throughput of regulated and unregulated material loaded into vacuum trucks at Bay Area refineries is 3,229,799 barrels/year, which corresponds to an average of 8,849 gallons per day. Page 22 states that this corresponds to 22 trucks per day. This means that the average throughput per truck is approximately 400 barrels (17,000 gallons), which is inconsistent with the throughput indicated by Tables A-2 and A-3 (coupled with the mass emissions data in Table A-1) which indicates that the throughput per vacuum truck event is between 1 and 43 barrels.

The staff report estimates emissions reductions by multiplying the volume of material loaded by an emission factor (expressed in lb per barrel of material loaded into the truck), with the vast majority of emissions coming from regulated materials. However, the staff report states that the volume of regulated material loaded was based by averaging a refinery estimate (2% of total loadings) with a very different estimate from vacuum truck operators (20-30% of total loadings)--with no discussion as to why these estimates were so different.

In addition, the emission factor for regulated materials is largely affected by a single outlier. As shown in Table A-3 of the District's staff report, the emission factors for the tests of regulated materials are highly skewed. Test #12049 produced an emission factor that was at least an order of magnitude higher than the other six tests, and was averaged in with the other tests by the District to calculate an average emission factor of 2.41 lb/bbl (which is the basis for the District's estimate of 1.05 tons per day of emissions reduced). If that one test were excluded, the emission factor would fall to 0.90 lb/bbl and the District's estimate of the emissions benefit of this regulation (based on the throughput mentioned above, which also appears to be overestimated) would fall to 0.39 tons per day. The District also excluded at least one other test from that average that appears to have been of regulated material (i.e., Test #12023) (and it appears that inclusion of this test would have also reduced the average).

The workshop report omits significant costs.

As we noted previously, the staff report identified the costs of renting control equipment and buying handheld analyzers, but not the considerable costs associated with addressing the Method 21 monitoring requirements (including direct personnel time for monitoring events as well as personnel training and calibration time). In addition the staff report costs did not consider planning requirements (estimating likely emissions in advance so that appropriately sized controls that meet applicable safety requirements and the exhaust concentration limit can be identified, scheduled, and provided with access for where they need to be, etc.), and carbon regeneration/disposal costs (as applicable). The District needs to give some consideration to these other costs.

With regard to our concerns mentioned above (and other more detailed technical issues), we have prepared the attached table; the proposed language changes therein address our concerns, add clarity, reduce costs, and have essentially no impact on the District's estimates of emissions reductions associated with the rule. We have also included a memo reviewing the District's cost effectiveness calculations prepared by ERM.

We appreciate your consideration of our comments. If you have any questions, please contact Guy Bjerke at (925) 681-8206.

Sincerely,

Guy Bjerke
Manager, Bay Area Region & State Safety Issues

c. Dan Belik, Rule Development Manager

Attachments:
WSPA Reg 8-53 Proposed Language Table
Reg. 8-53 ERM-WSPA Memo 3-8-12
Cost_Effectiveness_Calcs_12_2.xls

Memorandum

Environmental Resources Management

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To: Guy Bjerke

From: Lynn McGuire, ERM
Ariane Burwell, ERM

cc: **WSPA BATS Air Members**

Date: March 8, 2012

Subject: BAAQMD Proposed Regulation 8-53, Vacuum Truck Operations – Review of Control Cost-effectiveness

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ERM examined the cost effectiveness of controlling TOC under proposed regulation 8-53 for the Western States Petroleum Association. The methodology and findings are outlined below.

ERM analyzed the highest emitting tests conducted by BAAQMD as data representative of the largest emission reduction potential. These tests form the basis for the estimates of TOC that might be controlled by the rule under the most favorable conditions. Tests at the Chevron Bioreactor Inlet, Valero Tank #1805, Shell Tank #544, and Chevron Jet Fuel Filters V-810-A&B are reviewed for emission reduction potential and cost-effectiveness of potential controls. The Bioreactor inlet and Tank #1805 had higher than average hourly TOC emissions, making these tests good examples for developing cost effectiveness estimates. Tank #544 tests were longer in duration. Finally, the Jet Fuel Filters V-810-A&B and Tank #1637 had the highest TOC emissions and ppm of any test at the refineries.

ERM evaluated the TOC emissions reduction potential and incremental costs that could be associated with applying carbon absorption or thermal oxidation abatement to these test cases. The lowest daily abatement device rental prices (provided in BAAQMD's Draft Workshop Report, as updated) were used to derive hourly abatement device costs. Hourly rates for LDAR monitoring staff (also necessary for compliance with the draft rule) were provided by WSPA members. The time associated with the device rentals and for monitoring each event was estimated based on standards for upfront time for equipment calibration and time after the event to return equipment. All results were rounded up to the nearest hour. The TOC control device rental, staff, and monitoring equipment costs were summed together to derive the total additional cost of complying with the rule. Cost effectiveness calculations are detailed in the attached spreadsheet, Cost_Effectiveness_Calcs_12_2.

The purpose of this memo is to illustrate the amount of potential emission reduction with associated cost-effectiveness for actual test situations, but under conditions of hypothetical controls. The cost-effectiveness values derived are conservatively low, and actual controlled vacuum truck operations would likely result in higher $/ton costs.

Jet Fuel Filters V-810 A&B

The Jet Fuel Filters V-810 A&B test at Chevron was relatively long in duration (131 minutes) and involved reasonably volatile material (jet fuel) that generated higher measured emissions (27 lbs TOC) than other comparable tests. The vacuum truck removed 15 bbls of jet fuel material during this test. Using the cost assumptions just described, carbon adsorption would cost $29,237/ton compared to thermal oxidation which costs $94,538/ton. However, it is doubtful that carbon adsorption can achieve the level of control required for rule compliance. Our assumption of 95% abatement (a typical expectation for carbon adsorption systems) results in controlled emissions of 18,100 ppm. Thermal oxidation would be the only option for rule compliance at the 500 ppm level. Thus, the cost of rule compliance for this event is more appropriately assessed as $94,538/ton.

In addition, the secondary waste emissions from thermal oxidation would amount to 2,374 lb GHG, 0.25 lb NOx and 0.14 lb CO for this event, among other pollutants. These results are summarized in Table 1.

Table 1 Conservative Cost Data for Jet Fuel Filters V-810- A&B

Abatement Device	TOC abated	Length of Event – Staff Hours	Total Cost (equipment rental+staff)	Cost per Ton Controlled	Concentration Post Abatement (ppm)	Secondary Waste
Carbon Adsorption	25.65 lbs	131 min – 4hrs of staff time	$375	$29,237	18,100	256.5 lbs spent carbon
Thermal Oxidizer	26.97 lbs	131min – 4hrs of staff time	$1,275	$94,538	362	19.0 gallon (LPG)

Assumptions: 95% abatement rate for carbon adsorption and 99.9% abatement rate for thermal oxidizers

Tank #1637 Unleaded Gasoline

The test at Tank #1637 involving a mixture of mostly unleaded gasoline with water at Chevron was a 29 minute test that generated the highest measured emissions. The vacuum truck removed 12 bbls of material during this test. The emission rate of this test was recorded by BAAQMD (Staff Report 2/12) as 326 lb TOC for the event, and 1,872,592 ppm (as C_1)[1]. Using the cost assumptions just described, carbon adsorption would cost $1,420/ton compared to thermal oxidation which would cost $4,115/ton to control this event. With such a concentrated vapor stream, the limit of 500 ppm could be challenging for either carbon adsorption or thermal oxidation to achieve. These results are summarized in Table 2.

Table 2 Conservative Cost Data for Tank#1637

Abatement Device	TOC abated	Length of Event – Staff Hours	Total Cost (equipment rental+staff)	Cost per Ton Controlled	Concentration Post Abatement (ppm)	Secondary Waste
Carbon Adsorption	470 lbs	29 min – 4hrs of staff time	$220	$1,420	93,630	ND
Thermal Oxidizer	495 lbs	29 min – 4hrs of staff time	$670	$4,115	1,872	ND

Assumptions: 95% abatement rate for carbon adsorption and 99.9% abatement rate for thermal oxidizers

[1] Note that the actual test report lists the concentration as 2,585,000 ppm (as C_1) and the mass as 495 lb TOC.

Bioreactor Inlet

The Chevron bioreactor inlet test generated 12.7 lbs TOC over the course of a 36 minute test removing processed oil from a pond by vacuum truck. Using the same control cost methodology, use of carbon adsorption would cost $36,469/ton and thermal oxidation would cost $105,617/ton. Again, carbon adsorption may not be effective enough on an event like this to provide abatement efficiency to comply with a limit of 500 ppm.

The secondary wastes would amount to 127 lb of spent carbon or emissions from thermal oxidation that would amount to 652.5 lb GHG, 0.067 lb NOx and 0.039 lb CO, among other pollutants. Table 3 summarizes results and assumptions.

Table 3 Conservative Cost Data for Bioreactor Inlet

Abatement Device	TOC abated	Length of Event – Staff Hours	Total Cost (equipment rental+staff)	Cost per Ton Controlled	Concentration Post Abatement (ppm)	Secondary Waste
Carbon Adsorption	12.06 lbs	36min – 2hrs of staff time	$220	$36,469	2,910	127 lbs spent carbon
Thermal Oxidizer	12.68 lbs	36min – 2hrs of staff time	$670	$105,617	58	5.2 gallon (LPG)

Assumptions: 95% abatement rate for carbon adsorption and 99.9% abatement rate for thermal oxidizers

Tank #1805

At Valero Tank #1805, two tests were performed during removal of 20 bbls each of Transmix (60% diesel/jet fuel range and 40% gasoline range material). The first used a displacement pump and the second relied on the vacuum. The test conducted during vacuum operation resulted in 8.9 lbs TOC. For this test, the cost-effectiveness for carbon abatement would be $52,040/ton of TOC recovered, the thermal oxidizer cost-effectiveness would equate to $150,712/ton of TOC recovered.

However, when positive displacement was used, only 2 lb of TOC was generated. The carbon abatement cost-effectiveness would be $231,578/ton of TOC recovered and the thermal oxidizer cost-effectiveness would be $670,670/ton to treat such low emissions. In this case, positive displacement might be an appropriate mitigation option as it reduced emissions by 7.9 lbs or almost 90%.

Results, assumptions and associated secondary waste amounts are shown in Table 4. Note again that using the assumed abatement efficiencies, only use of thermal oxidation may be capable of achieving rule compliance.

Table 4 Conservative Cost Data for Tank #1805

Abatement Device	TOC abated	Length of Event – Staff Hours	Total Cost (equipment rental+staff)	Cost per Ton Controlled	Concentration Post Abatement (ppm)	Secondary Waste
Carbon Adsorption	1.9-8.45lbs	8 -9min – 2hrs of staff time	$220	$231,578 (positive displacement) $52,0408 (vacuum)	15,950-9,250	19-84.5 lbs spent carbon
Thermal Oxidizer	1.99-8.89lbs	8 -9min – 2hrs of staff time	$670	$670,670 (positive displacement) $150,712 (vacuum)	319-815	1.2 gallon (LPG)

Assumptions: 95% abatement rate for carbon adsorption and 99.9% abatement rate for thermal oxidizers

Tank #544

Two BAAQMD tests were performed at Shell during an event involving vacuum truck removal of a water and crude mix from Tank #544. Removal of approximately 35 bbls of material occurred during each test. The first used a carbon adsorption system for abatement and the second was uncontrolled. Emission results were similar, even though carbon adsorption was employed in one case. Using the higher emission results of 1.43 lbs TOC, the carbon abatement cost-effectiveness would be $323,886/ton of TOC recovered, and thermal oxidizer cost-effectiveness would equate to $938,000/ton of TOC abated.

The test using carbon adsorption had higher emissions than the uncontrolled test – which remains unexplainable, but certainly bringing into question the efficiency of carbon in this case and potentially others.

Though the amount of TOC emitted during a single event is relatively low, this is a common type of operation, and can occur over the course of an entire day several times a month. Given an emission rate of 1.87 lbs/hr of TOC, if 95% of the TOC were abated, only 0.17 tons of TOC would be captured annually. This would cost anywhere from $96,705 to $149,647 per year for carbon adsorption and thermal oxidation, respectively resulting in secondary wastes of 1.79 tons of spent carbon or 1,670 gallons

of LPG burned (i.e., 104.4 tons CO2, 0.01 tons NOx, and 0.006 tons CO) per year. Results and assumptions are provided in Table 5.

Table 5 Conservative Cost Data for Tank #544

Abatement Device	TOC abated	Length of Event – Staff Hours	Total Cost (equipment rental+staff)	Cost per Ton Controlled	Concentration Post Abatement (ppm)	Secondary Waste
Carbon Adsorption	1.36 lbs	46min – 2hrs of staff time	$220	$323,886	1,875	13.6 lbs spent carbon
Thermal Oxidizer	1.42 lbs	46min – 2hrs of staff time	$670	$938,000	38	6.7 gallon (LPG)

Assumptions: 95% abatement rate for carbon adsorption and 99.9% abatement rate for thermal oxidizers

Cost Effectiveness Guidelines

The current BACT Guideline (BAAQMD BACT Workbook) provides cost effectiveness maximums for certain pollutants. For POC and NPOC, the maximum guideline is $17,500/ton .

The *Emission Reduction Offset Transaction Costs Summary Report for 2008* (CARB, 2011) summarizes data on cost per ton of pollutants involved in emission offset transactions. For HC, the median and average costs were $34,000 and $43,435 per ton, respectively. While these values do not represent cost-effectiveness guidelines for rule making, they provide some indication of the market value of emission reductions.

From this analysis, the following cost-effectiveness findings can be made relative to the recent testing of vacuum truck operations:

1. In most cases, carbon adsorption (which is typically only expected to provide 95% abatement efficiency) may not be efficient enough to provide abatement of vacuum truck TOC emissions for compliance with a limit of 500 ppm. For all the tests described above, thermal oxidation would more likely be chosen for abatement to reach a 500 ppm level in situations where safety

concerns are not an issue. Thus, true costs of compliance would need to reflect this choice in most situations.

2. These test events involved removal of 12-35 bbls of relatively volatile material. The cost to control emissions from these events were high on a cost per ton basis. Control of emissions from events involving smaller quantities of less volatile material would only be less cost effective.

3. For the test conducted where removal of material employed positive displacement into the vacuum truck, emissions were substantially reduced such that treatment of the resulting emissions would not be cost-effective.

4. In addition to the costs associated with controlling these emissions, secondary wastes and/or air pollutant emissions are generated from the use of carbon or thermal oxidation that should be considered relative to the amount of TOC abated.

WSPA Comments to Proposed Regulation 8-53, Vacuum Truck Operations

Citation	Suggested Rule Language (Proposed Changes Tracked/Struck Out)	Discussion	Staff Response
8-53-103	**Exemption, Emergencies:** Vacuum trucks responding to spills, equipment failures, and other emergency situations shall be exempt from the requirements of this rule, provided that (1) use of equipment capable of complying with the rule would delay the response, and (2) the delay would pose a risk of significant harm to facility equipment, personnel, the public, or the environment.	WSPA is requesting that the language be clarified so that it is clear that equipment failures can be considered emergencies. However, it is also unclear how the District intends to implement this provision.	Staff agrees with adding the suggested language as long as the equipment failure is not due to neglect or poor maintenance. The addition only specifies one possible type of emergency.
8-53-10x (no existing section)	**Exemption, Low Volume:** In cases where a PD pump or gravity feed cannot be utilized to load materials into a vacuum truck due to technical, safety, or feasibility issues the use of a control device is not required if the estimated volume of the material is less than 5 barrels provided that the records required in 8-53-502 are generated and maintained.	As described in the cover letter, WSPA believes the cost effective analysis is skewed due to how the regulated material emission factor was derived. Data where only one test showed significantly higher emissions was also utilized for estimating the lb/bbl factor. WSPA understands the challenges of performing the analysis without detailed loading records. The cost effectiveness analysis appears to be overstated due to these issues. BAAQMDs cost data does show that the control device costs for the majority of the regulated loads could conservatively range from $40,000 to $340,000 per ton (e.g. Source Test 12052 - Transmix). Thus, WSPA believes there should be an exemption from emission controls for small loads when the PD pumps cannot be used due to technical, safety, or feasibility issues.	Staff is reluctant to add a low volume exemption because the percentage of low volume loading events is unknown. Emissions from many such uncontrolled loading events could amount to significant emissions, especially if several such loading events occur in the same work shift. The amount of emissions will increase as load after load of material is introduced into the vacuum truck, thereby building a more concentrated headspace. It is unclear what would constitute an infeasible situation whereby a PD pump cannot be used to load less than 5 barrels of material into a vacuum truck.
8-53-10x (no existing section)	**Exemption, Secondary Treatment Process:** Vacuum truck activities at secondary treatment processes as defined in Reg.8-8-208 are not subject to the provisions of Regulation 8, Rule 53.	WSPA is requesting this exemption for purposes of making a clear exemption for wastewater polishing processes.	Staff never intended materials from secondary treatment processes that are loaded into vacuum trucks to be subject to the rule; thus, staff does not believe this language is necessary. Nevertheless, staff proposes to add this suggested language to the rule to provide clarity.
8-53-204	**Limited Exemption, Positive Displacement Pump or Gravity Feed Loading:** A loading event in which gravity or a positive displacement pump is used to move regulated materials into a vacuum truck shall be exempt from the requirements of Sections 8-53-301, 8-53-303 and 8-53-501.	Given that existing language shows that monitoring is not required when using positive displacement pumps or gravity feed loading, WSPA is requesting that it be made clear that the limit also does not apply (since if it did, facilities with Title V operating permits could potentially be required to monitor for compliance with it).	Staff does not agree with this change. A vacuum truck that is used to load and convey material that is loaded with a PD pump needs to be maintained to be leak-free, consistent with a gasoline cargo tank requirements.
8-53-20x (no existing section)	**Routine vacuum truck operations:** Vacuum truck activities occurring at the same loading location on a regular frequency (e.g. daily, weekly, etc.)	WSPA is proposing this definition so that upon the request of a facility less burdensome monitoring requirements can be utilized as proposed in 8-53-501.2 for vacuum truck operations that are routine	Staff does not agree with the need for a definition of a "routine event." The definition is provided so that alternative monitoring can be allowed, but staff believes that the allowance should not be triggered by the routine nature of a loading event.
8-53-211	**Loading Event:** The loading at an affected facility of regulated materials from one location at the facility into a vacuum truck or other container through a vacuum truck	WSPA is proposing these changes to clarify that in case where there are short interruptions in a loading event at a given location, that starting up again after the interruption	This is a minor clarification and staff will add this language.

Citation	Suggested Rule Language (Proposed Changes Tracked/Struck Out)	Discussion	Staff Response
	operation.	does not constitute a new "loading event" and trigger additional monitoring.	
8-53-218	**Regulated Material:** A regulated material is any of the following: 218.1 Gasoline, aviation gasoline, gasoline blending stock, naphtha; 218.2 Transmix, slop, or any other hydrocarbon mixture that includes a material listed in Section 8-53-218.1 <u>if they have a TVP >0.5 psi and contain at least 10% by volume of a material listed in 218.1</u>; or 218.3 Any material collected during dewatering of a tank storing any material listed in Sections 8-53-218.1 or 8-53-218.2. Crude oil is not a regulated material.	The broadness of the current language in 8-53-218.2 will result in the unnecessary inclusion of mixtures that are less volatile than the materials that the District is planning on excluding; i.e., a mixture with a low concentration of volatile material would be subjected even though the combined mixture has a very low vapor pressure. WSPA is therefore proposing to change the language to avoid this situation. The specific TVP value of 0.5 psi was chosen for two reasons; one, this value is already familiar (e.g., it is also used in Regulation 8-5); and two, the TVP value of 0.5 psi (3.4% by volume at atmospheric pressure) is approximately consistent with the differences in volatilities between the District's proposed "regulated materials" and unregulated materials. Specifically, the tables in Appendix A of the District's staff report show that the mixtures that the District is proposing to not regulate (in Table A-2) had headspace concentrations up to 5.89% by volume C_1, and that the mixtures that the District was proposing to regulate (in Table A-3) had headspace concentrations between 8.35%C_1 and 187.3%C_1. The 10% exemption was identified because, in some cases, compliance with it can be more easily/directly confirmed than the 0.5 psi criterion.	Staff attempted to craft the definition of "regulated material" in such a way as to minimize the amount of resources facilities would have to utilize in order to differentiate regulated materials from non-regulated materials. Staff's intent is to control vacuum truck loading of materials that produce the highest vapor emissions and not to require controls and emission monitoring requirements when vacuum trucks load low-emitting materials. In staff's opinion, WSPA's suggested language adds complexity, however, if refineries are willing to conduct tests to demonstrate that certain materials do not need to be controlled, staff is willing to accommodate that desire. Staff will add language to Section 218 of the rule that will include a TVP threshold of 0.5 psi and a 10% by volume threshold. Doing this will also require the addition of test methods to the 600 Section of the rule.
8-53-301	**Emission Limit:** Effective <u>April 1</u>, 2013, for any loading event, the owner or operator of a facility subject to this rule shall control emissions <u>by 95% or</u> so that the TOC concentration does not exceed 500 ppmv, expressed as methane (C_1), above background, as measured at the exhaust outlet of a vacuum truck operation or, if an auxiliary control device is used to control emissions from a vacuum truck operation, at the exhaust outlet of the control device unless: 301.1 A second concentration reading taken within 60 seconds fails to confirm the exceedance, or 301.2 A second concentration reading taken within 60 seconds confirms <u>an exceedance</u>, but the loading event is shut down within 3 minutes after the second reading. <u>301.3 - If a normally operating auxiliary control device or a set of dual brand new carbon canisters with industry standard capacity cannot control the emissions below the 95% or 500 ppmv limit per 8-53-301, facilities are required to report to APCO immediately but the vacuum truck activities can be continued should discontinuing the vacuum truck activities will make normal operations</u>	The District's staff report identifies that design efficiencies for thermal oxidizers can be 98% and above and that there was a case in which an internal combustion engine controlled emissions by 99.6%. However, this will not always be sufficient to achieve a 500 ppmv outlet concentration; for example, the staff report identifies one instance in which the inlet concentration was 1,872,592 ppmvC1, and reducing emissions to 500 ppmvC_1 would require a 99.97% control efficiency. WSPA is therefore proposing these changes to ensure that the rule does set a standard which cannot be met by the available technologies. The staff report also states that the District believes that the standard of 500 ppmvC_1 is consistent with SCAQMD Rule 1149 and Texas permitting requirements; however, those rules specify 500 ppmvC_1 of VOC (not TOC), and control efficiencies for components such as methane and ethane (which are TOC but not VOC) are considerably lower for some of the control technologies (i.e., carbon adsorption and refrigerated condenser systems). In addition, TCEQ Chapter 115, Sections 115.540-.549 also allows for alternative means of	When controlling organic vapor emissions from vacuum truck operations with the highest potential to emit, carbon adsorption is not necessarily the best choice of control. Nevertheless, when emissions were measured as C_1, staff has observed carbon adsorption control devices with the ability to control organic vapor emissions from high vapor pressure materials, such as gasoline, to below 500 ppmv. The refineries are already subject to a 500 ppmv standard in EPA's national standards for benzene waste streams. Staff will recommend the timeline for the rule be revised to April 1, 2013. At least two affected facilities already utilize PD pumps almost exclusively when regulated materials are loaded into vacuum trucks. Staff expects that additional facilities will switch to this method and/or gravity feed methods.

Citation	Suggested Rule Language (Proposed Changes Tracked/Struck Out)	Discussion	Staff Response
	impossible.	compliance in lieu of meeting the 500 ppmvC_1 TOC standard. Due to limited source testing, it is uncertain if current available technology (auxiliary control device, carbon adsorption, etc.) can help achieve 500 ppmv for specific loading events. This situation may occur during normal operations or maintenance turnarounds and ending the vacuuming activities will seriously disturb or stop facility operations. We suggest that facilities be allowed to collect data on these types of activities so that the Air District will have the opportunity to reevaluate the requirements in this rule. If facilities encounter this type of burden, facilities should be required to report these activities to APCO immediately but are allowed to continue the activities without being enforced by the rule.	Staff does not agree with the suggested language to Section 301.3. "Normally operating auxiliary control device" is not defined, nor is "industry standard capacity", nor "normal operations." The suggested language gives a facility owner the option to avoid diligence in determining appropriate means of compliance for the material being loaded. The date by which compliance is required (one year) should give operators ample time to determine whether abatement equipment can meet the standard.
8-53-302	**Liquid Leaks:** Effective April 1, 2013, for any loading event, the following requirements apply: 302.1 The owner or operator of a facility subject to this rule shall maintain all equipment associated with the operation up to, but not including, the first connection at the vacuum truck such that the following liquid leak limit is not exceeded (except during hose connects and disconnects): three drops per minute, unless the leak is discovered by the operator and eliminated within approximately 3 minutes of discovery or unless the safe shutdown procedures are initiated within approximately 3 minutes of the discovery of the leak. 302.2 The owner or operator of a vacuum truck being used to comply with this rule shall maintain all equipment associated with the operation up to and including the first connection at the truck to the facility such that the following limits are not exceeded (except during hose connects and disconnects): three drops per minute, unless the leak is discovered by the operator and eliminated within approximately 3 minutes of discovery or unless the safe shutdown procedures are initiated within approximately 3 minutes of the discovery of the leak.	As mentioned by WSPA members in the July 25, 2011 workshop, specific the leakiness of some equipment components are controlled more by the vacuum truck owner/operators than the facility, and there should be language which encourages responsibility on the part of the latter. This same issue has been addressed previously by the District in rules 8-33 and 8-44, and the proposed language is similar to that in 8-44-305. In addition, it is not technically feasible for all of the vacuum loading connects and disconnects to meet this standard Separately, it is not always feasible or safe to shut down within 3 minutes of discovery, and in the July 21, 2011 workshop District staff stated that unsafe shutdown was not the intent. WSPA has proposed the second change to address this issue	The suggested language is problematic. All contractors at a refinery have standard clauses stipulating compliance with local, state and federal regulations. Consequently, the facility operator has a recovery mechanism if a vacuum truck operator violates the rule, intentionally or not. The liquid leak standard is not intended to include disconnects. Finally, whether or not a vacuum truck is shut down in three minutes or "approximately three minutes" (with good intentions) is the sort of discretion that staff is empowered to use and normally exercises. Staff does not believe that this suggested language is necessary.

Citation	Suggested Rule Language (Proposed Changes Tracked/Struck Out)	Discussion	Staff Response
8-53-303	**Vapor Leaks:** Effective April 1, 2013, for any loading event, the following requirements apply: 303.1 The owner or operator of a facility subject to this rule shall maintain all equipment associated with the operation up to, but not including, the first connection at the vacuum truck such that the following vapor leak limit is not exceeded: 500 ppmv, expressed as methane (C_1), above background unless the leak is discovered by the operator and minimized to a concentration below 500 ppmv within approximately 3 minutes after discovery or unless shutdown of the loading event is initiated within approximately 3 minutes after the discovery of the leak. 303.2 The owner or operator of a vacuum truck being used to comply with this rule shall maintain all equipment associated with the operation up to and including the first connection at the truck to the facility such that the following limits are not exceeded: 500 ppmv, expressed as methane (C1), above background unless the leak is discovered by the operator and minimized to a concentration below 500 ppmv within approximately 3 minutes after discovery or unless shutdown of the loading event is initiated within approximately 3 minutes after the discovery of the leak.	As mentioned by WSPA members in the July 25, 2011 workshop, some equipment components are controlled more by the vacuum truck owner/operators than the facility, and there should be language which encourages responsibility on the part of the latter. This same issue has been addressed previously by the District in rules 8-33 and 8-44, and the proposed language is similar to that in 8-44-305. Separately, it is not always feasible or safe to shut down within 3 minutes of discovery, and in the July 21, 2011 workshop District staff stated that unsafe shutdown was not the intent. WSPA has proposed the second change to address this issue.	See response above.
8-53-304	**Unloading of Regulated Material:** Effective April 1, 2013, the owner or operator of a facility subject to this rule shall meet the following requirements for unloading of regulated material from a vacuum truck at the facility where the vacuum truck was loaded: 304.1 Unload the material into a tank, vessel or sump that meets the control requirements in Regulation 8 Rule 5 or Regulation 8 Rule 8; or 304.2 If regulated material is unloaded into a non-regulated tank, vessel or other type of container, splash loading shall not be employed except in cases where the tank is appropriately designed for submerged loading and the liquid level is below the point at which submerged loading can occur. 304.3 If regulated material is unloaded into a sump, regulated material shall be promptly cleaned from the sump, and sump contents shall be promptly pumped into storage.	This section of the draft proposed rule applies to the unloading of material from vacuum trucks. In the July 21, 2011 workshop, it was pointed out that facilities cannot control the unloading of vacuum trucks offsite, and District staff stated that the intent of this section was to apply it to on-site unloading. WSPA's first proposed change addresses this issue. If a facility is unloading the material into a tank, vessel or other equipment that is vapor controlled or meets the tank control requirements, it shouldn't matter how you unload the material since any vapors generated by the unloading will be controlled, WSPA has inserted the proposed language for a new section 304.1 to address this. With respect to "splash loading", sometimes it is necessary to unload into an empty tank, which is not possible to do without "splash loading" (as defined in 8-53-217). WSPA's proposed change addresses this issue.	Staff agrees with the suggested language to Section 304.1 and will add it to the rule. These controls (compliance with Reg. 8-5 or 8-8) are considered equivalent to submerged loading. Staff does not believe that the suggested language in Section 304.2 is appropriate. Submerged fill is defined in other District rules, notably, Regulation 8, Rule 5: Storage of Organic Liquids. It is defined as fill that goes to within 6 inches of the bottom of the tank (if filled from overhead) or 18 inches from the bottom of the tank (if filled from the side).

Citation	Suggested Rule Language (Proposed Changes Tracked/Struck Out)	Discussion	Staff Response
8-53-401	**Loading Event Schedule Reporting Requirements:** Effective April 1, 2013, upon request by the APCO or the designee of the APCO, the owner or operator of an affected facility subject to this rule shall provide a list of scheduled loading events and the following information for each event: 401.1 Loading event start date and time; 401.2 Facility name, plant number (if applicable), and source number (if applicable),tank, pipeline, or reservoir address, and equipment location; 401.3 Vacuum truck company name, owner/operator's name, and telephone number; 401.4 Control equipment company name, control equipment type, operator's name and telephone number if the control equipment is operated by someone other than the vacuum truck owner/operator; and, 401.5 Tank, pipeline, box, container, or reservoir capacity, estimated volume and type of material to be loaded. The list shall include loading events that are scheduled within thirty (30) days. The list shall be provided to District staff within three (3) working days and may be provided via hard copy or electronically. For loading events that the District has identified an interest in witnessing, provide changes to loading event schedules shall be reported to District staff as soon as practicable prior to loading events.	Changes to loading events could happen on weekends, and changes can occur within less than 24 hours, so reporting changes in less than 24 hours could be unrealistic and is likely to be unduly cumbersome. In the July 21, 2011 workshop (at which time the proposed rule listed a timeframe of 48 hours instead of 24 hours), District staff indicated that this was not the intent. WSPA has proposed the language shown to address this issue.	Staff does not agree with the addition of language that affected facilities only need to notify staff of changes if staff indicates that they are "interested in witnessing an event." Staff realizes that vacuum truck loading events are subject to change at any time, however, the rule already stipulates that staff only be notified of events on request, and that the only events subject are those that are scheduled, such as during a turnaround. It is difficult to see how notification of a change in scheduled events (which, according to refinery operators, are small minority) is unduly cumbersome.

Citation	Suggested Rule Language (Proposed Changes Tracked/Struck Out)	Discussion	Staff Response
8-53-501	Effective April 1, 2013, the owner or operator of an affected facility using a vacuum truck operation shall monitor and record emissions as follows: 501.1 When TOC emissions from a vacuum truck operation are controlled primarily by technology other than a carbon adsorption system, emission concentrations from the control device shall be measured using the method specified in Section 8-53-601 and recorded as follows: 1.1 Conduct one measurement for each loading event before the vacuum truck is approximately 20% full. Conduct an additional measurement before the vacuum truck is approximately 60% full. If a vacuum truck is already 20% full prior to a loading event, conduct an initial measurement as soon as possible after the start of the loading event and an additional measurement before the vacuum truck is approximately 60% full. If a vacuum truck is already 60% full prior to a loading event, conduct one measurement as soon as possible after the start of the loading event.	The current language alternately used the terms “barrel” and “vacuum truck” to refer to the same thing; “vacuum truck” is a term that is defined and “barrel” is not. WSPA is proposing these language changes to make the wording clear and consistent.	Staff will change the term “barrel” to “vacuum truck” in the rule for the sake of clarify and consistency.

Citation	Suggested Rule Language (Proposed Changes Tracked/Struck Out)	Discussion	Staff Response
8-53-501.2	When TOC emissions from a vacuum truck operation are controlled primarily by a carbon adsorption system, emissions measurements from the control device shall be measured using the method specified in Section 8-53-601 and recorded as follows: 2.1 Commence emission measurements within 2 minutes of startup for each loading event. Additional measurements shall be performed approximately every 15 minutes during loading thereafter; For routine vacuum truck operation activities facilities are in compliance with 8-53-2.1 if: 2.1.1 A dual carbon canister system is used; And 2.1.2 Facilities take three sets of measurements per day with the first measurement of each set taken between the primary and the secondary canisters; and the second measurement of each set at the outlet of the secondary canister immediately following the first measurement; and the time interval between two readings is at least approximately one (1) hour; and 2.1.3 The primary carbon canister is replaced within four (4) hours with a brand new carbon canister when the readings after the primary carbon canister are near or greater than 4000 ppm. 2.2 When a TOC Stream is switched to a back-up or replacement carbon vessel, a new TOC emission measurement must occur within 2 minutes of the carbon vessel replacement; 2.3 An alternative monitoring plan for routine vacuum activities can be utilized upon submittal and approval of the APCO. 2.4 Record the information required by Section 8-53-502.	While WSPA understands concerns regarding potential breakthrough, the current requirements are onerous, and do not provide any relief for systems that incorporate dual (rather than single) carbon adsorption systems, arrive with fresh carbon, and/or have built-in monitoring systems for determining whether the carbon is spent. Thus provisions have been added for allowances for alternative monitoring of routine vacuum truck operation	While an alternative monitoring plan might be feasible for some facilities, staff does not believe such a plan should be limited only to routine vacuum truck activities. Nor should routine activities automatically qualify for such a plan. Typically, routine activities might consist of a series of small loading events. Monitoring for compliance only three times each day could result in a vacuum truck being used all afternoon and not meeting the emissions standards. Staff propose to add the following, “An alternative monitoring plan can be submitted and approved by the APCO.” This allows the use of equipment such as automatic monitors, incorporated into the design of vacuum trucks of at least one company.

Citation	Suggested Rule Language (Proposed Changes Tracked/Struck Out)	Discussion	Staff Response
8-53-502	**Recordkeeping Requirement:** A person subject to this rule shall keep the following records: 502.1 Effective April 1, 2013, record the following information for each loading event: 1.1 The date, time of commencement, and duration of the loading event; 1.2 The type and volume of regulated materials loaded; 1.3 Whether loading was by vacuum, positive displacement pump, or gravity; 1.4 Where vacuum truck control equipment or external control equipment is used, record the make and model of the control equipment, the results of the emission measurements required by Section 8-53-501, and the make, model, and serial number of the device used to measure the TOC concentrations; 1.5 Where loading was by positive displacement pump, the make and model of the pump. 1.6 Where **Exemption, Low Volume** is used record the estimated volume of the material and the reason a PD pump or gravity fill could not be utilized. , 502.2 Effective April 1, 2013, record the ~~daily~~ volume of crude oil and oil recovered from centrifuging that is loaded into vacuum trucks. 502.3 The owner or operator of an affected facility shall retain records required by this Section for two years and shall make them available for inspection by the APCO upon request.	As identified in WSPA's earlier proposed change requesting an exemption for low volume transfers, we have added in an associated recordkeeping requirement. In Section 502.2, we are proposing to remove the word "daily", since these records would need to be kept per truck and there is no apparent reason to have to separate out transfers that occur across midnight into two separate days.	As previously indicated, staff will add the April 1, 2013 compliance date. Staff does not agree with the remaining suggestions. The Low Volume exemption was discussed previously, and staff believes that it is inappropriate. Because emissions from crude and centrifuged oil may be significant, staff believes that daily recordkeeping is appropriate.

Citation	Suggested Rule Language (Proposed Changes Tracked/Struck Out)	Discussion	Staff Response
8-53-601	**Measurement of TOC Concentrations:** Measurements of TOC concentration for determining compliance with the limit set forth in Section 301 of this rule shall be conducted in accordance with USEPA Reference Methods 21 or 25A; BAAQMD Manual of Procedures, Volume IV, ST-7; or alternatives approved by the APCO. If USEPA Reference Method 21 is used to determine compliance, the portable analyzer shall use flame ionization detection and shall meet the specifications and performance criteria of, and shall be calibrated in accordance with, EPA Reference Method 21 (40 CFR 60, Appendix A).	As mentioned in the July 21, 2011 workshop, Method 21 (handheld FID) is very onerous in terms of requirements for training, calibration, etc. and the requirement to use this method will be problematic when nighttime or offhour vacuum truck operations are needed and no Method 21-trained personnel are available. Method 25A and BAAQMD Method ST-7 are even more onerous (to the point that they are not economically feasible). Keeping these requirements was not accounted for in the District's cost analyses. Also, because handheld FIDs tend to be two-gas monitors (i.e., air from the sample is needed for the flame, rather than having a separate air supply for the flame) designed for ambient air monitoring, their accuracy may not be superior to other alternatives in situations where there is considerable flow (e.g., in the control equipment exhaust) and/or where there is significant moisture (e.g., downstream of a thermal oxidizer). In some cases, vacuum trucks may be equipped with their own monitoring equipment. WSPA is therefore proposing to change the language to allow for APCO-approved monitoring alternatives.	Method 25A and ST-7 are measurement methods that have been added to the rule specifically at the request of the BAAQMD Technical Services Division so District staff can use such methods if needed. Method 25A and ST-7 measure mass or organic emissions. This is not necessary for facilities to conduct to determine compliance with the rule. WSPA's rationale, that some trucks are equipped with their own monitoring equipment, can be accommodated by the suggested language in Section 501, as described above. The monitoring must meet the performance specifications of Method 21.

Appendix C

Socioeconomic Analysis

Socio-Economic Impact Study of the Proposed Bay Area 2010 Clean Air Plan, Control Measure SSM-5, BAAQMD Regulation 8, Rule 53: Vacuum Truck Operations

Submitted to: Bay Area Air Quality Management District

December 6, 2011

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EXECUTIVE SUMMARY

The Bay Area Air Quality Management District (BAAQMD) proposes to enact Regulation 8, Rule 53 (Rule 8-53) to limit organic vapor emissions from vacuum truck operations at petroleum refineries, petroleum bulk plants, and petroleum bulk terminals. Until now, vacuum truck operations have been exempt from District requirements. The proposed Rule would limit emissions applied at the outlet of the vacuum truck or associated equipment, as well as from vapor and/or liquid leaks from vacuum truck equipment, and would potentially reduce emissions by up to 1.05 tons per day.

Socio-Economic Impacts

In order to estimate the economic impacts of enacting Rule 8-53 on the affected industries, this report compares the affected industries' annualized compliance costs with their profit ratios. The analysis uses data from the BAAQMD, US Census County Business Patterns, the IRS, and the 2007 US Economic Census.

Economic Profile of Affected Industries

The BAAQMD identifies the affected industries as Petroleum Refineries (SIC 2911) and Petroleum Bulk Stations and Terminals (SIC 5171). According to BAAQMD records, there are five petroleum refinery establishments, 17 bulk terminal establishments, and 18 bulk plant establishments in the Bay Area that would be subject to the proposed rule.

Economic Impacts to Affected Industries

IRS data indicate that firms in the petroleum refinery sector, which includes the affected industry, earn 6.3 percent profits on total revenue, resulting in total annual industry net profits of $1.7 billion. According to BAAQMD data, the total annualized compliance costs to refinery establishments would be approximately $1.1 million. Dividing the compliance costs ($1.1 million) by annual profits ($1.7 billion) shows that the proposed Rule would result in a 0.06 percent reduction in establishments' profits, which is well below well below the California Air Resources Board's (ARB's) 10 percent threshold used to determine cost burden.

IRS data also indicate that firms in the wholesale trade, petroleum and petroleum related products sector, which includes both the bulk terminals and bulk plants (termed stations in IRS data) industries, earn 1.5 percent profits on total revenue, resulting in total annual bulk terminal industry net profits of $1.1 billion and bulk plant industry profits of $4.5 million.

According to BAAQMD data, the total annualized compliance costs for the bulk terminals establishments would be approximately $98,534. Dividing the compliance costs ($98,534) by annual profits ($1.1 billion) shows that the proposed Rule would result in a 0.01 percent reduction in bulk terminals establishments profits. BAAQMD estimates that the annualized compliance costs to bulk plant establishments would be $247. Dividing compliance costs ($247) by annual profits ($4.5 million) shows that the proposed Rule would result in a 0.01 percent impact to bulk plant establishments. Thus, the compliance costs as a share of profits for both industries fall well below well below the ARB's 10 percent threshold used to determine cost burden.

Regional Employment, Indirect, and Induced Impacts

Since on average, the proposed Rule 8-53 would not result in significant economic impacts to establishments within the affected industries, the proposed rule would not impact the affected industries or regional employment. In addition, adoption of the proposed Rule would not result in any additional regional spinoff, or multiplier, impacts.

Impacts to Small Businesses

Using the California Government Code 14835's definition of a small business, approximately 37 percent of affected bulk plant establishments are small businesses. However, as the ARB and this analysis both assume that compliance costs are small enough not to significantly impact profitability, adopting Rule 8-53 would not adversely impact small businesses.

DESCRIPTION OF PROPOSED RULE

The Bay Area Air Quality Management District (BAAQMD) proposes to enact Regulation 8, Rule 53 (Rule 8-53) to limit organic vapor emissions from vacuum truck operations at certain facilities that handle materials likely to produce ozone-forming emissions, effective April 1, 2013. Until now, vacuum truck operations have been exempt from District requirements. The proposed Rule would reduce total organic compound (TOC) emissions within the BAAQMD's District through an organic emissions limit applied at the outlet of the vacuum truck or associated equipment, an emissions limit for vapor and/or liquid leaks from vacuum truck equipment, monitoring requirements, and reporting requirements. The implementation of Rule 8-53 would potentially reduce emissions by up to 1 ton per day as per staff estimate. Table 1 shows the proposed emissions limits under Rule 8-53.

Table 1: Proposed TOC Emissions Limits, Regulation 8, Rule 53

Operation	TOC Emissions Limits
Exhaust Emissions (vacuum truck pump, blower exhaust, or control device)	500 ppmv
Equipment Liquid Leaks (hoses, connectors, flanges, lines, and stingers)	3 drops per minute
Equipment Vapor Leaks (hoses, connectors, flanges, lines, and stingers)	500 ppmv

Sources: BAAQMD; BAE, 2011.

The proposed emissions limits would be consistent with the South Coast Air Quality Management District's (SCAQMD) Rule 1149 that limits organic vapor emissions from vacuum trucks used in conjunction with tank degassing and the Texas Commission on Environmental Quality (TCEQ) under Title 30 of the Texas Administrative Code, Chapter 101, Subchapter F.

Rule 8-53 would apply to commercial facilities that use vacuum trucks to load materials containing organic compounds and are capable of emissions of at least 500 parts per million by volume (ppmv) measured as methane for those high vapor pressure materials subject the proposed rule (and already subject to other District refinery rules; Regulation 8, Rule 5: Storage of Organic Liquids, and Regulation 8, Rule 8: Wastewater (Oil-Water) Separators, or Regulation 8, Rule 44: Marine Tank Vessel Operations). However, emissions from vacuum trucks responding to oil spills or other environmental emergencies would be exempt.

REGIONAL TRENDS

This section provides background information on the demographic and economic trends for the San Francisco Bay Area, which represents the BAAQMD's District. The San Francisco Bay Area includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties. Regional trends are compared to statewide demographic and economic patterns since 2000, in order to show the region's unique characteristics relative to the State.

Regional Demographic Trends

Table 2 shows the population and household trends for the nine county Bay Area and California between 2000 and 2010. During this time, the Bay Area's population increased by 5.4 percent, compared to 10 percent in California. Likewise, the number of Bay Area households grew by 5.8 percent, compared to a 9.3 percent statewide increase.

Table 2: Population and Household Trends, 2000-2010

Bay Area (a)	2000	2010	Total Change 2000-2010	Percent Change 2000-2010
Population	6,784,348	7,150,739	366,391	5.4%
Households	2,466,020	2,608,023	142,003	5.8%
Average Household Size	2.7	2.7		
California				
Population	33,873,086	37,253,956	3,380,870	10.0%
Households	11,502,871	12,577,498	1,074,627	9.3%
Average Household Size	2.9	2.9		

Notes:
(a) Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties.

Sources: California, Department of Finance; US Census; BAE 2011.

The slower growth in the Bay Area is related to its relatively built out environment, compared to the state overall. While Central Valley locations, such as the Sacramento region, experienced large increases in the number of housing units, the Bay Area, which was relatively built out before the housing boom, only experienced moderate increases in housing units.

Regional Economic Trends

In the five-year period, between 2005 and 2010, the Bay Area's economic base shrank by 4.4 percent, decreasing from 3.23 million jobs to 3.09 million jobs. This represents slightly slower job loss than the State, where the number of jobs shrank by nearly six percent.

Manufacturing, Retail Trade, Professional, Scientific, and Technical Services, and Healthcare and Social Assistance, the largest private (non-government) sectors in the Bay Area's economy, each constituted 10 percent of the region's total jobs in 2010. Over the five-year period the Manufacturing sector lost 13 percent of its jobs, while the Retail Trade sector lost nine percent of its jobs. However, during this period, the Professional, Scientific, and Technical Services sector grew by 10 percent, while the Healthcare and Social Assistance sector grew by nearly 14 percent. Statewide, the Manufacturing and Retail Trade sectors declined by 17 and nine percent, respectively. However, the Professional, Scientific, and Technical Services and Healthcare and Social Assistance sectors grew by five and 13 percent, respectively. Overall, the Bay Area's economic base reflects the state's base, sharing a similar distribution of employment across sectors. Table 3 shows the jobs by sector in 2005 and 2010.

The affected industries, Petroleum Refineries and Petroleum Bulk Plants (referred to as Bulk Stations) and Terminals, fall into the Manufacturing, and Wholesale Trade sectors, respectively. The Manufacturing sector represents 9.9 percent of the region's job base, while the Wholesale Trade sector represents 3.7 percent of the region's jobs base. Although both sectors' employment contracted between 2005 and 2010, the Wholesale Trade sector's share of the region's jobs remained constant, while the Manufacturing sector's share of the region's jobs decreased one percent.

Table 3: Jobs by Sector, 2005-2010 (a)

	Bay Area					California				
	2005 (b)		2010 (c)		% Change	2005 (b)		2010 (c)		% Change
Industry Sector	**Jobs**	**% Total**	**Jobs**	**% Total**	**2005-2010**	**Jobs**	**% Total**	**Jobs**	**% Total**	**2005-2010**
Agriculture	20,400	0.6%	19,000	0.6%	-6.9%	378,200	2.5%	381,600	2.7%	0.9%
Mining and Logging	800	0.0%	500	0.0%	-37.5%	23,600	0.2%	26,800	0.2%	13.6%
Construction	74,800	2.3%	50,100	1.6%	-33.0%	905,300	6.0%	559,800	3.9%	-38.2%
Manufacturing	350,400	10.8%	305,400	9.9%	-12.8%	1,502,600	9.9%	1,242,400	8.7%	-17.3%
Wholesale Trade	123,000	3.8%	113,200	3.7%	-8.0%	675,800	4.5%	643,200	4.5%	-4.8%
Retail Trade	336,700	10.4%	305,900	9.9%	-9.1%	1,659,300	10.9%	1,508,800	10.6%	-9.1%
Transportation, Warehousing, and Utilities	100,300	3.1%	90,200	2.9%	-10.1%	487,100	3.2%	464,900	3.3%	-4.6%
Information	112,900	3.5%	110,800	3.6%	-1.9%	473,600	3.1%	429,000	3.0%	-9.4%
Finance and Insurance	151,000	4.7%	118,200	3.8%	-21.7%	636,600	4.2%	511,900	3.6%	-19.6%
Real Estate and Rental and Leasing	55,600	1.7%	47,900	1.6%	-13.8%	283,600	1.9%	247,900	1.7%	-12.6%
Professional, Scientific, and Technical Services	289,100	8.9%	318,800	10.3%	10.3%	970,200	6.4%	1,020,600	7.1%	5.2%
Management of Companies and Enterprises	52,500	1.6%	54,200	1.8%	3.2%	222,100	1.5%	190,500	1.3%	-14.2%
Administrative and Waste Services	182,100	5.6%	167,100	5.4%	-8.2%	968,300	6.4%	858,300	6.0%	-11.4%
Educational Services	73,000	2.3%	81,700	2.6%	11.9%	272,200	1.8%	307,900	2.2%	13.1%
Health Care and Social Assistance	284,500	8.8%	324,100	10.5%	13.9%	1,321,200	8.7%	1,479,000	10.4%	11.9%
Arts, Entertainment, and Recreation	47,600	1.5%	37,200	1.2%	-21.8%	239,000	1.6%	241,200	1.7%	0.9%
Accommodation and Food Services	261,300	8.1%	209,600	6.8%	-19.8%	1,236,200	8.1%	1,252,500	8.8%	1.3%
Other Services, except Public Administration	108,800	3.4%	108,800	3.5%	0.0%	505,500	3.3%	484,700	3.4%	-4.1%
Government (d)	446,300	13.8%	430,200	13.9%	-3.6%	2,420,200	15.9%	2,427,100	17.0%	0.3%
Subtotal (e)	**3,071,100**	**95.1%**	**2,892,900**	**93.7%**	**-5.8%**	**15,179,500**	**100.0%**	**14,278,000**	**100.0%**	**-5.9%**
Additional Suppressed/Confidential Employment (f)	159,800	4.9%	195,900	6.3%	22.6%	n/a	n/a	n/a	n/a	
Total, All Employment	**3,230,900**	**100.0%**	**3,088,800**	**100.0%**	**-4.4%**	**15,179,500**	**100.0%**	**14,278,000**	**100.0%**	**-5.9%**

Notes:
(a) Includes all wage and salary employment covered by unemployment insurance.
(b) Represents employment for calendar year, 2005.
(c) Represents employment for calendar year, 2010.
(d) Government employment includes workers in all local, state and Federal sectors, not just public administration. For example, all public school staff are in the Government category.
(e) Totals may not add due to independent rounding.
(f) County employment for some industries were suppressed by EDD due to the small number of firms reporting in the industry for a given county.

Sources: California Employment Development Department, BAE, 2011.

Affected Industries

The proposed rule would affect vacuum truck operations, which are part of the truck transportation sector. However, the responsibility of compliance would fall on the refineries, bulk terminals, and bulk plants (or stations). BAAQMD staff stated that vacuum truck operators would be able to fully pass compliance costs on to the refineries, bulk terminals, and bulk stations. Thus, this analysis focuses on the impacts to the petroleum refinery, and petroleum bulk terminals, and petroleum bulk stations industries.

According to the US Census, in 2009, the Bay Area had 7 Petroleum Refinery establishments that accounted for 4,210 jobs, averaging 601 jobs per establishment. However, BAAQMD staff indicated that there are five major petroleum refineries in the Bay Area, and one re-refiner. Inaccurate self-coding and reporting can result in Census data including inaccurate entries, which could account for the differences between BAAQMD and Census petroleum refinery counts.

Census data also states that there were also 57 Petroleum Bulk Stations and Terminals establishments that accounted for between 1,064 jobs, averaging 19 workers per establishment (See Table 4). Because the bulk terminals and bulk stations industries share a common six-digit NAICS code (424710, Petroleum Bulk Stations and Terminals), data from the County Business Patterns does not distinguish between these industries. However, the analysis calculates the impacts of the proposed Rule on each industry, individually.

The BAAQMD provided data to establish the distribution of establishments by size for the Bulk Terminals and Bulk Stations industries. BAAQMD staff indicated that Bulk Terminals tend to be large establishments, and Bulk Stations tend to be smaller. Because some bulk terminal establishments are co-located with refineries, the County Business Patterns data may have excluded or mis-categorized some bulk terminal establishments, which could explain the underrepresentation of larger establishments in the County Business Patterns data. The analysis uses establishment counts and sizes from the BAAQMD to estimate industry impacts.

Although the proposed Rule could also affect marine terminals and organic liquid pipeline facilities, this analysis does not consider their impacts. BAAQMD staff indicates that firms in these industries use vacuum trucks infrequently enough, or load materials regulated by the rule in small enough quantities, that their share of vacuum truck usage would be close to zero; therefore, they are excluded from the analysis.

Table 4: Profile of Affected Industries, 2009

Industry	Petroleum Refineries (a)	Petroleum Bulk Stations and Terminals (b)
Employment (c)	4,210	1,084
Average Employment per Establishment	601	19
Number of Establishments (by workforce size)		
1-4	0	24
5-9	1	9
10-19	0	11
20-49	0	9
50-99	1	2
100+	5	2
Total	7 (d)	57 (e)

Notes:
(a) The petroleum refinery industry is defined as NAICS 324110, Petroleum Refineries.
(b) The bulk terminals and bulk stations industry is defined as NAICS 424710, Petroleum Bulk Stations and Terminals.
(c) In cases where the actual employment number is not disclosed for confidentiality purposes, the analysis uses the midpoint employment number for each size cohort.
(d) BAAQMD estimates that the Bay Area has six establishments in this sector will be affected by the proposed Rule.
(e) BAAQMD estimates that the Bay Area has 35 establishments in this sector will be affected by the proposed Rule.

Sources: U.S. Census County Business Patterns, 2009; BAE, 2011.

SOCIO-ECONOMIC IMPACTS

This section discusses the methodology, economic profile of the affected industry, annualized compliance costs, and estimates the economic impacts associated with the proposed adoption of Rule 8-53.

Methodology

In order to estimate the economic impacts of amending Rule 8-53 on the affected industries, this report compares the affected industries' annualized compliance costs with their profit ratios. The analysis uses data from the BAAQMD, US Census County Business Patterns, the IRS, and the 2007 US Economic Census.

The BAAQMD identifies the affected industries as Petroleum Refineries (SIC 2911) and Petroleum Bulk Stations and Terminals (SIC 5171). According to BAAQMD records, there are five petroleum refinery establishments, 17 bulk terminal establishments, and 18 bulk plant establishments in the Bay Area that would be subject to the proposed rule.

Economic Profile of Affected Industries

As shown in Table 5, according to 2007 US Economic Census data, the average California firm in the Petroleum Refinery sector has average annual sales per employee of approximately $7.4 million. Multiplying the average statewide revenues per employee by the County Business Pattern's estimated regional average employees per establishment (601 workers) shows that on average, Bay Area petroleum refineries have total annual revenues of $4.5 billion per establishment.

The Economic Census also provides average revenues per employee data for the Bulk Terminals and Bulk Stations industries, individually. According to the data, the average California Bulk Terminals establishment has average revenues per employee of $26.3 million, while the average California Bulk Stations establishment has average revenues per employee of $1.5 million. Multiplying average revenues per employee figures by the average number of employees per Bay Area establishment shows that on average, bulk terminal establishments receive total annual revenues of $4.6 billion, while the average bulk station establishment receives total annual revenues of $17 million.

BAAQMD staff and US Economic Census data indicate that all of the bulk terminal operators are large multinational energy firms, while the bulk station firms tend to be smaller. Thus, the analysis distributes the bulk terminals establishments into the largest establishment size cohort. The bulk stations establishments are primarily distributed according to the County Business Pattern's distribution of smaller establishments by size. Table 5 shows the average number of employees and sales of all affected industries.

Table 5: Petroleum Refinery, Bulk Terminal, and Bulk Station Industries, Sales

Petroleum Refinery Industry

Number of Employees	Number of Businesses (a)	Average # of Employees (b)	Average Annual Sales (c)	Total Sales	Total Employees
1-4	0	0	$0	$0	0
5-9	0	0	$0	$0	0
10-19	0	0	$0	$0	0
20-49	0	0	$0	$0	0
50-99	0	0	$0	$0	0
100+	6	601	$4,465,560,946	$26,793,365,674	3,608
Total	**6**	**601**	**$4,465,560,946**	**$26,793,365,674**	**3,608**

Petroleum Bulk Terminals Industry

Number of Employees	Number of Businesses (a)	Average # of Employees (d)	Average Annual Sales (e)	Total Sales	Total Employees
1-4	0	0	$0	$0	0
5-9	0	0	$0	$0	0
10-19	0	0	$0	$0	0
20-49	0	0	$0	$0	0
50-99	0	0	$0	$0	0
100+	17	175	$4,596,795,497	$78,145,523,444	2,967
Total	**17**	**175**	**$4,596,795,497**	**$78,145,523,444**	**2,967**

Petroleum Bulk Stations Industry

Number of Employees	Number of Businesses (f)	Average # of Employees (d)	Average Annual Sales (g)	Total Sales	Total Employees
1-4	8	3	$3,798,668	$30,962,727	20
5-9	3	7	$10,636,270	$32,510,863	21
10-19	4	15	$22,032,274	$82,309,249	54
20-49	3	35	$52,421,617	$160,232,113	105
50-99	0	0	$0	$0	0
100+	0	0	$0	$0	0
Total	**18**	**11**	**$17,000,831**	**$306,014,953**	**201**

Notes:
(a) The number and sizes of businesses affected for each industry comes from BAAQMD data.
(b) Based on 2009 Census County Business Patterns Data for Refineries in the Bay Area.
(c) Based on 2007 Economic Census data for petroleum refinery businesses in California. 324110, Petroleum Refineries.
Average revenues per employee $7,425,805
(d) Based on 2009 Census County Business Patterns Data for Bulk Stations and Terminals in the Bay Area.
(e) Based on 2007 Economic Census data for petroleum bulk terminal businesses in California. 42471012, Petroleum Bulk Terminals.
Average revenues per employee $26,342,668
(f) The number of firms comes from BAAQMD data. The distribution of firms by size comes from 2009 County Business Patterns data for Bulk Stations and Terminals establishments in the Bay Area, and information from BAAQMD.
(g) Based on 2007 Economic Census data for petroleum bulk station businesses in California. 42471011, Petroleum Bulk Stations.
Average revenues per employee $1,519,467

Sources: Economic Census, 2007; BAAQMD, 2011; BAE, 2011.

The IRS provides data on total sales and net income for the Petroleum Refineries and Wholesale Trade, Petroleum and Petroleum Related Products sectors, which includes both the bulk terminals and bulk stations industries. According to IRS data, petroleum refinery firms average a 6.3 percent rate of return on total sales, while wholesale trade firms that sell petroleum and petroleum related products average a 1.5 percent rate of return on total sales. Table 6 presents the profits for petroleum refinery, petroleum bulk terminals, and petroleum bulk stations firms of varying sizes.

Table 6: Petroleum Refinery, Bulk Terminals, and Bulk Stations Profits

Petroleum Refinery Industry					
Number of Employees	Number of Businesses	Average Annual Sales (a)	Average Return on Sales (b)	Average Profits	Total Profits
1-4	0	$0	6.3%	$0	$0
5-9	0	$0	6.3%	$0	$0
10-19	0	$0	6.3%	$0	$0
20-49	0	$0	6.3%	$0	$0
50-99	0	$0	6.3%	$0	$0
100+	6	$4,465,560,946	6.3%	$281,276,100	$1,687,656,600
Total	**6**	**$4,465,560,946**	**6.3%**	**$281,276,100**	**$1,687,656,600**

Petroleum Bulk Terminals Industry					
Number of Employees	Number of Businesses	Average Annual Sales (c)	Average Return on Sales (d)	Average Profits	Total Profits
1-4	0	$0	1.5%	$0	$0
5-9	0	$0	1.5%	$0	$0
10-19	0	$0	1.5%	$0	$0
20-49	0	$0	1.5%	$0	$0
50-99	0	$0	1.5%	$0	$0
100+	17	$4,596,795,497	1.5%	$66,830,300	$1,136,115,100
Total	**17**	**$4,596,795,497**	**1.5%**	**$66,830,300**	**$1,136,115,100**

Petroleum Bulk Stations Industry					
Number of Employees	Number of Businesses	Average Annual Sales (e)	Average Return on Sales (d)	Average Profits	Total Profits
1-4	8	$3,798,668	1.5%	$55,200	$449,932
5-9	3	$10,636,270	1.5%	$154,600	$472,551
10-19	4	$22,032,274	1.5%	$320,300	$1,196,592
20-49	3	$52,421,617	1.5%	$762,100	$2,329,438
50-99	0	$0	1.5%	$0	$0
100+	0	$0	1.5%	$0	$0
Total	**18**	**$17,000,831**	**1.5%**	**$247,200**	**$4,448,513**

Notes:
(a) Based on 2007 Economic Census data for petroleum refinery businesses in California. 324110, Petroleum Refineries.
(b) Based on net income and total receipts for petroleum refineries (including integrated) businesses in 2008 as reported by the IRS.
(c) Based on 2007 Economic Census data for petroleum bulk terminal businesses in California. 42471012, Petroleum Bulk Terminals.
(d) Based on net income and total receipts for wholesale trade, petroleum and petroleum related products businesses in 2008 as reported by the IRS.
(e) Based on 2007 Economic Census data for petroleum bulk station businesses in California. 42471011, Petroleum Bulk Stations.

Sources: Economic Census, 2007; IRS, 2008; BAE, 2011.

As Table 6 shows, petroleum refinery firms have average annual net profits of approximately $281.3 million per establishment, and bulk terminals firms have average annual profits of approximately $66.8 million, per establishment. Bulk station establishments have profits that range from $55,200 to $762,100, depending on the size of the establishment, with the average establishment netting approximately $247,200 in annual profits.

Description of Compliance Costs

There are several methods by which firms can comply with the proposed Rule 8-53. According to the BAAQMD's Workshop Report, firms can use one or more of three primary methods to reduce emissions at the vacuum truck's outlet or the outlet from connected control equipment:

- Carbon adsorption,
- Thermal incineration, or
- A positive displacement pump or gravity feed.

While each method has its drawbacks, BAAQMD estimates that due to costs and familiarity, firms will use carbon absorption 40 percent of the time, thermal incineration 10 percent of the time, and positive displacement pumps and gravity feed 50 percent of the time. BAAQMD also estimates that 3.6 trucks per day on average will require the use of compliance equipment.

As Table 7 shows, compliance costs can average between $2,694 and $3,222 per day for 3.6 trucks. However, these costs may be higher than firms would likely encounter. The analysis uses daily rental rates for abatement equipment. However, extended rental periods generally cost less per day, resulting in lower per day rental costs than Table 7 shows. To the extent that firms would rent equipment for periods longer than one day at a time, the stated compliance costs are likely higher than actual compliance costs.

Table 7: Compliance Costs by Industry

	Cost Per Day	Percentage Using Technology
Control Technology		
Carbon Adsorption	$400 - $515	40% (a)
Thermal Incineration	$4,900 - $5,780	10% (a)
Positive Displacement Pump	$80 - $105	50% (a)
Control Technology		
Ongoing Monitoring Cost	$85	100%
Monitoring Device (b)	$19	
Total Cost Per Day, 3.6 Trucks (c)		
Low Estimate	$2,694	
High Estimate	$3,222	
Share of Costs per Industry (a)		
Petroleum Refineries	91.6%	
Bulk Terminals	8.38%	
Bulk Plants	0.02%	
Number of Trucks Affected		
Petroleum Refineries	3.30	
Bulk Terminals	0.30	
Bulk Stations	0.00	
Total	3.60	
Total Annual Costs, Oil Refineries (d)		
Low Estimate	$900,855	
High Estimate	$1,077,186	
Total Annual Costs, Bulk Terminals (d)		
Low Estimate	$82,405	
High Estimate	$98,534	
Total Annual Costs, Bulk Plants (d)		
Low Estimate	$207	
High Estimate	$247	

Notes:
(a) Based on BAAQMD information of vacuum truck throughputs.
(b) Monitoring Device Daily Costs:

Cost of Device	$2,500	
Number of Devices	14	
Lifespan of Device	5	years
Daily Amortized Cost, using Straight Line Depreciation Method	$19	per day

(c) Per BAAQMD, assumes monitoring would occur on 4.5 trucks per day.
(d) Assumes trucks operate 365 days of the year.

Sources: BAAQMD; BAE, 2011.

Table 7 also shows that the BAAQMD anticipates that petroleum refineries would be responsible for 91.6 percent of compliance costs, with bulk terminals responsible for 8.38 percent, and bulk stations responsible for the remaining 0.02 percent. This translates into refineries using 3.3 of the total trucks requiring regulation, bulk terminals using 0.3 trucks, and bulk stations using a negligible number of trucks, only a few per year. Annually, compliance would cost petroleum refineries

between $990,855 and $1,077,186, would cost bulk terminals between $82,405 and $98,534, and would cost bulk plants between $207 and $247, collectively.

As previously stated, although the bulk plants and terminals are included in the same NAICS and SIC categories, the BAAQMD distinguishes between their potential impacts based on relative material throughputs. The BAAQMD estimates that of the total 8.4 percent of compliance costs applicable to the bulk terminals and plants establishments, 99.75 percent will apply to bulk terminals, with bulk plants responsible for the remaining 0.25 percent.

Affected Industries Economic Impacts Analysis

In order to determine the impacts to establishments of various sizes, this analysis compares each establishment size cohort's annualized compliance costs to annual profits. The analysis estimates compliance costs using an average cost per truck methodology, where the number of trucks per establishment are determined by the BAAQMD's knowledge of each establishment's truck usage and the distribution of establishments by size. Average revenue estimates come from the 2007 US Economic Census' revenues, in conjunction with IRS profit ratios.

The analysis then calculates the compliance costs as a percentage of profits to determine the level of impact. The BAAQMD uses the ARB's 10 percent threshold as a proxy for burden. Annualized compliance costs resulting in profit losses of 10 percent or more indicate that the proposed Rule has the potential for significant adverse economic impacts. Table 8 shows the annualized compliance costs as a share of total profits for the petroleum refinery, bulk terminals, and bulk plant industries.

Table 8: Rule 8-53 Compliance Cost as Share of Profit

Petroleum Refinery Industry

Number of Employees	Number of Businesses	Average Annual Sales	Average Return on Sales	Average Profits	Total Profits	Number of Trucks by Firm Size	Compliance Cost (a)	Share of Annual Profit
1-4	0	$0	6.3%	$0	$0	0	$0	0.00%
5-9	0	$0	6.3%	$0	$0	0	$0	0.00%
10-19	0	$0	6.3%	$0	$0	0	$0	0.00%
20-49	0	$0	6.3%	$0	$0	0	$0	0.00%
50-99	0	$0	6.3%	$0	$0	0	$0	0.00%
100+	6	$4,465,560,946	6.3%	$281,276,100	$1,687,656,600	3.3	$1,077,186	0.06%
Total	**6**	**$4,465,560,946**	**6.3%**	**$281,276,100**	**$1,687,656,600**	**3.3**	**$1,077,186**	**0.06%**

Petroleum Bulk Terminals Industry

Number of Employees	Number of Businesses	Average Annual Sales (a)	Average Return on Sales	Average Profits	Total Profits	Number of Trucks by Firm Size (c)	Compliance Cost (a)	Share of Annual Profit
1-4	0	$0	1.5%	$0	$0	0.0	$0	0.00%
5-9	0	$0	1.5%	$0	$0	0.0	$0	0.00%
10-19	0	$0	1.5%	$0	$0	0.0	$0	0.00%
20-49	0	$0	1.5%	$0	$0	0.0	$0	0.00%
50-99	0	$0	1.5%	$0	$0	0.0	$0	0.00%
100+	17	$4,596,795,497	1.5%	$66,830,300	$1,136,115,100	0.3	$98,534	0.01%
Total	**17**	**$4,596,795,497**	**1.5%**	**$66,830,300**	**$1,136,115,100**	**0.3**	**$98,534**	**0.01%**

Petroleum Bulk Plant Industry

Number of Employees	Number of Businesses	Average Annual Sales (a)	Average Return on Sales	Average Profits	Total Profits	Number of Trucks by Firm Size (c)	Compliance Cost (a)	Share of Annual Profit
1-4	8	$3,798,668	1.5%	$55,200	$449,932	0.0	$112	0.02%
5-9	3	$10,636,270	1.5%	$154,600	$472,551	0.0	$42	0.01%
10-19	4	$22,032,274	1.5%	$320,300	$1,196,592	0.0	$51	0.00%
20-49	3	$52,421,617	1.5%	$762,100	$2,329,438	0.0	$42	0.00%
50-99	0	$0	1.5%	$0	$0	0.0	$0	0.00%
100+	0	$0	1.5%	$0	$0	0.0	$0	0.00%
Total	**18**	**$17,000,831**	**1.5%**	**$247,200**	**$4,448,513**	**0.0**	**$247**	**0.01%**

Note:
(a) Assumes high compliance costs.

Sources: US Census County Business Patterns, 2009; US Economic Census, 2007; BAAQMD, 2011; BAE, 2011.

Overall, annualized compliance costs represent approximately 0.06 percent of profits for all petroleum refinery establishments, 0.01 percent for bulk terminals establishments, and 0.01 percent for bulk plant establishments. Thus, compliance costs are well below the 10 percent threshold. In addition, to the extent that these establishments would rent compliance equipment on a longer-term basis than per day or buy their own equipment, these impacts are likely overstated.

Affected Industries and Regional Employment Impacts

Since on average, the proposed Rule would not result in significant economic impacts to establishments within the affected industries, implementing the proposed Rule would not impact the affected industries or regional employment.

Regional Indirect and Induced Impacts

Indirect and induced impacts refer to regional multiplier effects of increasing or decreasing regional economic activity. If the Rule were to significantly impact local businesses, any closures would result in direct regional economic losses. Firms would no longer buy goods from local suppliers, thereby resulting in reduced indirect impacts, or business-to-business expenditures. In addition, firms would no longer employ regional residents, resulting in reduced induced impacts, or household spending.

However, since the proposed Rule is not expected to result in significant direct impacts, its adoption would not result in any indirect or induced impacts either.

IMPACT ON SMALL BUSINESSES

According to California Government Code 14835, a small business is any business that meets the following requirements:

- 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 annual gross receipts of $10 million or less over the previous three tax years, or
    - A manufacturer with 100 or fewer employees.

Using these definitions, none of the petroleum refineries or bulk terminal establishments would qualify as small businesses. Approximately 45 percent of all affected bulk plant establishments would qualify as small businesses. However, this analysis has shown that establishments with lower revenues will not necessarily experience higher impacts on return on profits as a result of the proposed rule. In addition, on average, the impacts of the proposed Rule fall under the ARB's 10 percent threshold of burden, which indicates that the proposed rule would not adversely impact establishments.

Appendix D

California Environmental Quality Act Initial Study and Negative Declaration

Initial Study/Negative Declaration for the Bay Area Air Quality Management District Regulation 8, Rule 53: Vacuum Truck Operations

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Chapter 1

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Chapter 3

FIGURES:

TABLES:

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Chapter 1

Introduction

Purpose of this Document

This Negative Declaration assesses the environmental impacts of the proposed adoption of Regulation 8, Rule 53 – Vacuum Truck Operations (Regulation 8-53) - by the Bay Area Air Quality Management District (BAAQMD or District). This assessment is required by the California Environmental Quality Act (CEQA) and in compliance with the state CEQA Guidelines (Title 14 California Code of Regulations §15000 et seq.). A Negative Declaration 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 new rule when determining whether to adopt them. The BAAQMD has prepared this Negative Declaration because no significant adverse impacts are expected to result from the proposed Regulation 8-53.

Scope of this Document

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

- aesthetics,
- agriculture and forestry resources,
- air quality,
- biological resources,
- cultural resources,
- geology / soils,
- greenhouse gas emissions,
- hazards & hazardous materials,
- hydrology / water quality,
- land use / planning,
- mineral resources,

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

Impact Terminology

The following terminology is used in this Initial Study/Negative Declaration to describe the levels of significance of impacts that would result from the proposed new rule:

- 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 53, describes the proposed rule, and describes the area and facilities that would be affected by the proposed rule.

- 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.

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Chapter 2

Description of the Proposed Rule

INTRODUCTION

The Bay Area Air Quality Management District (BAAQMD or District) is proposing a new regulation which would control emissions from vacuum trucks and similar equipment at certain Bay Area industrial facilities. Vacuum trucks are used to collect, contain and move materials, primarily waste liquids and semi-solids. If the materials contain petroleum, petroleum products, or other hydrocarbon liquids, vacuum truck operations have the potential to release ozone forming compounds into the atmosphere. The proposed new rule, Regulation 8, Rule 53 (Regulation 8-53): Vacuum Truck Operations, would apply only to certain types of facilities handling materials likely to produce ozone-forming emissions. The rule would reduce total organic compound (TOC) emissions by establishing a TOC emission limit that would apply at the outlet of a vacuum truck or associated equipment. In addition, the rule would establish TOC emission limits for vapor leaks and liquid leaks from vacuum truck equipment.

The BAAQMD currently does not regulate vacuum truck emissions. Regulation 2, Rule 1, Section 103.1 exempts vacuum truck operations from permitting requirements. However, permits may be required for control equipment used to limit organic vapor emissions from a vacuum truck. The District committed to investigating this type of equipment in Control Measure SSM-5 of the District's Bay Area 2010 Clean Air Plan, which sets forth a plan to achieve the California ozone standards as well as other air quality objectives. Organic compounds contribute to the formation of ground-level ozone, which is the principal ingredient in smog. The Bay Area is not in compliance with State and federal ozone standards, and has committed to implement all feasible measures to reduce emissions of ozone precursors, including organics.

The proposed limits would be consistent with the only current California air quality regulation – South Coast Air Quality Management District (SCAQMD) Rule 1149 – that limits organic vapor emissions from vacuum truck operations. Whereas SCAQMD Rule 1149 limits VOC emissions from vacuum trucks that are involved with the cleaning or degassing of storage tanks and pipelines, Regulation 8-53 would limit organic vapor emissions, including methane, from specific types of industrial facilities that utilize the services of vacuum truck operations. The emission limits in Regulation 8-53 have also been derived from vacuum truck emission limits that have been established for refinery maintenance, startup and shutdown operations by the Texas Commission on Environmental Quality (TCEQ).

Organic emission reductions from the proposed rule will depend upon the level of vacuum truck activity involving hydrocarbon-containing material. Co-benefits will

include the reduction of Toxic Air Contaminants (TAC) such as benzene, toluene, xylene, hexane, and greenhouse gas (GHG) emissions, specifically methane.

Industry impacts will depend upon the extent to which the Bay Area vacuum truck fleet is currently equipped with control technologies. Cost-effective technologies that can achieve the proposed TOC emission limits required by Regulation 8-53 are readily available. Such technologies are used in the South Coast Air Basin, Texas refineries, and New Jersey refineries. The necessity to use control technology may require facilities to adjust some of their operational procedures.

OBJECTIVES

The objective of the proposed Regulation 8-53 is to further reduce emissions of ozone precursors, specifically organic compounds, from vacuum trucks, in order to reduce ozone levels in the Bay Area and reduce transport of air pollutants to neighboring air basins.

The Bay Area and neighboring regions are not yet in attainment of State and federal ozone standards. Further reductions in ozone precursors, organic vapor emissions (including methane), are needed. Reductions can be achieved by minimizing the agitation of the liquid and sludge which creates organic vapor. Once organic vapors are generated, a variety of technologies are available to limit emissions. By minimizing the introduction of air and turbulence into a loading event, and incorporating control devices, the District proposes to meet the objectives of reductions in organic and methane emissions into the ambient air, thus, reducing the formation of ground-level ozone.

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. The California Air Resources Board (CARB) has also set a California ozone standard. The Bay Area is a non-attainment area for the state one-hour ozone standard and federal eight-hour ozone standard. Under State law, ozone non-attainment areas must prepare plans showing how they will attain the state standard. The 2010 Clean Air Plan (CAP) is the most recent planning document for the State one-hour ozone standard. At a public hearing on September 15, 2010, the Air District Board of Directors adopted the final Bay Area 2010 CAP, and certified the Final Environmental Impact Report for the CAP. The Bay Area is also not in attainment of California ambient air standards for particulate matter of 10 microns or less (PM10) or for particulate matter of 2.5 microns or less (PM2.5).

PROPOSED REGULATION 8-53

Vacuum truck operations associated with maintenance, shutdown, and start-up activities in petroleum refineries in Texas and New Jersey are currently required to use control technology to limit organic vapor emissions from vacuum trucks. The SCAQMD currently requires vacuum truck operations that are associated with the cleaning and degassing of tanks and pipelines to control organic vapor emissions below 500 parts per million (ppm). BAAQMD staff has reviewed information from vacuum truck operations

in the Bay Area, Southern California, New Jersey, and Utah. BAAQMD staff has observed a variety of vacuum truck loading events at different facility types and has conducted thirty-two source tests in order to develop Regulation 8-53.

Emission and Leak Standards

Based on BAAQMD's technical evaluation as well as the source tests that have been conducted, the District proposes the following emission and leak standards for vacuum trucks that operate at petroleum refineries, bulk terminals, bulk plants, marine terminals and organic liquid pipeline facilities in the Bay Area:

- Exhaust Emission Limit: Vacuum truck pump, blower exhaust, or control device shall not emit TOC concentrations that are greater than or equal to 500 ppmv;

- Equipment Liquid Leaks: Components of vacuum trucks such as hoses, connectors, flanges, lines and stingers shall not emit liquid leaks at a rate in excess of three (3) drops per minute; and,

- Equipment Vapor Leaks: Components of vacuum trucks such as hoses, connectors, flanges, lines and stingers shall not emit TOC concentrations that are greater than or equal to 500 ppmv.

Staff believes the 500 ppmv limit is feasible based on the limits within SCAQMD and Texas. The equipment and vapor leak standards are consistent with requirements for gasoline handling in District Regulation 8 Rules.

Emission Monitoring Requirements

The District proposes the following emissions monitoring requirements for vacuum trucks during loading events:

- Vacuum trucks shall be checked for vapor and liquid leaks prior to and during each loading event;

- Prior to reaching 20 percent of fill capacity, vacuum trucks would be required to monitor TOC emissions. A second emissions reading would be required prior to reaching 60 percent of fill capacity;

- When carbon adsorption is used as the primary control, emissions monitoring would be required every ten minutes after the initial emissions reading is taken; and,

- Emission measurements shall include the date and time of the loading event, the TOC concentration, the material flow rate (in acfm or scfm), and the model of the emission control device.

If a control device is connected to a vacuum truck during a loading event, emissions monitoring would be required to be performed at the exhaust of the control device.

Recording and Reporting Requirements

The District proposes the following recordkeeping requirements for each vacuum truck loading event:

- Vacuum truck owners/operators would be required to maintain records of emission monitoring readings; and,

- Vacuum truck owners/operators and facilities would be required, within five working days of a request, to submit a list of future scheduled loading events. This will enable staff to schedule an inspection of operations from time to time to determine compliance.

Bay Area facilities that operate vacuum trucks or contract for the services of vacuum trucks would be responsible for compliance with the proposed requirements in Regulation 8-53. Vacuum trucks in petroleum refineries and other facilities are operated by independent companies under contract to the facility. The facility operator is responsible for ensuring compliance with District regulations, consistent with contractors who service and degas tanks, monitor fugitive emissions and construct new equipment.

PROPOSED METHOD OF CONTROL

Controlling Emissions

The organic vapor emissions generated from vacuum truck operations may be minimized by utilizing external positive displacement, submersible or diaphragm pumps. While these pumps may not load liquid and sludge materials into the barrel of a vacuum truck as quickly as the truck itself, they minimize the agitation of the liquid and sludge which decreases vapor emissions. The drawback to these methods of loading materials is the extra time it takes to complete the loading event.

Once vapors are generated, a variety of technologies are available to limit emissions. Most of them can achieve capture and control efficiencies that are greater than 95 percent. Technologies include carbon adsorption systems, internal combustion engines, thermal oxidizers, liquid condenser systems and liquid scrubbers. Sometimes these technologies are combined as in the case of an engine/chiller or carbon/scrubber.

However, most vacuum trucks in the Bay Area are not equipped with control equipment. Of the group that use control equipment, most are currently using carbon adsorption systems while others use thermal oxidation or internal combustion engine technologies, according to industry sources. Organic vapor emissions can be limited with control technologies that are integrated into the truck or connected to the truck via a mobile unit that is sometimes referred to as a “skid-mount” or “portable trailer unit”. Some of the

small percentage of vacuum trucks operating in the Bay Area that currently use control equipment are doing so on a voluntary basis for odor control, while others use control equipment to comply with Federal requirements, (e.g., Subpart FF—National Emission Standard for Benzene Waste Operations).

Carbon Adsorption Systems

A carbon adsorption system is a system that is comprised of a tank or vessel containing a specific amount of activated carbon onto which organic gases or vapors molecularly adhere as they flow through the particles. Activated carbon is a form of carbon that has been processed to make it extremely porous. Its porosity results in a very large internal surface which enables it to adsorb gases within its structure. The degree to which activated carbon adsorbs organic vapors is affected by the temperature, humidity, flowrate, concentration, and molecular structure of the gas. High vacuum truck blower discharge temperatures may actually desorb previously adsorbed hydrocarbons, thus allowing them to vent into the ambient air. According to various industry sources, it may take anywhere from two to ten pounds of carbon to control one pound of organics.

One type of carbon adsorption system is a small-to-intermediate sized container integrated into the vacuum truck which contains 200 - 300 pounds of carbon. This container is typically used to control during two types of loading events: 1) those lasting a short duration because a small amount of material-containing hydrocarbon is loaded into the vacuum truck barrels; and 2) loading events that include hydrocarbon-containing materials loaded into a vacuum truck barrel at a low flow rates. A second type of carbon adsorption is a larger, portable system that includes two or three vessels, each containing 1,000 pounds of activated carbon. This type of system controls larger volumes, flow rates and concentrations of organic emissions.

Portable carbon adsorption is best used for the control of emissions from small cleanup operations like spills; emissions from large operations like the degassing and cleaning of a large crude oil tank would quickly overwhelm the capacity of most portable carbon adsorption units. Once a carbon adsorption unit has reached its holding limit, “breakthrough” occurs, and organic emissions pass through unabated.

A potential drawback to using carbon adsorption as the primary method to control organic emissions is its inability to control methane, an organic compound that is a component of TOC emissions. Methane is not adsorbed effectively by activated carbon. Depending on the concentration and flow rate of a given hydrocarbon containing material in a given vacuum truck operation, if a carbon adsorption unit is used as the primary method of control, an additional control such as an engine or oxidation may be necessary to control methane vapor, if any is present during the loading event. As the loading events to be controlled are petroleum based, significant methane is not expected.

In order to be effective, carbon adsorption units must be monitored frequently to determine when breakthrough occurs. BAAQMD staff observed a vacuum truck loading event at a local refinery that used carbon adsorption to control organic vapor emissions

from naphtha that was extracted from a pipeline. In spite of an unusually low flow-rate (3-4 scfm) used to load the material, the emission concentrations were determined to be approximately 80,000 ppmv when the carbon adsorption unit reached breakthrough. Thus the emissions that should have been abated went straight through the carbon vessel and into the ambient air uncontrolled. This can be avoided by having the operator monitor the emissions from the carbon adsorption unit more frequently and be able to replace the carbon before breakthrough. A larger carbon adsorption system might be more suitable for larger jobs.

Under certain circumstances, carbon adsorption can be a less expensive technology compared to other control methods, specifically when it is used to control vapor emissions from materials containing relatively low organic compound concentrations. However, carbon adsorption is limited by virtue of the dimensions of portable carbon vessels because they must be sized to allow for sufficient residence time to maximize adsorption efficiency. Temperature and humidity also affect carbon's ability to adsorb. When carbon adsorption systems are used to control emissions from loading events with materials that have high organic concentrations, there is some risk of spontaneous combustion due to temperature increase.

All adsorption is exothermic, meaning that the adsorption process releases heat, causing the temperature in the carbon bed to rise. U.S. EPA, as well as industry sources, indicate that under certain conditions, especially when high concentrations of organic vapors are adsorbed on activated carbon at a high flow rate, the temperature of the carbon bed can increase to a level at which the carbon or the organic vapors spontaneously ignite, starting a fire in the carbon vessel. Common practice is to add a pre-scrubbing type of device to lower organic levels, and thus the temperature, before the organic vapor stream reaches the carbon.

Internal Combustion Engines

Internal combustion engine technology is currently available to control organic vapor emissions. The equipment contains the vacuum source and vapor control device in one unit. Internal combustion engines that are utilized to control organic vapors from vacuum trucks are able to do so because they have a large cubic inch displacement and are able to run on compressed gas such as propane. When an internal combustion engine is used to control organic vapor emissions, it initially runs on propane and then switches to the incoming organic vapors as the primary fuel source. In some applications, the engines can power a refrigerated condenser to condense a portion of the organic vapor stream back to liquid.

Thermal Oxidizers

Portable or "skid-mounted" thermal oxidizers can be used at controlled flow rates to control organic emissions in vapor streams containing hydrocarbons diluted down to less than 50 percent of the lower explosive limit (LEL) to meet National Fire Protection Association (NFPA) Safety Guidelines. Thermal oxidizers are sometimes referred to as "afterburners." Thermal oxidizers are a type of incinerator that destroys organic emissions by raising the temperature of the organic materials in the vapor stream above their auto–ignition point in the presence of oxygen, and maintains the high temperature for a sufficient amount of time to complete the combustion of the materials to carbon dioxide and water. Time, temperature, turbulence (for mixing), and the availability of oxygen are all factors that affect the rate and efficiency of the combustion process. Destruction efficiency depends upon design criteria which include chamber temperature, residence time, inlet concentration, compound type, and degree of mixing. Typical design efficiencies range from 98 percent and above depending on system requirements and characteristics of the vapor stream.

Refrigerated Condenser Systems

A refrigerated condenser system can effectively reduce organic vapor discharge. It is a device that cools a vapor emission stream containing hydrocarbons by changing it from a vapor state to a liquid state. The condensed organic vapors can be recovered for transportation or refining, preventing their release to the ambient air. A refrigerated condenser works best on emission streams containing high concentrations of volatile organic emissions. They are less effective on dilute streams (i.e., where the air flow is much greater than organic vapor flow).

A refrigerated condenser functions by exposing influent organic vapor streams to a chilled heat exchanger surface, causing the organic vapors to condense on the cold heat exchanger (or heat transfer) surface. As the organic vapor stream condenses, it loses volume, which produces a lower vapor concentration near the heat exchanger surface. The condensation process is assisted by turbulence in the emission stream that also brings the emission stream close enough for heat transfer and subsequent condensation of the organic vapors.

Liquid Scrubbers

Organic emissions can be controlled effectively by liquid scrubbing technology via a chemical process known as absorption. A variety of wet scrubber designs are used to extract gaseous pollutants from vacuum truck vapor streams: packed towers, bubble tray towers, sparging scrubbers, and a new wet scrubber process called hydraulic amalgamation. Usually, the exhaust stream from a vacuum truck is introduced at the bottom of the scrubber tower. The gas stream flows upward through the tower where the organic compounds come into contact with the absorptive chemicals. Packed and bubble tray towers are designed to introduce the waste gas into the tower chamber where a liquid absorption chemical is introduced through a series of spray nozzles that emit liquid

droplets downward in a counter direction to the stream. The interaction between the upward flowing waste gas and the downward flowing liquid absorption chemical creates an environment for the absorption process. Sparging scrubbers and hydraulic amalgamation scrubbers introduce the waste gas through a submerged reaction chamber. The interaction between the waste gas and the absorption liquid within the reaction chamber creates an environment in which the organics are absorbed.

A high hydrocarbon-to-liquid contact ratio is essential to maximize the efficiency of the absorption process. Physical absorption depends on properties of the exhaust stream and the liquid such as density and viscosity, as well as specific characteristics of the hydrocarbons in the exhaust stream. These properties are temperature dependent: lower temperatures generally favor absorption of hydrocarbons by solvent. Absorption is also enhanced by higher liquid-gas ratios and higher concentrations in the hydrocarbon stream. Chemical absorption may be limited by the rate of reaction, although the rate-limiting factor is typically the physical absorption rate, not the chemical reaction rate.

Conclusion

To achieve desired hydrocarbon control objectives, some companies provide custom designed systems that utilize combinations of control technologies discussed above. In order to comply with the proposed 500 ppmv TOC emission limit in Regulation 8-53, client-specific configurations will sometimes be necessary. For example, under certain conditions, controls that utilize carbon adsorption as the primary method to minimize organic emissions might have to be further customized to control methane emissions.

POTENTIAL EMISSION REDUCTIONS

Vacuum trucks are used by a variety of Bay Area industries to remove materials from storage tanks, vessels, boxes, and pipelines; to transfer materials from one container to another; and, to transport materials from one location to another such as a landfill or processing facility. Vacuum trucks are also used to clean equipment such as barges and to clean up spills. The types of industries that utilize vacuum truck services include petroleum refineries, marine terminals, industrial wharfs, gasoline bulk terminals, gasoline bulk plants, gasoline cargo tanks and pipelines that deliver gasoline and other petroleum products.

In order to determine accurate information on vacuum truck activity and emission rates, staff requested throughput information from the refineries, vacuum truck operators and conducted source tests at various facilities using vacuum trucks during loading of various materials. Source tests have found that emission rates range from very few to over 600 pounds organic compounds per hour per loading event. Emission rates depend on material vapor pressure, material flow rate into the vacuum truck barrel, ambient temperature, and other factors as well, including the diameter and length of hose the material travels through. Based on staff's analysis, emissions from vacuum trucks in the Bay Area are estimated to be 1.50 tons/day. The proposed rule is estimated to reduce emissions by 1.05 tons/day.

Greenhouse Gas and Toxic Reductions

Limiting vapor stream emissions from vacuum truck loading events may result in methane emission reductions as well. Methane, a significant GHG that has over 20 times the global warming potential of CO_2, is present in several materials that are typically loaded into vacuum trucks. Because methane is included in the definition of TOC, and is therefore subject to the 500 ppmv emission limit proposed to be included in Regulation 8-53, compliance with the limit will reduce methane emissions.

However, the compliance technology used will determine the overall effects of the rule on GHGs. Internal combustion engines utilize energy from the organic vapor waste stream to run the engine and destroy methane in the process. In addition to organic and methane emission reductions, organic TAC emissions will be reduced as well. Toxic air contaminants include benzene, toluene, xylene, and hexane.

Even though refrigerated condensation technology emits a small amount of GHGs from the energy source used to generate the cold temperatures needed to condense organic vapor streams, generally speaking, this technology has the potential to emit the least amount of GHG emissions of all the vacuum truck control technologies that are available. This is because the vapors that are condensed can be re-refined or blended with fresh product and resold. The recycling of organic vapors offsets CO_2 emissions that are generated during the condensation process, which can result in a net global warming benefit.

AFFECTED AREA

The proposed new Regulation 8-53 would apply to facilities under BAAQMD jurisdiction. The BAAQMD jurisdiction includes all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma counties (approximately 5,600 square miles). The San Francisco Bay Area is characterized by a large, shallow basin surrounded by coastal mountain ranges tapering into sheltered inland valleys. The combined climatic and topographic factors result in increased potential for the accumulation of air pollutants in the inland valleys and reduced potential for buildup of air pollutants along the coast. The Basin is bounded by the Pacific Ocean to the west and includes complex terrain consisting of coastal mountain ranges, inland valleys, and bays. See Figure 1 depicting the area covered by the Bay Area Air Quality Management District.

BAAQMD proposes to regulate certain materials in specific facilities currently subject to District regulations. These facilities are petroleum refineries, gasoline bulk plants, gasoline bulk terminals, marine terminals and organic liquid pipeline facilities. In an effort to provide certainty to the regulated community and to control vacuum truck loading events with significant emissions, the proposed new rule is further limited to a subset of the types of materials already regulated in these facilities, gasoline and other high vapor pressure organic liquids. Regulated materials are iterated in the proposed rule. BAAQMD does not propose to require control on vacuum truck operations associated with emergencies such as spills.

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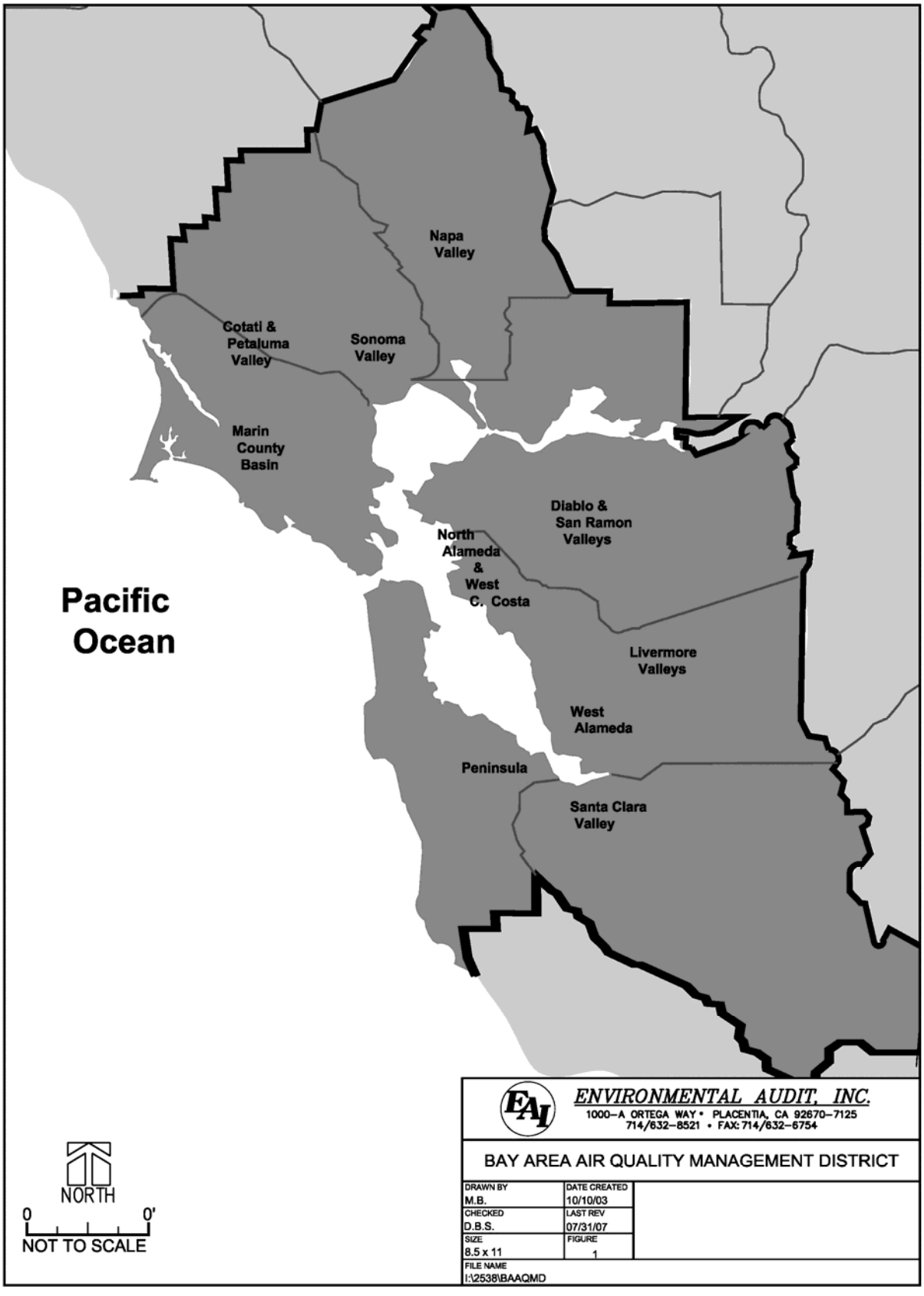
Napa Valley
Cotati & Petaluma Valley
Sonoma Valley
Marin County Basin
Diablo & San Ramon Valleys
North Alameda & West C. Costa
Pacific Ocean
Livermore Valleys
West Alameda
Peninsula
Santa Clara Valley
NORTH
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NOT TO SCALE
ENVIRONMENTAL AUDIT, INC.
1000-A ORTEGA WAY • PLACENTIA, CA 92670-7125
714/632-8521 • FAX: 714/632-6754
BAY AREA AIR QUALITY MANAGEMENT DISTRICT
DRAWN BY M.B.
DATE CREATED 10/10/03
CHECKED D.B.S.
LAST REV 07/31/07
SIZE 8.5 x 11
FIGURE 1
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Chapter 3

Environmental Checklist

INTRODUCTION

The environmental checklist provides a standard evaluation tool to identify a project's adverse environmental impacts. This checklist identifies and evaluates potential adverse environmental impacts that may be created by the proposed project.

GENERAL INFORMATION

Project Title:	Bay Area Air Quality Management District (BAAQMD) Proposed Regulation 8, Rule 53.
Lead Agency Name:	Bay Area Air Quality Management District
Lead Agency Address:	939 Ellis Street San Francisco, California 94109
Contact Person:	William Thomas Saltz
Contact Phone Number:	415-749-4698
Project Location:	This proposed new rule applies to the area within the jurisdiction of the Bay Area Air Quality Management District, which encompasses all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties and portions of southwestern Solano and southern Sonoma Counties.
Project Sponsor's Name:	Bay Area Air Quality Management District
Project Sponsor's Address:	939 Ellis Street San Francisco, California 94109
General Plan Designation:	Regulation 8-53 applies to vacuum trucks that are used in petroleum refineries, marine terminals, gasoline bulk terminals, gasoline bulk plants and pipelines that deliver gasoline, natural gas, crude oil, petroleum products, and ethanol throughout the District, which are primarily located in industrial areas.
Zoning:	See “General Plan Designation” above
Description of Project:	See “Background” in Chapter 2.
Surrounding Land Uses and Setting:	See “Affected Area” in Chapter 2.
Other Public Agencies Whose Approval is Required:	None

Environmental Factors Potentially Affected:

The following environmental impact areas have been assessed to determine their potential to be affected by the proposed project. As indicated by the checklist on the following pages, environmental topics marked with an "✓" may be adversely affected by the proposed project. An explanation relative to the determination of impacts can be found following the checklist for each area.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology / Soils
☐ Greenhouse Gas Emissions	☐ 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

An analysis was conducted and an Environmental Impact Report was prepared in association with the District's 2010 Clean Air Plan that assessed the potential environmental impacts of this control measure (SSM-5) as described in the plan. The EIR examined potential impacts from this control measure on secondary air quality impacts, greenhouse gas emissions, energy and solid and hazardous waste. The potential for impacts was analyzed because the use of carbon adsorption to control organic emissions requires energy use associated with reclamation (stripping) of the carbon for re-use, and carbon is eventually disposed in hazardous waste landfills. The EIR found that these impacts would be less than significant.

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 in 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 a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, 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 EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature: Date:

Printed Name: Date:

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis.

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, Program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063 (c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.

   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This checklist is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and

   b) the mitigation measure identified, if any, to reduce the impact to less than significance.

ENVIRONMENTAL CHECKLIST AND DISCUSSION

		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 to 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 proposed new rule focuses on organic emissions from vacuum trucks used in petroleum refineries, marine terminals, gasoline bulk terminals, gasoline bulk plants and pipelines. The new rule for these vacuum trucks will affect numerous facilities currently operating within the Bay Area which are generally located in industrial areas. Scenic highways or corridors are generally not located in the vicinity of these facilities.

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 new Regulation 8-53 would further reduce organic emissions from vacuum trucks in petroleum refineries, marine terminals, gasoline bulk terminals, gasoline bulk plants and pipelines in order to reduce ozone levels in the Bay Area and reduce transport of air pollutants to neighboring air basins. The proposed new rule is not expected to require the construction of any new structures that would be visible to areas outside of existing facility boundaries, and are not expected to result in any adverse aesthetic impacts. Once implemented, the new rule would affect vacuum trucks which are not expected to be permanently visible as they would move from location to location to perform service and any air emission control devices would also move with the vacuum truck. The vacuum trucks affected by the proposed new rule operate within existing facilities within the Bay Area, which are not typically located in areas with scenic vistas. The proposed Regulation 8-53 is not expected to require construction of any major new structures that would be visible to areas outside of the affected facilities, and is not expected to result in adverse aesthetic impacts. The proposed Regulation 8-53 would also not require any new sources of light or glare, since no new construction would be required as a result of the proposed new rule.

Based upon these considerations, no significant adverse aesthetic impacts are expected from the implementation of Regulation 8-53.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact

II. AGRICULTURE and FOREST 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 as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.--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)	Conflict with existing zoning for, or cause rezoning of, forest land as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				
d)	Result in the loss of forest land or conversion of forest land to non-forest use?				
e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or	☐	☐	☐	☑

conversion of forest land to non-forest 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 proposed new rule focuses on organic emissions from vacuum trucks used in petroleum refineries, gasoline bulk terminals, gasoline bulk plants and pipelines. The new rule for these vacuum trucks will affect numerous facilities currently operating within the Bay Area which are generally located in industrial areas. Agricultural or forest resources are currently not located within the confines of the existing facilities located within the Bay Area associated with Regulation 8-53.

Regulatory Background

Agricultural and forest 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-e. The proposed Regulation 8-53 would reduce organic emissions from vacuum trucks in petroleum refineries, marine terminals, gasoline bulk terminals, gasoline bulk plants and pipelines in order to reduce ozone levels in the Bay Area and reduce transport of air pollutants to neighboring air basins. The affected facilities are located in industrial areas where agricultural or forest resources are generally not located. The facilities operating within the Bay Area may comply with Regulation 8-53 by using various control technologies incorporated on existing or new vacuum trucks, thus reducing the emissions of TOC and methane. No development outside of existing facilities would be required by the proposed Regulation 8-53.

Based upon these considerations, no significant adverse impacts to agricultural and forest resources are expected from the implementation of the proposed new rule.

	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?	☐	☐	☐	☑

Setting

Meteorological Conditions

The summer climate of the West Coast is dominated by a semi-permanent 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 very 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, weak 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; 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), PM10, PM2.5, 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. 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 monitored levels of various criteria pollutants at 23 monitoring stations in 2010. The 2010 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 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 District is in attainment of the State and federal ambient air quality standards for CO, NOx, and SO_2. The District is not considered to be in attainment with the State PM10 and PM2.5 standards.

The 2010 air quality data from the BAAQMD monitoring stations are presented in Table 3-2. All monitoring stations were below the state standard and federal ambient air quality standards for CO, NO_2, and SO_2. The federal 8-hour ozone standard was exceeded on 9 days in the District in 2010, while the state 8-hour standard was exceeded on 11 days. 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 8 days in 2010 in the District. The ozone standards are most frequently exceeded in the Eastern District (Bethel Island (7 days) and Livermore (6 days)), and the Santa Clara Valley (San Martin (8 days), and Gilroy (7 days)) (see Table 3-2).

All monitoring stations were in compliance with the federal PM10 standards. The California PM10 standards were exceeded on two days in 2010, at the San Rafael and Bethel Island monitoring stations. The Air District exceeded the federal PM2.5 standard on 6 days, most frequently in San Rafael in 2010 (see Table 3-2).

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	0.075 ppm, 8-hour 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-hour avg.> 35 ppm, 1-hour 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.> 0.100 ppm, 1-hour 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-hour avg.> 0.075 ppm, 1-hour 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 > 150 $\mu g/m^3$, 24-hour 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)	12 $\mu g/m^3$, annual arithmetic mean>	15 $\mu g/m^3$, annual arithmetic mean> 35 $\mu g/m^3$, 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> 0.15 ug/m^3, rolling 3-month avg.>	(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 - 2010

MONITORING STATIONS	OZONE						CARBON MONOXIDE			NITROGEN DIOXIDE			SULFUR DIOXIDE			PM_{10}				$PM_{2.5}$				
	Max 1-hr	Cal 1-hr Days	Max 8-hr	Nat 8-Hr Days	Cal Days	3-Yr Avg	Max 1-hr	Max 8-hr	Nat/ Cal Days	Max 1-Hr	Ann Avg	Nat/ Cal Days	Max 1-hr	Max 24-hr	Nat/ Cal Days	Ann Avg	Max 24-hr	Nat Days	Cal Days	Max 24-hr	Nat Days	3-Yr Avg	Ann Avg	3-Yr Avg
North Counties	(ppb)						(ppm)			(ppb)			(ppb)			(μm^3)				(μm^3)				
Napa	106	1	89	2	2	66	2.3	1.4	0	56.0	9	0	--	--	--	17.4	37	0	0	--	--	--	--	--
San Rafael*	83	0	69	0	0	54	1.7	1.1	0	57.0	12	0	--	--	--	16.7	51	0	1	46.5	4	*	10.7	*
Santa Rosa	84	0	68	0	0	54	2.5	1.1	0	42.0	8	0	--	--	--	--	--	--	--	26.6	0	26	7.2	8.1
Vallejo	91	0	80	1	2	63	2.9	1.9	0	55.0	9	0	11.0	2.4	0	--	--	--	--	29.5	0	31	7.7	9.1
Coast/Central Bay																								
Berkeley*	75	0	49	0	0	44	2.5	1.5	0	53.4	13	0	9.0	2.4	0	21.0	43	0	0	--	--	--	--	--
Oakland	97	1	58	0	0	53	3.0	1.6	0	64.1	13	0	11.0	3.7	--	--	--	--	--	25.2	0	23	7.8	8.9
Oakland West	--	--	--	--	--	--	2.7	1.7	0	68.6	16	0	--	--	--	--	--	--	--					
Richmond	--	--	--	--	--	--	--	--	--	--	--	--	26.0	6.5	0	--	--	--	--	--	--	--	--	--
San Francisco	79	0	51	0	0	47	1.8	1.4	0	92.9	13	0	--	--	--	19.9	40	0	0	45.3	3	26	10.5	10.0
San Pablo*	97	1	81	1	1	*	*	*	*	*	*	*	*	*	*	*	*	*	*	--	--	--	--	--
Eastern District																								
Bethel Island	106	3	86	4	7	76	1.4	0.8	0	32.3	6	0	19.0	3.3	0	18.7	70	0	1	--	--	--	--	--
Concord	103	2	87	1	4	74	1.2	1.0	0	42.0	8	0	9.0	2.4	0	13.7	41	0	0	36.4	1	30	7.6	9.0
Crockett	--	--	--	--	--	--	--	--	--	--	--	--	16.3	4.1	0	--	--	--	--	--	--	--	--	--
Fairfield	103	1	81	2	3	69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Livermore	150	3	97	3	6	80	--	--	0	58.4	11	0	--	--	--	--	--	--	--	34.7	0	30	7.6	9.0
Martinez	--	--	--	--	--	--	--	--	--	--	--	--	37.0	5.5	0	--	--	--	--	--	--	--	--	--
South Central Bay																								
Fremont*	120	1	81	1	1	62	*	*	*	*	*	*	--	--	--	--	--	--	--	*	*	*	*	*
Hayward*	*	*	*	*	*	*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redwood City	113	2	77	1	1	57	3.3	1.7	0	52.7	12	0	--	--	--	--	--	--	--	36.5	1	25	8.3	8.7
Santa Clara Valley																								
Gilroy	94	0	81	5	7	74	--	--	--	--	--	--	--	--	--	--	--	--	--	29.9	0	23	8.2	8.6
Los Gatos	109	2	87	2	3	73	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
San Jose Central	126	5	86	3	3	66	2.8	2.2	0	64.0	14	0	4.9	1.8	0	19.5	47	0	0	41.5	3	30	8.8	10.1
San Martin	109	2	87	5	8	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Days over Standard		**8**		**9**	**11**				**0**			**0**			**0**			**0**	**2**		**6**			

* The Fremont site was closed on October 31, 2010; statistics are not available for all but the summer 2010 ozone season. The Berkeley site was closed on December 31, 2010 at the conclusion of a 3-year monitoring study. The San Pablo site was temporarily closed from March 2009 to May 2010 due to damage from a building fire. 2010 statistics are not available except for the summer peak ozone season. 3-year ozone statistics are not available. The Hayward site was temporarily closed in 2010 due to a major construction project adjacent to the site. Annual and 3-year average ozone statistics are not available. $PM_{2.5}$ monitoring began in San Rafael in October 2009. Three-year average $PM_{2.5}$ statistics are not available. A new site was opened in Cupertino on September 1, 2010 for a one-year monitoring study. Due to the brief period of monitoring in 2010, Cupertino data are not shown in this table.

(ppb) = parts per billion (ppm) = parts per million, ($\mu g/m^3$) = micrograms per cubic meter.

TABLE 3-3

Bay Area Air Quality Summary
Days over standards

YEAR	OZONE			CARBON MONOXIDE				NO_X	SULFUR DIOXIDE		PM10		PM2.5
	1-Hr	8-Hr	8-Hr*	1-Hr		8-Hr		1-Hr	24-Hr		24-Hr*		24-Hr**
	Cal	Cal	Nat	Nat	Cal	Nat	Cal	Cal	Nat	Cal	Nat	Cal	Nat
2001	15	-	7	0	0	0	0	0	0	0	0	10	5
2002	16	-	7	0	0	0	0	0	0	0	0	6	7
2003	19	-	7	0	0	0	0	0	0	0	0	6	0
2004	7	-	0	0	0	0	0	0	0	0	0	7	1
2005	9	9	1	0	0	0	0	0	0	0	0	6	0
2006	18	22	12	0	0	0	0	0	0	0	0	15	10
2007	4	9	1	0	0	0	0	0	0	0	0	4	14
2008	9	20	12	0	0	0	0	0	0	0	0	5	12
2009	11	13	8	0	0	0	0	0	0	0	0	1	11
2010	8	11	9	0	0	0	0	0	0	0	0	2	6

* Ozone exceedance days beginning in 2008 reflect new U.S.EPA standard of 0.075 ppm.
** PM2.5 exceedance days beginning in 2006 reflect new U.S.EPA standard of 35 $\mu g/m^3$.

Toxic Air Pollutants

The BAAQMD maintains a database that contains information concerning emissions of TACs from permitted stationary sources in the Bay Area. This inventory, and a similar inventory for mobile and area sources compiled by CARB, is used to plan strategies to reduce public exposure to TACs. The detailed concentrations of various TACs are reported in the BAAQMD, Toxic Air Contaminant Control Program, 2009 Annual Report (BAAQMD, 2012) and summarized in Table 3-4. The 2009 TAC data show decreasing concentrations of many TACs in the Bay Area. The most dramatic emission reductions in recent years have been for certain chlorinated compounds that are used as solvents including 1,1,1-trichloroethane, methylene chloride, and perchloroethylene. Table 3-4 contains a summary of ambient air toxics listed by compound.

TABLE 3-4

Summary of 2009 BAAQMD Ambient Air Toxics Monitoring Data

Compound	LOD (ppb)[1]	% of Samples < LOD[2]	Max. Conc. (ppb)[3]	Min. Conc. (ppb)[4]	Mean Conc. (ppb)[5]
1,3-butadiene	0.10	88	0.25	0.05	0.039
Acetaldehyde[6]	0.0344*	0	4.26*	0.31*	1.300*
Acetone	0.10	0	16.2	0.3	1.757
Acetonitrile[7]	0.12	29	3.36	0.06	0.726
Benzene	0.02	2	1.14	0.01	0.172
Carbon tetrachloride	0.01	0	0.15	0.09	0.095
Chloroform	0.01	48	0.09	0.005	0.021
Dichloromethane (MeCl)	0.10	45	2.00	0.05	0.155
Ethyl Alcohol[7]	0.39	0	70.6	4.5	15.894
Ethylbenzene	0.04	47	0.68	0.02	0.072
Ethylene dibromide	0.01	100	-	0.005	0.005
Ethylene dichloride	0.10	100	-	0.05	0.05
Formaldehyde[6]	0.0541*	0	5.53*	0.51*	0.054*
Freon 113 (CFC 113)	0.01	0	1.22	0.04	0.01
Methyl chloroform (1,1,1 TCE)	0.02	91	1.79	0.01	0.035
Methyl ethyl ketone	0.10	21	1.68	0.05	0.168
Tetrachloroethylene (Perc)	0.005	43	0.157	0.0025	0.013
Toluene	0.04	0	5.41	0.02	0.571
Trichloroethylene	0.01	90	0.16	0.005	0.009
Trichlorofluoromethane	0.01	0	0.68	0.06	0.283
Vinyl chloride	0.05	100	-	0.025	0.025
m/p-xylene	0.04	5	2.63	0.02	0.301
o-xylene	0.04	29	0.88	0.02	0.101

NOTES: Table 3-4 summarizes the results of the BAAQMD gaseous toxic air contaminant monitoring network for the year 2009. These data represent monitoring results at 19 sites at which samples were collected, except as indicated. Data from the Fort Cronkhite "clean-air" background site was not included. Acetone, ethyl alcohol, Freon 113 and trichlorofluoromethane are not toxic air contaminants, but are included in the monitoring network.

* Indicates concentration measured in $\mu g/m^3$.

(1) "LOD" is the limit of detection of the analytical method used.

(2) "% of samples < LOD" is the percent of the total number of air samples collected in 2003 that had pollutant concentrations less than the LOD.

(3) "Maximum Conc." is the highest daily concentration measured at any of the 19 monitoring sites.

(4) "Minimum Conc." is the lowest daily concentration measured at any of the 19 monitoring sites. Non-detects reported as one half the LOD concentration.

(5) "Mean Conc." is the arithmetic average of the air samples collected in 2003 at the 19 monitoring sites. One half the LOD (for minimum concentrations) was used to calculate the mean.

(6) Samples collected only at Berkeley and San Jose – Jackson Street stations.

(7) Samples collected only at San Jose – Jackson Street station.

Regulatory Background

Criteria Pollutants

At the federal level, the Clean Air Act (CAA) Amendments of 1990 gave the U.S. EPA additional authority to require states to reduce emissions of ozone precursors and particulate matter in non-attainment areas. The amendments set 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 is governed by a 22-member Board of Directors composed of publicly-elected officials apportioned according to the population of the represented counties. The Board has the authority to develop and enforce regulations for the control of air pollution within its jurisdiction. The BAAQMD is responsible for implementing emissions standards and other requirements of federal and state laws. It is also responsible for developing 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. All NESHAPs were to be promulgated by the year 2000. Specific incremental progress in establishing standards were to be made by the years 1992 (at least 40 source categories), 1994 (25 percent of the listed categories), 1997 (50 percent of remaining listed categories), and 2000 (remaining balance). The 1992 requirement was met; however, many of the four-year standards were not promulgated as scheduled. Promulgation of those standards has been rescheduled based on court ordered deadlines, or the aim to satisfy all Section 112 requirements in a timely manner.

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 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.

Facility Risk Reduction Plans: 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.

In addition to federal and State programs, BAAQMD implements a Toxics New Source Review Program, implemented through Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants. This program applies preconstruction permit review to new and modified sources of toxic air contaminants; contains project health risk limits and requirements for Toxics Best Available Control Technology. Also, in 2004, BAAQMD developed the Community Air Risk Evaluation Program (CARE) program to identify locations with high emissions of toxic air contaminants (TAC) and high exposures of sensitive populations to TAC and to use this information to help establish policies to guide mitigation strategies that obtain the greatest health benefit from TAC emission reductions. For example, BAAQMD will use information derived from the CARE program to develop and implement targeted risk reduction programs, including grant and incentive programs, community outreach efforts, collaboration with other governmental agencies, model ordinances, new regulations for stationary sources and indirect sources, and advocacy for additional legislation.

Discussion of Impacts

III a. Regulation 8-53 is a proposed new rule that would apply to vacuum trucks generally operating at specified industrial facilities located in the jurisdictional area of BAAQMD. The objectives of the proposed rule is to implement SSM-5 from the Bay Area 2010 Clean Air Plan in order to help reduce ozone emissions from vacuum trucks, thus, tightening organic compound emission limits to further reduce ozone concentrations in the Bay Area. Because the proposed new rule would directly implement a control measure in the 2010 Clean Air Plan, the proposed project is in compliance with the local air quality plan and is expected to provide beneficial impacts associated with reduced ozone concentrations in the Bay Area.

III b and c. Currently, the District does not regulate vacuum truck emissions. The District committed to investigating this type of equipment in Control Measure SSM-5 of the District's Bay Area 2010 Clean Air Plan, which sets forth a plan to achieve the California ozone standards as well as other air quality objectives. The proposed limits would be consistent with the only current California air quality regulation – South Coast Air Quality Management District (SCAQMD) Rule 1149 – which limits organic vapor emissions from vacuum truck operations. Whereas SCAQMD Rule 1149 limits VOC emissions from vacuum trucks that are involved with the cleaning or degassing of storage tanks and pipelines, Regulation 8, Rule 53 would limit organic vapor emissions, including methane, from specific types of industrial facilities that utilize the services of vacuum truck operations.

Controlling Organic Vapor Emissions

The organic vapor emissions generated from vacuum truck operations may be minimized by utilizing external positive displacement, submersible or diaphragm pumps. While these pumps may not load liquid and sludge materials into the barrel of a vacuum truck as quickly as the truck itself, they minimize the agitation of the liquid and sludge which decreases vapor emissions. The drawback to these methods of loading materials is the extra time it takes to complete the loading event.

Once vapors are generated, a variety of technologies are available to limit organic emissions. Most of them can achieve capture and control efficiencies that are greater than 95 percent. Technologies include carbon adsorption systems, internal combustion engines, thermal oxidizers, refrigerated condensers and liquid scrubbers. Sometimes these technologies are combined as in the case of an engine/chiller or carbon/scrubber.

Vacuum trucks are used by a variety of Bay Area industries to remove materials from storage tanks, vessels, boxes, and pipelines; to transfer materials from one container to another; and, to transport materials from one location to another such as a landfill or processing facility. Vacuum trucks are also used to clean equipment such as barges and to clean up spills. The types of industries that utilize vacuum truck services include petroleum refineries, marine terminals, industrial wharfs, gasoline dispensing facilities, gasoline bulk terminals, gasoline bulk plants, gasoline cargo tanks, gas well and oil well fields, railcar loading facilities, soil remediation projects, truck loading racks, auto dismantlers, and pipelines that deliver gasoline, natural gas, crude oil, petroleum products, and ethanol.

Based on approximately 32 source tests that have been conducted thus far, the emission rates have ranged from very few to over 600 pounds per hour per loading event. Emission rates depend on material vapor pressure, material flow rate into the vacuum truck barrel, ambient temperature, and other factors as well, including the diameter and length of hose the material travels through. In Control Measure SSM-5, the District estimated potential emission reductions for the control measure to be up to six tons per day. As a result of the source testing and throughput information that staff was able to gather, vacuum truck emissions are estimated to be 1.50 tons per day from the targeted facilities.

A detailed description potential control technologies can be found in Chapter 2, under the Proposed Method of Control Section. The overall impact of the proposed Regulation 8-53 is a decrease in organic emissions including methane. Therefore, no air quality standard is expected to be violated, and no contribution is expected to be made to an existing or projected air quality violation.

CEQA Guidelines indicate that cumulative impacts of a project shall be discussed when the project's incremental effect is cumulatively considerable, as defined in CEQA Guidelines §15065(c). The overall impact of the proposed Regulation 8-53 is a decrease in organic emissions, including methane, and an associated decrease in ozone concentrations. Therefore, the cumulative air quality impacts of the proposed new rule are expected to be beneficial.

III d. Vacuum truck operations are expected to comply with the proposed Regulation 8-53 by adding control and monitoring equipment. No new waste streams are expected to be involved in loading events as a result of the proposed new rule. Disposal of materials involved in loading events will continue to be processed as they are currently. As a result, no increase in exposure of sensitive receptors to substantial pollutant concentrations is anticipated as a result of the proposed project. Additionally, the organic reductions associated with the proposed Regulation 8-53 will also lead to a reduction in TAC emissions throughout the Bay Area. Reductions in both organics and TACs will actually reduce exposure of sensitive receptors to pollutant concentrations. Therefore, no significant impacts associated with Regulation 8-53 are expected.

III e. The proposed project is not expected to result in an increase in odors. The proposed Regulation 8-53 proposes to minimize organic emissions from vacuum truck operation. Affected vacuum truck operations are expected to comply by installing control and monitoring equipment to existing vacuum trucks. The control and monitoring equipment added to vacuum trucks will reduce organic and methane emissions, and will not change the fuel source or result in odors produced during loading events.

Based upon these considerations, no significant adverse air quality impacts are expected from the implementation of the proposed new rule. In fact, the proposed Regulation 8-53 is expected to provide beneficial air quality impacts by reducing organic and methane emissions and subsequent formation of ozone.

		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 areas affected by the proposed rule are located in the Bay Area-Delta Bioregion (as defined by the State's Natural Communities Conservation Program). This Bioregion is comprised of a variety of natural communities, which range from salt marshes to chaparral to oak woodland. The areas affected by the proposed new rule are located within the boundaries of existing facilities within the Bay Area. The affected areas have been graded to develop various permanent structures. Native vegetation, other than landscape vegetation, has generally been removed from areas to minimize safety and 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 new rule which would apply to existing facilities. Existing vacuum trucks affected by the proposed Regulation 8-53 will operate within existing industrial facilities which do not typically include sensitive biological species. The facilities have been graded and developed, and biological resources, with the exception of landscape species, have been removed. No construction activities are expected and no new permanent structures are expected to be required as a result of proposed Regulation 8-53.

Based upon these considerations, no significant adverse impacts to biological resources are expected from the implementation of the proposed Regulation 8-53.

		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 § 15064.5?	☐	☐	☐	☑
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☐	☑
c)	Directly of indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☑
d)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☑

Setting

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 which might have historical architectural, archaeological, cultural, or scientific importance.

The Carquinez Strait represents the entry point for the Sacramento and San Joaquin Rivers into the San Francisco Bay. This locality lies within the San Francisco Bay and the west end of the Central Valley archaeological regions, both of which contain a rich array of prehistoric and historical cultural resources. The areas surrounding the Carquinez Strait and Suisun Bay have been occupied for millennia given their abundant combination of littoral and oak woodland resources.

The petroleum refineries, marine terminals, gasoline bulk terminals, gasoline bulk plants and pipelines affected by the proposed new rule are existing facilities within the Bay Area. These facilities have already been graded to develop and are typically surrounded by other industrial uses. Cultural resources are generally not located within these areas.

Regulatory Background

The State CEQA Guidelines define a significant cultural resource as a "resource listed or eligible for listing on the California Register of Historical Resources" (Public Resources Code Section 5024.1). A project would have a significant impact if it would cause a substantial adverse change in the significance of a historical resource (State CEQA Guidelines Section 15064.5(b)). A substantial adverse change in the significance of a historical resource would result from an action that would demolish or adversely alter the physical characteristics of the historical resource that convey its historical significance and that qualify the resource for inclusion in the 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 Regulation 8-53 which would apply to vacuum trucks operating within the Bay Area. The vacuum trucks affected by the proposed new rule already exist and are typically operated within the confines of existing facilities. Any modifications to existing equipment and any new equipment would be installed or modified on existing or new vacuum trucks and operate in existing facilities. The existing areas have been graded and developed. No new construction would be required outside of the existing facility boundaries due to the adoption of the proposed Regulation 8-53. Therefore, no significant adverse impacts to cultural resources are expected due to the proposed Regulation 8-53.

Based upon these considerations, no significant adverse impacts to cultural resources are expected from the implementation of the proposed Regulation 5-53.

		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:				
i)	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 know fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☑
ii)	Strong seismic ground shaking?	☐	☐	☐	☑
iii)	Seismic-related ground failure, including liquefaction?	☐	☐	☐	☑
iv)	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 new rule are located primarily in industrial areas within the Bay Area.

The affected petroleum refineries, marine terminals, gasoline bulk terminals, gasoline bulk plants and pipelines 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 inter-fingered with siltstone and shale. Unconsolidated alluvial deposits, artificial fill, and estuarine deposits, (including Bay Mud) underlie the low-lying region along the margins of the Carquinez Straight and Suisun Bay. The estuarine sediments found along the shorelines of Solano County are soft, water-saturated mud, peat and loose sands. The organic, soft, clay-rich sediments along the San Francisco and San Pablo Bays are referred to locally as Bay Mud and can present a variety of engineering challenges due to inherent low strength, compressibility and saturated conditions. Landslides in the region occur in weak, easily weathered bedrock on relatively steep slopes.

The San Francisco Bay Area is a seismically active region, which is situated on a plate boundary marked by the San Andreas Fault System. Several northwest trending active and potentially active faults are included with this fault system. Under the Alquist-Priolo Earthquake Fault Zoning Act, Earthquake Fault Zones were established by the California Division of Mines and Geology along “active” faults, or faults along which surface rupture occurred in Holocene time (the last 11,000 years). In the Bay area, these faults include the San Andreas, Hayward, Rodgers Creek-Healdsburg, Concord-Green Valley, Greenville-Marsh Creek, Seal Cove/San Gregorio and West Napa faults. Other smaller faults in the region classified as potentially active include the Southampton and Franklin faults.

Ground movement intensity during an earthquake can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geological material. Areas that are underlain by bedrock tend to experience less ground shaking than those underlain by unconsolidated sediments such as artificial fill. Earthquake ground shaking may have secondary effects on certain foundation materials, including liquefaction, seismically induced settlement, and lateral spreading.

Regulatory Background

Construction is regulated by the local City or County building codes that provide requirements for construction, grading, excavations, use of fill, and foundation work including type of materials, design, procedures, etc. which are intended to limit the probability of occurrence and the severity of consequences from geological hazards. Necessary permits, plan checks, and inspections are generally required.

The City or County General Plan includes the Seismic Safety Element. The Element serves primarily to identify seismic hazards and their location in order that they may be taken into account in the planning of future development. The Uniform Building Code is the principle mechanism for protection against and relief from the danger of earthquakes and related events.

In addition, the Seismic Hazard Zone Mapping Act (Public Resources Code §§2690 – 2699.6) was passed by the California legislature in 1990 following the Loma Prieta earthquake. The Act required that the California Division of Mines and Geology (DMG) develop maps that identify the areas of the state that require site specific investigation for earthquake-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. The vacuum trucks affected by the proposed rule already exist and operate within the confines of existing industrial facilities in the Bay Area. No new construction activities are expected to be required as a result of adopting the proposed Regulation 8-53, rather, existing and new vacuum trucks would need to be upgraded or put into service incorporating new control equipment. No new permanent structures are expected to be required as a result of the new rule. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. Any new construction at industrial facilities being serviced by vacuum trucks regulated by the new rule will be constructed in compliance with the Uniform Building Code. The goal of the code is to provide structures that will: (1) resist minor earthquakes without damage; (2) resist moderate earthquakes without structural damage, but with some non-structural damage; and (3) resist major earthquakes without collapse, but with some structural and non-structural damage. The Uniform Building Code bases seismic design on minimum lateral seismic forces ("ground shaking"). The Uniform Building Code requirements operate on the principle that providing appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represent the foundation conditions at the site.

Any new development at facilities being serviced by vacuum trucks regulated by the new rule would be required to obtain building permits, as applicable, for new structures at any site. The issuance of building permits from the local agency will assure compliance with the Uniform Building Code requirements which include requirements for building within seismic hazard zones. No significant impacts from seismic hazards are expected since no new development is required due to implementation of the proposed Regulation 8-53.

VI b. No new significant construction activities would be required due to the adoption of Regulation 8-53. Vacuum trucks affected by the proposed new rule already exist and operate within the confines of existing industrial facilities. No new construction or new permanent structures are expected as a result

of the proposed new rule. Therefore, the proposed Regulation 8-53 is not expected to result in substantial soil erosion or the loss of topsoil as no major construction activities would be required.

VI c – e. The vacuum trucks affected by the proposed new rule already exist and are operated within the confines of existing industrial facilities so no major construction activities are expected. No new structures are expected to be required as a result of the proposed new rule. Since the industrial facilities already exist, no construction activities are expected to occur on a geologic unit or soil that is unstable or that would become unstable, or potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse. Likewise, no structure would be constructed on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property. Compliance with the Uniform Building Code would minimize the impacts associated with existing geological hazards. If construction were to occur at industrial facilities serviced by the vacuum trucks affected by the proposed new rule, it would not affect 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, as the proposed rule has no impact on wastewater treatment/disposal systems. Therefore, no adverse significant impacts to geology and soils are expected due to the proposed Regulation 8-53.

Based upon these considerations, no significant geology and soils impacts are expected from the implementation of the proposed new rule.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GREENHOUSE GAS EMISSIONS.				
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	☑
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☑

Setting

Global climate change refers to changes in average climatic conditions on the earth as a whole, including temperature, wind patterns, precipitation and storms. Global warming, a related concept, is the observed increase in the average temperature of the earth's surface and atmosphere. One identified cause of global warming is an increase of greenhouse gases (GHGs) in the atmosphere. The six major GHGs identified by the Kyoto Protocol are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), haloalkanes (HFCs), and perfluorocarbons (PFCs). The GHGs absorb longwave radiant energy reflected by the earth, which warms the atmosphere. GHGs also radiate longwave radiation both upward to space and back down toward the surface of the earth. The downward part of this longwave radiation absorbed by the atmosphere is known as the "greenhouse effect." Some studies indicate that the potential effects of global climate change may include rising surface temperatures, loss in snow pack, sea level rise, more extreme heat days per year, and more drought years.

Events and activities, such as the industrial revolution and the increased combustion of fossil fuels (e.g., gasoline, diesel, coal, etc.), have heavily contributed to the increase in atmospheric levels of GHGs. The GHG inventory for California is presented in Table 3-5 (CARB, 2007 and CARB, 2009). Approximately 80 percent of GHG emissions in California are from fossil fuel combustion and over 70 percent of GHG emissions are carbon dioxide emissions (see Table 3-5).

TABLE 3-5

California GHG Emissions and Sinks Summary
(Million Metric Tons CO2 Equivalent)

Categories Included in the Inventory	1990 (1)	2006 (2)
ENERGY	**386.41**	**419.32**
Fuel Combustion Activities	**381.16**	**414.03**
Energy Industries	157.33	160.82
Manufacturing Industries & Construction	24.24	19.03
Transport	150.02	184.78
Other Sectors	48.19	49.41
Non-Specified	1.38	2.16
Fugitive Emissions from Fuels	**5.25**	**5.28**
Oil and Natural Gas	2.94	3.25
Other Emissions from Energy Production	2.31	2.03
INDUSTRIAL PROCESSES & PRODUCT USE	**18.34**	**30.22**
Mineral Industry	4.85	5.92
Chemical Industry	2.34	0.37
Non-Energy Products from Fuels & Solvent Use	2.29	1.85
Electronics Industry	0.59	0.77
Product Uses as Substitutes for Ozone Depleting Substances	0.04	13.38
Other Product Manufacture & Use Other	3.18	1.67
Other	5.05	6.25
AGRICULTURE, FORESTRY, & OTHER LAND USE	**19.11**	**25.10**
Livestock	11.67	15.68
Land	0.19	0.19
Aggregate Sources & Non-CO_2 Emissions Sources on Land	7.26	9.24
WASTE	**9.42**	**9.23**
Solid Waste Disposal	6.26	6.31
Wastewater Treatment & Discharge	3.17	2.92
EMISSION SUMMARY		
Gross California Emissions	**433.29**	**483.87**
Sinks and Sequestrations	**-6.69**	**-4.07**
Net California Emissions	**426.60**	**479.80**

Source: (1) CARB, 2007.
(2) CARB, 2009.

Regulatory Background

In response to growing scientific and political concern regarding global climate change, California has adopted a series of laws to reduce both the level of GHGs in the atmosphere and to reduce emissions of GHGs from commercial and private activities within the state. In September 2002, Governor Gray Davis signed Assembly Bill (AB) 1493, requiring the development and adoption of regulations to achieve "the maximum feasible reduction of greenhouse gases" emitted by non-commercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the State. Setting emission standards on automobiles is normally the responsibility of the U.S. EPA. The Federal Clean Air Act, however, allows California to set a state-specific emission standard on automobiles if it first obtains a waiver from the U.S. EPA. On March 6, 2008 the U.S. EPA denied California's request

for a waiver. In response, California sued the U.S. EPA claiming that the denial was not based on the scientific data. Subsequently, U.S. EPA has granted the request by California for a waiver of Clean Air Act preemption for California's greenhouse gas emission standards for 2009 and later model years of new motor vehicles, which was adopted the CARB on September 24, 2004.

In June 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05, which established GHG emissions reduction targets for the state, as well as a process to ensure that the targets are met. As a result of this executive order, the California Climate Action Team (CAT), led by the Secretary of the California State Environmental Protection Agency (CalEPA), was formed. The CAT published its report in March 2006, in which it laid out several recommendations and strategies for reducing GHG emissions and reaching the targets established in the Executive Order.

The greenhouse gas targets are:

- By 2010, reduce to 2000 emission levels;
- By 2020, reduce to 1990 emission levels; and,
- By 2050, reduce to 80 percent below 1990 levels.

In September 2006, Governor Schwarzenegger signed California's Global Warming Solutions Act of 2006 (AB32). AB32 will require CARB to:

- Establish a statewide GHG emissions cap for 2020, based on 1990 emissions, by January 1, 2008;
- Adopt mandatory reporting rules for significant sources of GHG emissions by January 1, 2008;
- Adopt an emissions reduction plan by January 1, 2009, indicating how emissions reductions will be achieved via regulations, market mechanisms, and other actions; and,
- Adopt regulations to achieve the maximum technologically feasible and cost-effective reductions of GHGs by January 1, 2011.

SB1368, a companion bill to AB32, requires the CPUC and the CEC to establish GHG emission performance standards for the generation of electricity, whether generated inside the State, or generated outside, and then imported into California. SB1368 provides a mechanism for reducing the emissions of electricity providers, thereby assisting CARB to meet its mandate under AB32. On January 25, 2007, the CPUC adopted an interim GHG Emissions Performance Standard (EPS), which is a facility-based emissions standard requiring that all new long-term commitments for baseload generation to serve California consumers be with power plants that have GHG emissions no greater than a combined cycle gas turbine plant. That level is established at 1,100 pounds of CO_2 per megawatt-hour (MW-hr). Further, on May 23, 2007, the CEC adopted regulations that establish and implement an EPS of 1,100 pounds of CO_2 per MW-hr (see CEC order No. 07-523-7).

SB97, passed in August 2007, is designed to work in conjunction with CEQA and AB32. SB97 required the California Office of Planning and Research (OPR) to prepare and develop guidelines for the mitigation of GHG emissions or the effects thereof, including but not limited to, effects associated with transportation and energy consumption. These guidelines were required to be transmitted to the Resources Agency by July 1, 2009, and certified and adopted by January 1, 2010. The guidelines became effective March 18, 2010. The OPR and the Resources Agency shall periodically update these guidelines to incorporate new information or criteria established by CARB pursuant to AB32.

In 2008, Governor Schwarzenegger signed the Sustainable Communities and Climate Protection Act (SB375). SB375 is intended as a companion measure to attain the goals of AB32. SB375 requires CARB to develop regional greenhouse gas emission reduction targets for passenger vehicles. CARB is to establish targets for 2020 and 2035 for each region covered by one of the State's 18 metropolitan planning organizations (MPO). Each of these 18 MPOs then prepare a "sustainable communities strategy (SCS)" that demonstrates how that region will meet its greenhouse gas reduction target through integrated land use, housing and transportation planning. Once adopted by the MPO, the SCS will be incorporated into that region's federally enforceable regional transportation plan.

There has also been activity at the Federal level on the regulation of GHGs. In *Massachusetts v. Environmental Protection Agency* (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the U.S. EPA have authority to regulate greenhouse gases, but that the U.S. EPA's reasons for not regulating greenhouse gases did not fit the statutory requirements. The U.S. Supreme Court ruled that CO_2 and other greenhouse gases are pollutants under the Clean Air Act, which U.S. EPA must regulate if it determines they pose an endangerment to public health or welfare. On October 30, 2009, the U.S. EPA issued 40 CFR Part 98, which requires reporting of greenhouse gas (GHG) emissions from large sources and suppliers in the United States. Under Part 98, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to EPA, with abbreviated report required in 2011 (for 2010 emissions), and full reporting in 2012 (for 2011 emissions). Part 98 became effective December 29, 2009.

The BAAQMD has established GHG CEQA significance thresholds as follows:

- For land use development projects, the threshold is compliance with a qualified GHG reduction strategy; or annual emissions less than 1,100 metric tons per year (MT/yr) of carbon dioxide equivalent emissions (CO_2e); or 4.6 MT CO_2e/SP/yr.
- For stationary-source projects, the threshold is 10,000 MT/yr of CO_2e.
- For regional plans (transportation and air quality plans), no net increase in GHG emissions.

Discussion of Impacts

VII a – b. Regulation 8-53 is part of a comprehensive ongoing regulatory program that includes implementing related 2010 CAP control measures or new rules to attain and maintain with a margin of safety state and national ambient air quality standards ozone and particulate matter in all areas within the jurisdiction of the BAAQMD. The 2010 CAP included SSM-5 which was intended to reduce emissions

from vacuum trucks by imposing organic and methane emission limits to further reduce ozone concentrations. Regulation 8-53 would implement SSM-5 from the 2010 CAP.

The 2010 CAP includes measure to reduce GHG emissions and estimates that implementation of the 2010 CAP would result in a reduction of over 15,000 metric tons per day or over 5 million metric tons per year (BAAQMD, 2010). Therefore, implementation of Regulation 8-53 in connection with other 2010 CAP measures is not considered to be cumulatively significant.

Regulation 8-53 would control total organic emissions, including methane. Methane is a significant GHG that has over 20 times the global warming potential of CO_2 and is typically present in certain materials loaded into vacuum trucks. Because methane is within the definition of TOCs and is subject to the 500 ppmv emission limit proposed to be included in Regulation 8-53, compliance with the limit will reduce methane emissions to the extent that methane is present in controlled materials.

The control method most often used for compliance with Regulation 8-53 is expected to be positive displacement pumps to slow down the transfer of material and minimize the generation of organic vapors. Positive displacement pumps would be operated in much the same manner as current loading operations. While loading operations may take a longer period of time, organic emissions, including methane, would be reduced under the proposed regulation. Therefore, the use of positive displacement pumps is not expected to generate GHG emissions. The use of positive displacement pumps may reduce the generation of GHG emissions. The use of a vacuum truck's blower to generate a vacuum to draw the material into the truck's barrel is an energy intensive process. The use of an auxiliary piece of equipment such as a positive displacement pump to push material into the barrel is expected to be less energy intensive, resulting in fewer GHG emissions.

Regulation 8-53 could also result in the use of additional emission control technologies, some of which could generate GHG emissions. Carbon adsorption could be used for loading events of short duration or when hydrocarbon-containing materials were loaded using low flow rates. High concentrations of organic compounds could overwhelm carbon adsorption systems. The use of carbon adsorption is not expected to require a significant amount of energy and it is expected that it would be operated using the truck engines, as is the current practice. Therefore, no significant increase in GHG emissions would be expected.

It is expected that the use of other emission control strategies, e.g., thermal oxidizers, and refrigerated condenser systems would be used less frequently and during high organic concentration loading events. Even though condensation technology emits a small amount of GHG emissions from the energy source used to generate the cold temperatures needed to condense organic vapor streams, this technology has the potential to emit the least amount of GHG emissions of all the organic control technologies. This is because the vapors that are condensed can be recycled. The recycling of organic vapors would offset the potential GHG emissions generated during the condensation process. Similarly, thermal oxidizers would generate small amounts of GHG emissions from the energy source. However, they would control TOC emissions, including methane, reducing the amount of GHG emissions from loading events.

A variety of emission control technologies could be used to comply with Regulation 8-53. Those technologies that are expected to be most commonly used are not expected to generate significant quantities of GHG emissions. Further, Regulation 8-53 is expected to reduce organic emissions, including methane emissions, from truck loading events. Any GHG emissions increases associated with control equipment is

expected to be offset by the reduction in emissions from vacuum truck loading operations. Therefore, implementation of Regulation 8-53 is not expected to result in a significant increase in GHG emissions.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII.	**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 § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☑
e)	For a project 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)	For a project 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 residences are intermixed with wildlands?	☐	☐	☑	☐

Setting

The affected petroleum refineries, marine terminals, gasoline bulk terminals, gasoline bulk plants and pipelines 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 handling such materials are a function of the materials being processed, processing systems, and procedures used to operate and maintain the facilities where they exist. 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 or vessel 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 and the potential impacts associated with exposure. Exposure to thermal radiation would result in burns, the severity of which would depend on the intensity of the fire, the duration of exposure, and the distance of an individual to the fire.

- **Explosion/Overpressure:** Process vessels containing flammable explosive vapors and potential ignition sources are present at many types of industrial facilities. Explosions may occur if the flammable/explosive vapors came into contact with an ignition source. An explosion could cause impacts to individuals and structures in the area due to overpressure.

For all affected facilities, 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 operations at each facility are unique and determined by a variety of factors. The areas affected by the proposed rule are typically located in industrial areas.

Regulatory Background

There are many federal and state rules and regulations that facilities handling hazardous materials 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.

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.

Affected facilities 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 business 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 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 considers human factors as part of process hazards analyses, incident investigations, training, operating procedures, among others.

Discussion of Impacts

VII a - c. It is expected that the proposed Regulation 8-53 will lead to a reduction in organic and methane emissions from existing vacuum trucks operated at affected petroleum refineries, marine terminals, gasoline bulk terminals, gasoline bulk plants and pipelines, thus reducing ozone emissions. Control and monitoring equipment will be incorporated in vacuum truck operations and the impact of the proposed new rule is expected to be a reduction in organic emissions, including methane, generated during vacuum truck loading operations.

The ignitability or explosivity of a gas or vapor is limited by its concentration in the air. The concentration at which a gas or vapor may ignite or explode is bounded by two explosive limits: the upper and lower explosive limits. Above the upper explosive limit, there is not enough oxygen to ignite the gas or vapor. Below the lower explosive limit, the gas or vapor concentration is too low to burn or explode.

Currently, the vapors/gasses from vacuum truck loading events are vented to the atmosphere, and higher vapor/gas concentrations are allowed to escape than would be allowed under Regulation 8-53. Regulation 8-53 may lengthen the time required to load vacuum trucks using positive displacement pumps. The increase loading time would reduce the amount of organic emissions generated, thus reducing the possible explosive of flammability hazards associated with vacuum truck loading operations. Therefore, Regulation 8-53 could reduce hazards for vacuum truck loading events.

Carbon adsorption systems are expected to be a common method for compliance with Regulation 8-53. When carbon adsorption systems are used to control emissions from loading events with materials that have high organic concentration, there is a risk of spontaneous combustion due to temperature increases. All adsorption is exothermic, meaning that the adsorption process releases heat, causing the temperature in the carbon bed to rise. When high concentrations of organic vapors are adsorbed on activated carbon at a high flow rate, the temperature of the carbon bed can increase to a level at which the carbon or the organic vapors spontaneously ignite, starting a fire in the carbon vessel. Carbon adsorption is expected to be used for loading events of short duration or when hydrocarbon-containing materials were loaded using low flow rates, as the technology, is generally not appropriate when high organic concentrations are present.

Regulation 8-53 could involve the combustion of organic emissions, including air toxics, using propane-fired thermal oxidizers or Internal Combustion Engines (ICEs). The accidental release of propane could result in adverse hazard impacts. Since the probability of accidents is related to the miles traveled, there would be an increase in probability of hazards from an accidental release of propane. However, the national truck accident rate is small (on the order of one accident per ten million miles traveled) and the accident rate with chemical releases is even less, so this would not be a significant risk factor.

In case of a rupture, there is the potential for the gas to pool and boil off. This presents the possibility of a boiling liquid, vapor cloud explosion, and fire with potential consequences to nearby structures, storage tanks, pipelines, etc., and off-site receptors. Propane vapors are heavier than air, so that leaks

from the fuel system tend to pool at ground level rather than disperse. Propane is a non-toxic gas. High propane concentrations reduce oxygen levels that may cause asphyxiation, with early symptoms of dizziness. No harmful long-term effects have been reported from exposure to propane vapors. An odorant added to propane generally enables its detection at concentrations that are below the lower flammability limit and substantially below the concentrations needed for asphyxiation.

Propane has a narrow range of flammability compared to other transportation fuels. The fuel will only burn within a fuel-to-air ratio between 2.2 percent and 9.6 percent. Propane will rapidly dissipate beyond its flammability range in the open atmosphere. Propane fuel leaks can pose a significant explosion hazard relative to gasoline in enclosed areas. Since propane would be used for combusting organic compounds from vacuum truck loading events, it is expected that this operation would occur in an open area.

Since the accident release risk of propane is low and propane is likely to dissipate into the atmosphere, the adverse hazard risk from Regulation 8-53 is expected to be less than significant. By better control of TOCs under the proposed Regulation 8-53, the possibility of an explosion or fire caused by the uncontrolled release of vapors would be reduced. Therefore, no significant new hazard impacts are expected.

VII d. No impacts on hazardous material sites are anticipated from the proposed new rule that would typically apply to existing petroleum refineries, marine terminals, gasoline bulk terminals, gasoline bulk plants and pipeline operations. Some of the affected areas may be located on the hazardous materials sites list pursuant to Government Code Section 65962.5. Regulation 8-53 is expected to reduce organic emissions from vacuum truck loading operations. As a result, Regulation 8-53 is not expected to adversely affect any facilities included on a list of hazardous materials sites and therefore, would not create a significant hazard to the pubic or environment. Vacuum trucks already exist and are operated within the confines of existing industrial facilities. The proposed new rule neither requires, nor is 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. Regulation 8-53 is not expected to result in a safety hazard for people residing or working within two miles or a public airport or air strip. No impacts on airports or airport land use plans are anticipated from the proposed new rule which would apply to vacuum trucks operating in the Bay Area. Any changes required by the proposed rule are expected to be made with the existing fleet of vacuum trucks which operate within the confines of the existing industrial facilities. No development is expected to be required as a result of implementing Regulation 8-53. Therefore, no significant adverse impacts on an airport land use plan or on a private air strip are expected.

VII g. No impacts on emergency response plans are anticipated from the proposed new rule that would apply to existing petroleum refineries, marine terminals, gasoline bulk terminals, gasoline bulk plants and pipelines facilities. The vacuum trucks affected by the proposed new rule already exist and operate within the confines of existing industrial facilities. The proposed new rule neither requires, nor is likely to result in, activities that would impact the emergency response plan. Some of the existing industrial facilities affected by the proposed new rule already store and transport hazards materials, so emergency response plans already include hazards associated with hazardous events that would apply under

different circumstances. Therefore, no significant adverse impacts on emergency response plans are expected.

VII h. No increase in hazards associated with wildfires is anticipated from the proposed new rule. The vacuum trucks affected by the proposed rule already exist and are operated within the confines of existing industrial facilities. Native vegetation has been removed from the operating portions of the affected facilities to minimize fire hazards. Regulation 8-53 is not expected to increase the risk of fire hazard in general and specifically in areas with flammable materials. Therefore, Regulation 8-53 would not expose people or structures to significant risk of loss, injury or death involving wildland fires.

Based upon these considerations, no significant adverse hazards and hazardous materials impacts are expected from the implementation of the proposed Regulation 8-53.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. 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 petroleum refineries, marine terminals, gasoline bulk terminals, gasoline bulk plants and pipelines affected by the proposed new rule are located throughout the Bay Area. Affected areas are generally surrounded by other industrial or commercial facilities. Reservoirs and drainage streams are located throughout the area and discharge into the Bays. Marshlands incised with numerous winding tidal channels containing brackish water are located throughout the Bay Area.

The affected areas 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, which have been updated in 2005 as the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California. 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 constituent parts, including Carquinez Strait and Suisun Bay, fall under this category.

The San Francisco Bay Basin Plan identifies the: (1) beneficial water uses that need to be protected; (2) the water quality objectives needed to protect the designated beneficial water uses; and (3) strategies and time schedules for achieving the water quality objectives. The beneficial uses of the Carquinez Strait that must be protected which include water contact and non-contact recreation, navigation, ocean commercial and sport fishing, wildlife habitat, estuarine habitat, fish spawning and migration, industrial process and service supply, and preservation of rare and endangered species. The Carquinez Strait and Suisun Bay are included on the 1998 California list as impaired water bodies due to the presence of chlordane, copper, DDT, diazinon, dieldrin, dioxin and furan compounds, mercury, nickel, PCBs, and selenium.

Discussion of Impacts

VIII a, f. No significant adverse impacts on hydrology and water quality resources are anticipated from the proposed new rule, which would apply to vacuum trucks operating within existing industrial facilities. The proposed new rule is not expected to require additional water use and no increase in wastewater discharge is expected. Therefore, no violation of any water quality standards or waste discharge requirements, and no decrease in water quality is expected from the proposed Regulation 8-53.

VIII b. The vacuum trucks affected by the proposed Regulation 8-53 already exist and are operated within the confines of existing petroleum refineries, marine terminals, gasoline bulk terminals, gasoline bulk plants and pipeline facilities. The 2010 CAP EIR addressed the impacts of control measures on water demand. The proposed Regulation 8-53 is not expected to require additional water use. The control technologies for vacuum trucks do not require additional use of water. Therefore, the proposed new rule is not expected to deplete groundwater supplies or interfere with groundwater recharge. Therefore, no significant impacts on groundwater supplies are expected due to the proposed Regulation 8-53.

VIII c - f. Vacuum truck operators are expected to comply with the proposed Regulation 8-53 in the form of installing control equipment. The affected equipment is typically operated in industrial areas, where storm water drainage has been controlled and no new construction activities outside of the existing industrial facilities is expected to be required. Therefore the proposed new rule is not expected to substantially alter the existing drainage or drainage patterns, result in erosion or siltation, alter 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. Materials collected and processed by vacuum trucks are disposed of at designated facilities based on the nature of the product being handled. Additionally, the proposed rule is not expected to 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. The proposed Regulation 8-53 is not expected to substantially degrade water quality. Therefore, no significant adverse impacts to storm water runoff are expected.

VIII g – i. The vacuum trucks affected by the proposed new rule are operated within industrial areas. No major construction activities outside the boundaries of existing facilities are expected due to the adoption of the proposed Regulation 8-53. Petroleum refineries, marine terminals, gasoline bulk terminals, gasoline bulk plants and pipelines are generally located to avoid flood zone areas and other areas subject to flooding. Further, storm water is controlled and collected onsite for analysis and subsequent discharge at such facilities. The proposed new rule is not expected to require any substantial construction activities, place any additional structures within 100-year flood zones, or other areas subject to flooding. Therefore, no significant adverse impacts due to flooding are expected.

VIII j. The petroleum refineries, marine terminals, gasoline bulk terminals, gasoline bulk plants and pipelines affected by the proposed new rules are located within industrial areas. No major construction activities are expected outside of the boundaries of the existing facilities due to the adoption of the proposed Regulation 8-53. The proposed new rule is not expected to place any additional structures within areas subject to inundation by seiche, tsunami or mudflow. Therefore, no significant adverse impacts on hydrology/water due to seiche, tsunami or mudflow are expected as a result of the proposed new rule.

Based upon these considerations, no significant adverse hydrology and water quality impacts are expected from the implementation of the proposed Regulation 8-53.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
X.	**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 facilities affected by the proposed new rule are primarily located in industrial areas throughout the Bay Area.

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. The vacuum trucks affected by the proposed new rule already exist and are operated within the confines of existing industrial facilities. The operators of vacuum trucks in the Bay Area are expected to comply with Regulation 8-53 by upgrading or installing control equipment. These changes are expected to be made to existing and new vacuum trucks. No new permanent structures are expected to be required as a result of Regulation 8-53. No new construction outside of the confines of the existing industrial facilities is expected to be required due to the adoption of the proposed new rule.

Based upon these considerations, no significant adverse land use impacts are expected from the implementation of the proposed Regulation 8-53.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI.	**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 Regulation 8-53 are primarily located in industrial areas within the Bay Area.

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. The vacuum trucks affected by the proposed new rule operate within the confines of existing facilities. Any new vacuum trucks and control equipment are expected to operate at similar facilities. The proposed new rule is not associated with any action that would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. Therefore, no impacts on mineral resources are expected.

Based upon these considerations, significant mineral resource impacts are not expected from the implementation of the proposed rule.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII.	**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 ground-borne vibration or ground-borne noise levels?	☐	☐	☐	☑
c)	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☑
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☑
e)	For a project 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)	For a project 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 facilities affected by the proposed new rule are located in industrial areas of the Bay Area, which are surrounded by other industrial or commercial 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 Plans 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-d. The petroleum refineries, marine terminals, gasoline bulk terminals, gasoline bulk plants and pipelines affected by the proposed new rule already exist and are primarily located in industrial areas. The proposed new rule imposes limits on organic emissions from vacuum trucks operating in such facilities. Compliance will be achieved in the form of control and monitoring equipment operating in conjunction with vacuum trucks. The primary method of control is expected to be the use of positive displacement pumps, followed by carbon adsorption equipment. These control methods are not expected to create greater noise levels than currently exist in vacuum truck loading operations.

The existing noise environment at affected facilities is typically dominated by noise from existing equipment onsite, vehicular traffic around the facilities, and trucks entering and exiting facility premises. Noise from control equipment associated with the proposed new rule is not expected to produce noise in excess of current operations at existing facilities. Vacuum truck loading events are intermittent and temporary in nature. It is not expected that any air pollution control equipment operating in conjunction with vacuum trucks would substantially increase ambient operational noise levels in areas typically associated with vacuum truck loading events, or expose people to excessive noise levels that would be noticeable above and beyond existing ambient levels.

Depending on the air pollution control technology utilized, vacuum truck loading events may temporarily add additional sources of noise to the affected facilities. As an example, noise increases associated with additional emissions control technology are expected to be limited to a small pumps or blowers. This type of equipment is similar to the existing vacuum truck pumps. It is expected that each vacuum truck affected will comply with all existing noise control laws or ordinances. Further, OSHA and California-OSHA (Cal/OSHA) have established noise standards to protect worker health. These potential noise increases are expected to be small, if at all, used in an industrial setting, and thus less than significant. Therefore, no adverse significant impacts to noise are expected due to the proposed Regulation 8-53.

It is also not anticipated that control or monitoring equipment will cause an increase in ground-borne vibration levels because such equipment is not typically vibration intensive. Consequently, the proposed new rule will not directly or indirectly cause substantial noise or excessive ground-borne vibration impacts.

XI. e-f. If applicable, the petroleum refineries, marine terminals, gasoline bulk terminals, gasoline bulk plants and pipelines affected by the proposed new rule would still be expected to comply, and not interfere, with any applicable airport land use plans. All noise producing equipment must comply with local noise ordinances and applicable OSHA or Cal/OSHA workplace noise reduction requirements. In addition to noise generated by current operations, noise sources in each area may include nearby freeways, truck traffic to adjacent businesses, and operational noise from adjacent businesses.

Based upon these considerations, significant noise impacts are not expected from the implementation of the proposed Regulation 8-53.

	Potentially Significant Impact	Less Than Significant Impact with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. 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 areas affected by the proposed Regulation 8-53 are located in industrial areas within the jurisdiction of the BAAQMD.

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. No new construction activities associated with the proposed project are expected. Since no new construction is required, no relocation of individuals, no new housing or commercial facilities, or no change in the distribution of the population is anticipated. The reason for this conclusion is that operators of affected vacuum trucks who need to add control or monitoring equipment to comply with the proposed new rule will be drawn from the existing labor pool in the local Bay Area. Further, it is not expected that replacing existing equipment with new equipment or installing air pollution control equipment will require new employees to operate the new/modified equipment. Human population within the jurisdiction of the BAAQMD is anticipated to grow regardless of implementing the proposed

project. As a result, the proposed new rule is not expected to generate any significant adverse effects, either direct or indirect, on population growth in the district or population distribution.

XII b-c. Because the proposed project includes modifications and/or changes at existing equipment operated in industrial settings, the proposed project is not expected to result in the creation of any industry that would affect population growth, directly or indirectly induce the construction of single- or multiple-family units, or require the displacement of people or housing elsewhere in the Bay Area. Based upon these considerations, significant population and housing impacts are not expected from the implementation of the proposed project.

Based upon these considerations, significant population and housing impacts are not expected from the implementation of the proposed Regulation 8-53.

	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 areas affected by the proposed new rule are primarily located in industrial areas throughout the Bay Area.

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. Implementation of the proposed new rule by installing control equipment to vacuum trucks is not expected to affect current operations at existing facilities. In the event of an accidental release from an industrial facility being serviced by vacuum trucks affected by the proposed new rule, fire

departments are typically first responders for control and clean-up and police may be need to be available to maintain perimeter boundaries. The proposed project is not expected to significantly affect fire or police departments because while vacuum trucks will be incorporating new control and monitoring equipment, the number of loading events utilizing vacuum trucks is not anticipated to change. Therefore, the proposed project is not expected to increase the need or demand for additional public services (e.g., fire departments, police departments, government, et cetera) above current levels.

As noted in the "Population and Housing" discussion above, the proposed project is not expected to induce population growth in any way because the local labor pool (e.g., workforce) is expected to be sufficient to accommodate any activities that may be necessary at affected facilities. Additionally, operation of new control or monitoring equipment on vacuum trucks is not expected to require additional employees. Therefore, there will be no increase in local population and thus no impacts are expected to local schools or parks.

Based upon these considerations, significant public services impacts are not expected from the implementation of the proposed Regulation 8-53.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. 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 Regulation 8-53 are located in industrial areas throughout the Bay Area. Public recreational land can be located adjacent to, or in reasonable proximity to these areas.

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. As discussed under "Land Use" above, there are no provisions of the proposed project that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments; no land use or planning requirements will be altered by the proposed Regulation 8-53. Any required changes would take place on existing and new mobile sources that operate within the confines of the existing facilities so no changes in land use would be required. Further, the proposed new rule would not increase the use of existing neighborhood and regional parks or other recreational facilities or include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment because the proposed project is not expected to induce population growth. Therefore, no significant adverse impacts on recreation are expected.

Based upon these considerations, significant recreation impacts are not expected from the implementation of the proposed new rule.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. TRANSPORTATION/TRAFFIC. Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☑
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established b 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) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such 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). Transportation systems located within the Bay Area include railroads, airports, waterways, and highways. The Port of Oakland and three international airports in the area serve as hubs for commerce and transportation. The transportation infrastructure for vehicles and trucks in the Bay Area ranges from single lane roadways to multilane interstate highways. The Bay Area contains over 19,600 miles of local streets and roads, and over 1,400 miles of state highways. In addition, there are over 9,040 transit route miles of services including rapid rail, light rail, commuter, diesel and electric buses, cable cars, and ferries. The Bay Area also has an extensive local system of bicycle routes and pedestrian paths and sidewalks. At a regional level, the share of workers driving alone was about 68 percent in 2007. The portion of commuters that carpool was about 10 percent in 2007. About 4 percent of commuters walked to work in 2007. In addition, other modes of travel (bicycle, motorcycle, etc.), account for 3 percent of commuters in 2007 (MTC, 2008). Cars, buses, and commercial vehicles travel about 145 million miles a day (2000) on the Bay Area Freeways and local roads. Transit serves about 1.6 million riders on the average weekday (MTC, 2008).

The region is served by numerous interstate and U.S. freeways. On the west side of San Francisco Bay, Interstate 280 and U.S. 101 run north-south. U.S. 101 continues north of San Francisco into Marin County. Interstates 880 and 660 run north-south on the east side of the Bay. Interstate 80 starts in San Francisco, crosses the Bay Bridge, and runs northeast toward Sacramento. Interstate 80 is a six-lane north-south freeway which connects Contra Costa County to Solano County via the Carquinez Bridge. State Routes 29 and 84, both highways that allow at-grade crossings in certain parts of the region, become freeways that run east-west, and cross the Bay. Interstate 580 starts in San Rafael, crosses the Richmond-San Rafael Bridge, joins with Interstate 80, runs through Oakland, and then runs eastward toward Livermore. From the Benicia-Martinez Bridge, Interstate 680 extends north to Interstate 80 in Cordelia. Interstate 780 is a four lane, east-west freeway extending from the Benicia-Martinez Bridge west to I-80 in Vallejo.

Regulatory Background

Transportation planning is usually conducted at the state and county level. Planning for interstate highways is generally done by the California Department of Transportation.

Most local counties maintain a transportation agency that has the duties of transportation planning and administration of improvement projects within the county and implements the Transportation Improvement and Growth Management Program, and the congestion management plans (CMPs). The CMP identifies a system of state highways and regionally significant principal arterials and specifies level of service standards for those roadways.

Discussion of Impacts

XV a-b. No construction activities are expected as a result of implementing the proposed Regulation 8-53. The proposed project is not expected to cause a significant increase in traffic at any industrial facility or require any additional employees. No increase in the number of vacuum trucks in the existing

fleet are expected as a result of adopting the new rule. Also, the proposed project is not expected to exceed, either individually or cumulatively, the current level of service of the areas surrounding the affected facilities. The work force at each affected facility is not expected to significantly increase as a result of the proposed project and no increase in operation-related traffic is expected. Thus, the traffic impacts associated with the proposed new rule is expected to be less than significant.

XV c. Though some of the facilities that will be affected by the proposed project may 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, actions that would be taken to comply with the proposed project, such as installing new air pollution control equipment on vacuum trucks servicing the facilities, is not expected to significantly influence or affect air traffic patterns. Further, the size and type of air pollution control devices that would be installed would not be expected to affect navigable air space. Thus, the proposed project would not result in a change in air traffic patterns including an increase in traffic levels or a change in location that results in substantial safety risks.

XV d - e. The proposed project will not alter traffic patterns or existing roadways. The proposed Regulation 8-53 is not expected to substantially increase traffic hazards or create incompatible uses at or adjacent to facilities serviced by vacuum trucks. No construction activities at existing industrial facilities is expected as a result of the proposed new rule, and, the proposed project is not expected to alter any existing long-term circulation patterns. The proposed project is not expected to require a modification to circulation, thus, no long-term impacts on the traffic circulation system are expected to occur. The proposed project does not involve construction of any roadways, so there would be no increase in roadway design feature that could increase traffic hazards. Emergency access at each affected facility is not expected to be impacted by the proposed project. Further, each affected facility is expected to continue to maintain their existing emergency access gates and will not be impacted by the proposed new rule.

XV f. Operational activities resulting from the proposed new rule is not expected to conflict with policies supporting alternative transportation since the proposed project does not involve or affect alternative transportation modes (e.g. bicycles or buses) because the operational activities related to the proposed project will occur solely in existing industrial, commercial, and institutional areas.

Based upon these considerations, significant transportation/traffic impacts are not expected from the implementation of the proposed Regulation 8-53.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVII. UTILITIES/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.

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 affected facilities 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 maintained within the local jurisdiction.

Discussion of Impacts

XVI a, b, d and e. The vacuum trucks affected by the proposed new rule already exist and are generally operated within the confines of existing industrial facilities. Modifications to existing facilities are not expected as a result of proposed Regulation 8-53. The proposed new rule would not result in the use of any additional water or an increase in any wastewater generated at the affected facilities. No increase in water consumption would be associated with vacuum truck control equipment. Therefore, no impacts on wastewater treatment requirements or wastewater treatment facilities are expected.

XVI c. Vacuum truck operators are expected to comply with the proposed new rule by the use of control and monitoring equipment and improved operating procedures. Therefore, the proposed Regulation 8-53 is not expected to alter the existing drainage or require the construction of new storm water drainage facilities. Nor is the proposed rule expected to create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. Therefore, no significant adverse impacts on storm drainage facilities are expected.

XVI f and g. The proposed new rule would not affect the ability of vacuum truck operators to comply with federal, state, and local statutes and regulations related to solid waste. No significant impacts on waste generation are expected from the proposed new rule, since the proposed Regulation 8-53 would add control equipment to existing vehicles. Adding control equipment to existing vacuum trucks is not expected to create waste while being installed on vacuum trucks. Waste streams handled by vacuum

trucks are not expected to change. Waste streams will be processed similarly as currently, so no significant impact to land disposal facilities would be expected.

The proposed project is not expected to create additional hazardous waste streams. Therefore, no significant impacts to hazardous waste disposal facilities are expected due to the proposed new rule. Facilities are expected to continue to comply with all applicable federal, state, and local statutes and regulations related to solid and hazardous wastes.

Based upon these considerations, significant impacts to utilities and service systems are not expected from the implementation of the proposed Regulation 5-53.

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII.	**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?	☐	☐	☐	☑

18. MANDATORY FINDINGS OF SIGNIFICANCE

Discussion of Impacts

XVII a. Proposed Regulation 8-53 does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory, as discussed in the previous sections of the CEQA checklist. The proposed rule is expected to result in emission reductions from vacuum truck loading operations, thus providing a beneficial air quality impact and improvement in air quality. The construction of additional structures is not expected to be required under the proposed rule. As discussed in Section IV, Biological Resources and Section V, Cultural Resources, no significant adverse impacts are expected to biological or cultural resources.

XVII b-c. The proposed rule is expected to result in emission reductions of organic compounds, including toxic air contaminants and methane, from vacuum truck loading operations, thus providing a beneficial air quality impact through the reduction in ambient ozone concentrations and toxic air contaminants. The proposed rule are part of a long-term plan to bring the Bay Area into compliance with the state ambient air quality standards for ozone, thus reducing the potential health impacts due to ozone exposure. The proposed rule does not have adverse environmental impacts that are limited individually, but cumulatively considerable when considered in conjunction with other regulatory control projects. Proposed Regulation 8-53 is not expected to have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly. No significant adverse environmental impacts are expected.

Chapter 4

References

BAAQMD, 2010. Bay Area 2010 Clean Air Plan, September 15, 2010.

BAAQMD, 2010. Bay Area 2010 Clean Air Plan Final Program Environmental Impact Report, August 18, 2010.

BAAQMD, 2011. Bay Area 2010 Clean Air Plan Control Measure SSM-5, Vacuum Truck Operations, Workshop Report, June 2011.

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CARB, 2009. "California Greenhouse Gas Inventory for 2000-2006 — Summary by IPCC Category." March 13, 2009. http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_ipcc_00-06_sum_2009-03-13.pdf (August 24, 2009).

SCAQMD, 2008. Final Environmental Assessment: Proposed Amended Rule 1149 – Storage Tanks and Pipeline Cleaning and Degassing, SCH No. 2008031034, April 2008.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
Memorandum

To: Chairperson John Gioia and Members of the Board of Directors

From: Jack P. Broadbent
Executive Officer/APCO

Date: March 7, 2012

Re: Overview of the 2011/2012 Wood Smoke Reduction Program

RECOMMENDED ACTION

None; receive and file.

BACKGROUND

Fine particulate matter ($PM_{2.5}$) is the most significant air pollutant during the winter months in the Bay Area according to the Air District's 2010 Clean Air Plan. The Air District records the highest levels of $PM_{2.5}$ November through February. In the winter, more than 30% of $PM_{2.5}$ air pollution is attributed to wood burning from the estimated 1.4 million fireplaces and other wood-burning devices in the Bay Area.

On July 9, 2008 the Board of Directors adopted Regulation 6-3: Wood-burning Devices to protect Bay Area residents from the public health impacts of wood smoke pollution. The rule bans wood burning during *Winter Spare the Air Alerts,* limits excess visible smoke, prohibits burning garbage, restricts the sale and installation of non-EPA certified wood burning devices, and requires labeling on firewood and solid fuels sold within the Air District. The *Winter Spare the Air* season ran November 1, 2011 through February 29, 2012.

DISCUSSION

At the March 21, 2012 Board of Directors meeting, staff will provide an overview of the 2011/2012 winter PM season, including: Wintertime air quality, Regulation 6-3 implementation and the *Winter Spare the Air* outreach campaign.

Staff will also discuss changes and enhancements to the program proposed for the 2012/2013 *Winter Spare the Air* Season.

Respectfully submitted,

Jack P. Broadbent
Executive Officer/APCO

Prepared by: Eric Stevenson
Reviewed by: Lisa Fasano/Barbara Coler