California Environmental Protection Agency

Air Resources Board

PUBLIC MEETING AGENDA

May 27, 2010

LOCATION:
County Administration Center
Board Chambers, Room 310
1600 Pacific Highway
San Diego, California 92101

This facility is accessible by public transit. For transit information, call (619) 233-3004, website: http://www.sdmts.com/
(This facility is accessible to persons with disabilities.)

TO SUBMIT WRITTEN COMMENTS ON AN AGENDA ITEM IN ADVANCE OF THE MEETING GO TO: http://www.arb.ca.gov/lispub/comm/bclist.php

May 27, 2010
9:00 a.m.

DISCUSSION ITEMS:

Note: The following agenda items may be heard in a different order at the Board meeting.

Agenda Item #

10-5-1: Public Meeting to Provide a Status Report on Imperial County Air Quality and Consideration of the Imperial County PM10 State Implementation Plan

Staff will provide an overview to the Board of past trends and current air quality in Imperial County to highlight air quality progress. The Air Resources Board will also conduct a public hearing to consider approval of the Imperial County PM10 State Implementation Plan (PM10 SIP). If adopted, ARB will submit the PM10 SIP to the United States Environmental Protection Agency for approval as a revision to the California State Implementation Plan.

10-5-2: Public Meeting to Provide a Report on the San Joaquin Valley Smoke Management Program and Consideration of Modifications to Agricultural Burning Requirements

Staff will present to the Board a report on the Smoke Management Program that the San Joaquin Valley Air Pollution Control District (District) developed to minimize the impacts of agricultural burning. Staff will also present the modifications to the agricultural burning requirements the District is proposing to meet State law.

10-5-3: Public Meeting to Provide a Status Report on New United States Environmental Protection Agency Requirements for Near-Roadway Monitoring of Nitrogen Dioxide

Staff will present to the Board information on new near-roadway monitoring requirements for nitrogen dioxide that were adopted earlier this year by the United States Environmental Protection Agency.

CLOSED SESSION – LITIGATION

The Board will hold a closed session, as authorized by Government Code section 11126(e), to confer with, and receive advice from, its legal counsel regarding the following pending or potential litigation:

Pacific Merchant Shipping Association v. Goldstene, U.S. District Court (E.D. Cal Fresno), Case No. 2:09-CV-01151-MCE-EFB.

American Trucking Associations, et al. v. U.S. Environmental Protection Agency, et al., U.S. Court of Appeals, District of Columbia Circuit, Case No. 09-1090.

POET, LLC, et al. v. Goldstene, et al., Superior Court of California (Fresno County), Case No. 09CECG04850.

Rocky Mountain Farmers Union, et al. v. Goldstene, U.S. District Court (E.D. Cal. Fresno), Case No. 1:09-cv-02234-LJO-DLB.

National Petroleum & Refiners Association, et al. v. Goldstene, et al., U.S. District Court (E.D. Cal. Fresno) Case No. 1:10-cv-00163-AWI-GSA.

OPPORTUNITY FOR MEMBERS OF THE BOARD TO COMMENT ON MATTERS OF INTEREST

Board members may identify matters they would like to have noticed for consideration at future meetings and comment on topics of interest; no formal action on these topics will be taken without further notice.

OPEN SESSION TO PROVIDE AN OPPORTUNITY FOR MEMBERS OF THE PUBLIC TO ADDRESS THE BOARD ON SUBJECT MATTERS WITHIN THE JURISDICTION OF THE BOARD

Although no formal Board action may be taken, the Board is allowing an opportunity to interested members of the public to address the Board on items of interest that are within the Board's jurisdiction, but do not specifically appear on the agenda. Each person will be allowed a maximum of three minutes to ensure that everyone has a chance to speak.

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http://www.arb.ca.gov/lispub/comm/bclist.php

IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT THE CLERK OF THE BOARD:
OFFICE: (916) 322-5594
1001 I Street, Floor 23, Sacramento, California 95814
ARB Homepage: www.arb.ca.gov

To request a special accommodation or language needs for any of the following:

- An interpreter to be available at the hearing.
- Have documents available in an alternate format (i.e. Braille, Large print) or another language.
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Please contact the Clerk of the Board at (916) 322-5594 or by facsimile at (916) 322-3928 as soon as possible, but no later than 10 business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

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- Tener documentos disponibles en un formato alterno (por decir, sistema Braille, o en impresión grande) u otro idioma.
- Una acomodación razonable relacionados con una incapacidad.

Por favor llame a la oficina del Secretario del Consejo de Recursos Atmosféricos al (916) 322-5594 o envie un fax al (916) 322-3928 no menos de diez (10) días laborales antes del día programado para la audiencia. Para el Servicio Telefónico de California para Personas con Problemas Auditivos, ó de teléfonos TDD pueden marcar al 711.

SMOKING IS NOT PERMITTED AT MEETINGS OF THE CALIFORNIA AIR RESOURCES BOARD

California Environmental Protection Agency

Air Resources Board

PUBLIC MEETING AGENDA

LOCATION:
County Administration Center
1600 Pacific Highway
Board Chambers, Room 310
San Diego, California 92101

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May 27, 2010 at 9:00 a.m.

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CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC MEETING TO HEAR A STATUS REPORT ON IMPERIAL COUNTY AIR QUALITY AND CONSIDER APPROVAL OF THE 2009 IMPERIAL COUNTY PM10 SIP

The Air Resources Board (ARB or Board) will conduct a public meeting at the time and place noted below to hear a status report on Imperial County air quality and consider approval of the 2009 Imperial County PM10 SIP developed and approved by the Imperial County Air Pollution Control District. If adopted, ARB will submit the Imperial County PM10 SIP to the United States Environmental Protection Agency (U.S. EPA) for approval as a revision to the California State Implementation Plan.

DATE: May 27, 2010

TIME: 9:00 a.m.

PLACE: County Administration Center
1600 Pacific Highway
Board Chambers, Room 310
San Diego, California 92101

This item will be considered at a one-day meeting of the Board, which will commence at 9:00 a.m., May 27, 2010. Please consult the agenda for the meeting, which will be available at lest ten (10) days before May 27, 2010, to determine the schedule on which this item will be considered.

Background:

Air Quality

Despite the unique challenges that Imperial County's geography, climatology, and proximity to Mexico pose for air quality, the combined efforts of State and local control programs have resulted in improving air quality in the region. Ozone concentrations as well as the number of ozone exceedance days have declined since 1997 and Imperial County attained the federal ozone standard of 0.080 ppm in 2008. PM2.5 levels have also been decreasing throughout the county. In 2003 Imperial County attained the annual PM2.5 standard. Today, the PM2.5 problem is limited to Calexico, with 24-hour concentrations that are just slightly over the standard due to international transport from neighboring Mexicali. Finally, PM10 levels exceed the federal standard on average once or twice per year. These infrequent occurrences are due to either international transport or naturally occurring high wind events. Given the nature of these events there is year to year variation in the number of days exceeding the standard. Over the past four years, the number of exceedance days has ranged from zero to five.

PM10 State Implementation Plan

The federal Clean Air Act establishes planning requirements for areas that exceed the health-based National Ambient Air Quality Standards (standards). Areas are designated as nonattainment based on monitored exceedances of air quality standards. Nonattainment areas must then develop State Implementation Plan (SIP) revisions based on the relative nature and severity of their air quality problem.

Imperial County was originally designated as a "moderate" PM10 nonattainment area. In August 2004, the U.S. EPA found that the Imperial Valley PM10 nonattainment area failed to attain by the moderate area attainment date of December 31, 1994. As a result, U.S. EPA reclassified the Imperial Valley from a "moderate" to a "serious" PM10 nonattainment area. On December 11, 2007, U.S. EPA determined that Imperial had failed to attain the PM10 standard by the serious area deadline of December 31, 2001.

In response, the Imperial County Air Pollution Control District (District) developed the 2009 PM10 SIP which was adopted by the District Board in August 2009. The SIP contains the required elements including: an assessment of PM10 air quality between 2006 and 2008, an emissions inventory, transportation conformity budgets, and a demonstration that Best Available Control Technologies /Best Available Control Measures have been implemented for all appropriate source categories.

PROPOSED ACTION

ARB staff has reviewed the 2009 PM10 SIP and finds that the SIP meets all applicable Clean Air Act requirements. Therefore, staff is recommending that the Board approve the 2009 PM10 SIP, as well as the updated transportation conformity budgets and emissions inventory as a revision to the California SIP for submittal to U.S. EPA.

AVAILABILITY OF DOCUMENTS

ARB staff will prepare a written Staff Report prior to the meeting. Copies of the Staff Report may be obtained from the Board's Public Information Office, 1001 "I" Street, First Floor, Environmental Services Center, Sacramento, California 95814, (916) 322-2990. This notice, the Staff Report, and the District's Implementation Plan may also be obtained from ARB's internet site at:
http://www.arb.ca.gov/planning/sip/sip.htm

SUBMITTAL OF COMMENTS

Interested members of the public may also present comments orally or in writing at the meeting, and in writing or by e-mail before the meeting. To be considered by the Board, written comment submissions not physically submitted at the meeting must be received **no later than 12:00 noon, May 26, 2010,** and addressed to the following:

Postal mail: Clerk of the Board, Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

The Board requests, but does not require that 20 copies of any written statement be submitted and that written and e-mail statements be filed at least 10 days prior to the meeting so that ARB staff and Board members have time to fully consider each comment.

Please note that under the California Public Records Act (Government Code section 6250 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request. Additionally, this information may become available via Google, Yahoo, and any other search engines.

Further inquiries regarding this matter should be directed to Ms. Sylvia Zulawnick, Manager, Particulate Matter Analysis Section, Planning and Technical Support Division at (916) 324-7163, or Elizabeth Melgoza, Air Pollution Specialist, Planning and Technical Support Division at (916) 322-6161.

To request a special accommodation or language needs for any of the following:

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CALIFORNIA AIR RESOURCES BOARD

James N. Goldstene
Executive Officer

Date: April 26, 2010

State of California
AIR RESOURCES BOARD

Status Report on Imperial County Air Quality and Approval of the State Implementation Plan Revision for PM_{10}

Release Date: April 26, 2010

California Environmental Protection Agency
AIR RESOURCES BOARD

This report is available for downloading from the Air Resources Board's Internet site at http://www.arb.ca.gov/planning/sip/sip.htm. In addition, written copies may be obtained from the Board's Public Information Office, 1001 I Street, 1st Floor, Environmental Services Center, Sacramento, California 95814, (916) 322-2990.

If you are a person with a disability and desire to obtain this document in an alternative format, please contact the Americans with Disabilities Act Coordinator at (916) 323-4916, or TDD (916) 324-9531, or (800) 700-8326 for TDD calls from outside the Sacramento area.

This document has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does the mention of trade names or commercial products constitute endorsement or recommendation for use.

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APPENDIX A

I. Imperial County Air Quality

A. Profile of Imperial County

Imperial County is located in the southeast corner of California. As shown in Figure 1, the County extends over 4,597 square miles, bordering Mexico to the south, Riverside County to the north, San Diego County to the west, and Arizona to the east. With a population of approximately 170,000, the principal industries in Imperial County are year-round irrigated farming and retail trade. Few stationary sources are located in the region. Most of the population, farming, and retail trade exists in a narrow band of land in the central portion of the county. This region comprises on average less than 1/4th the width of the county and stretches from the south shore of the Salton Sea to the Mexican border. The remaining land in Imperial County consists of large expanses of open desert, primarily managed by the federal government, including some of the largest sand dunes in the State. This arid region receives less than 3 inches of rainfall a year.

Imperial County faces additional air quality challenges due to its proximity to the large international city of Mexicali, Mexico. Mexicali has a population of over one million people and is located just across the international border from Calexico. As shown in Table 1, NOx and VOC emissions in the city of Mexicali are twice those of the entire county of Imperial, and SOx emissions are more than 10 times higher. Several major border crossings are also located in Calexico.

Figure 1. Map of Imperial County

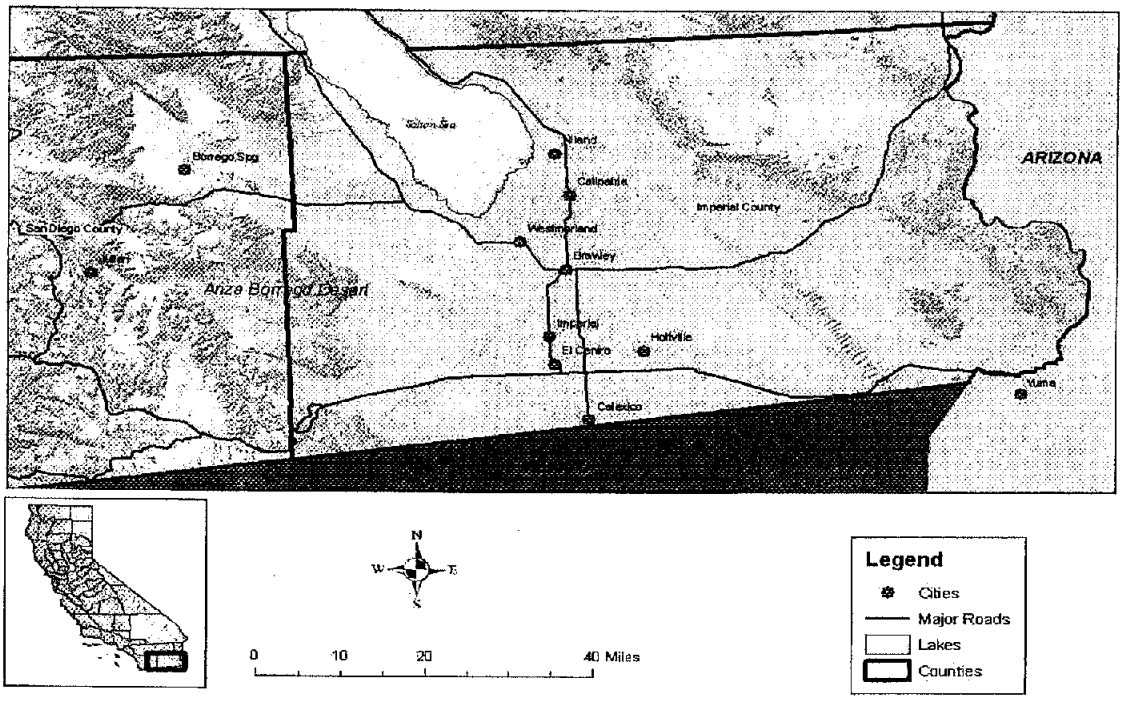


Table 1. Imperial County/Mexicali 2005 Emissions in tons per day (tpd)

	SOx		NOx		ROG/VOC	
Source Type	**City of Mexicali**	**Imperial County**	**City of Mexicali**	**Imperial County**	**City of Mexicali**	**Imperial County**
Stationary	12.7	0.2	39.38	3.56	2.0	1.31
Area	0.5	0.1	3.3	0.9	41.92	17.08
Mobile	0.6	0.6	35.77	27.31	26.13	14.98
Total	13.8	0.9	78.45	31.77	70.05	33.37

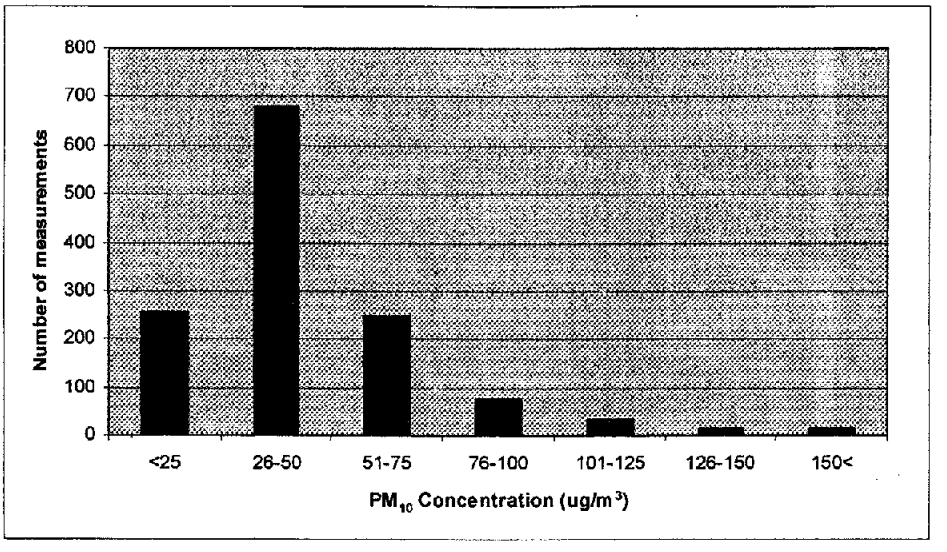
B. Historical Air Quality

Despite the unique challenges that Imperial County's geography, climatology, and proximity to Mexico pose for air quality, the combined efforts of State and local control programs have resulted in improving air quality in the region. The following sections characterize the nature of current particulate matter and ozone conditions and provide an overview of progress.

1. Coarse Particulate Matter (PM_{10})

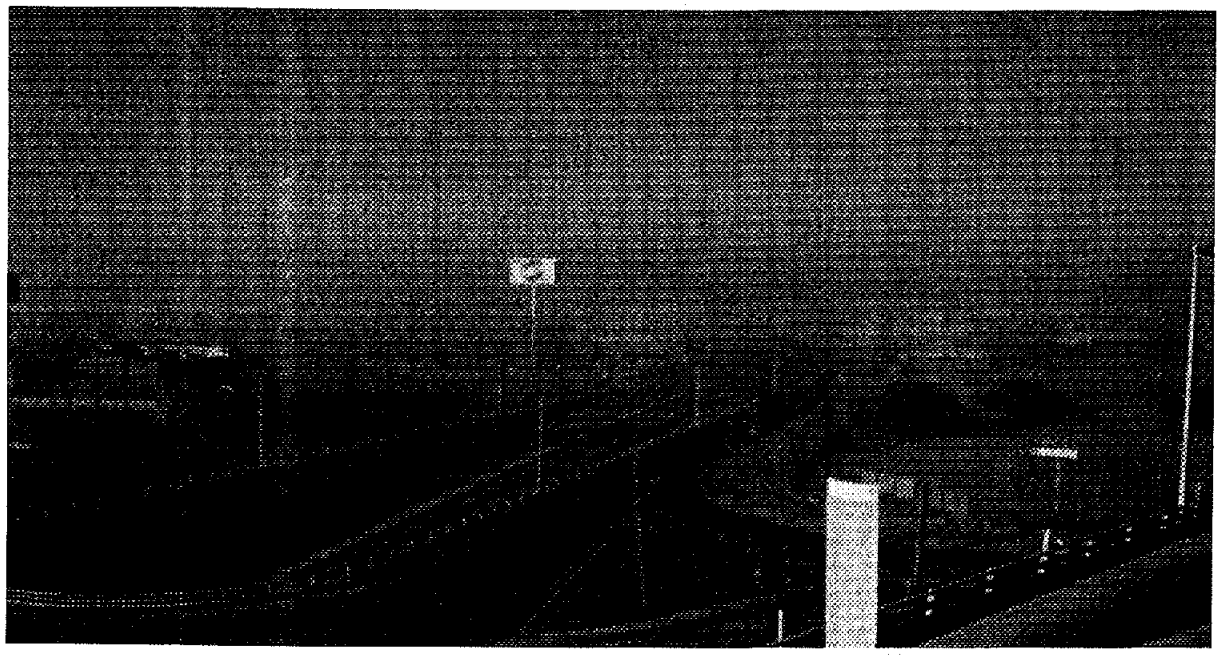
Because Imperial County is an arid, desert region, PM_{10} concentrations are dominated by fugitive dust, but are generally quite low. As shown in Figure 2, more than 70% of the PM_{10} concentrations measured between 2005 and 2008 were less than 50 ug/m3, and more than 95% were below 100 ug/m3. Concentrations exceed the federal 24-hour PM_{10} standard of 150 ug/m3 on average once or twice a year at any given location. These infrequent occurrences are due to two distinct types of conditions – transport of emissions from Mexico, or naturally occurring high winds.

Figure 2. Distribution of PM_{10} Concentrations in Imperial County (2005-2008)



The impact of transport from Mexico is seen primarily at monitors in Calexico that are near the international border. These transport-related exceedances occur during the winter months when conditions are stagnant, and emissions from Mexicali accumulate near the border. Research into PM_{10} concentration differences between Mexicali and Calexico showed that average cross border transport of PM_{10} from Mexico was three times higher than from the U.S., and that concentrations in Mexico were almost double those at Calexico (Chow. et. al., 2000). Increased residential trash and wood burning and charbroiling in Mexicali, often associated with cultural activities during holiday periods, are believed to be the primary cause of the transport exceedances at Calexico. Figure 3 is an image from the Mexicali newspaper La Cronica that illustrates reduced air quality on January 1, 2009.

Figure 3. Photo of the Pollution on January 1, 2009 in Mexicali



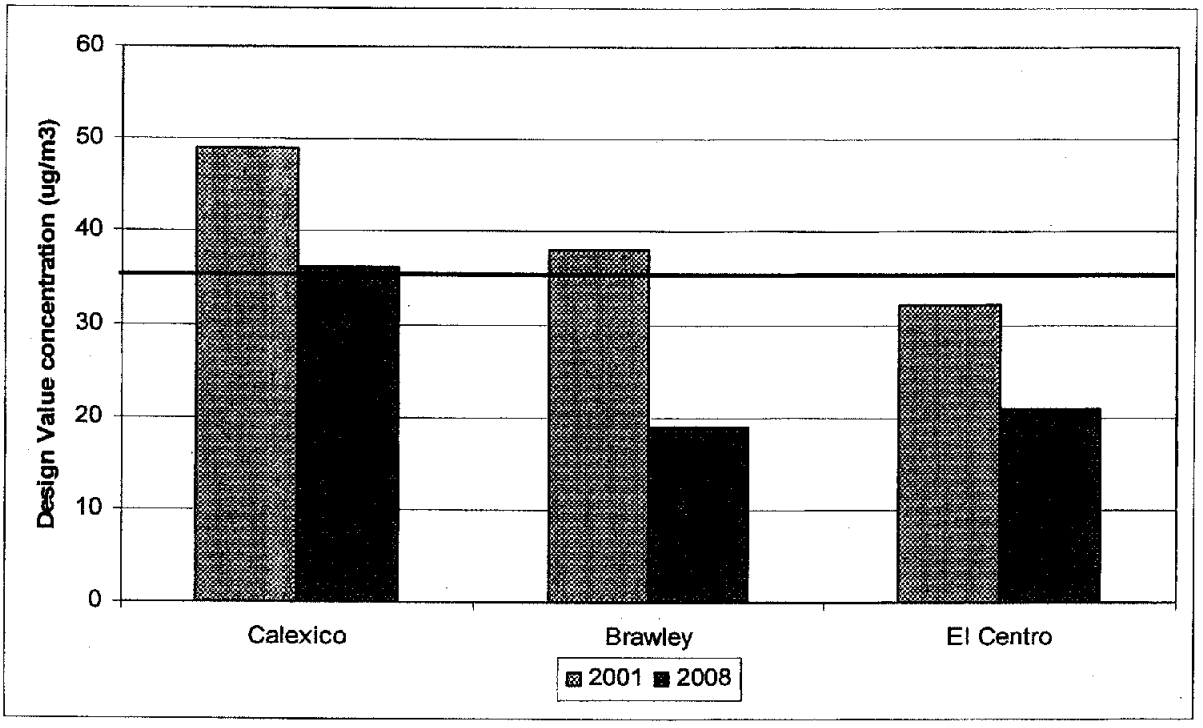
The second type of condition that causes elevated PM_{10} levels in Imperial County is high winds. These high winds events typically occur once or twice a year, usually between the months of April and September. Because of the large amount of open desert land, coupled with the limited rainfall, elevated wind speeds can loft and disperse large amounts of fugitive dust throughout the County. Figure 4 is a photograph taken in the western portion of Imperial County on April 15, 2008 that shows the impact of wind-generated dust. Evaluation of data between 2004 and 2008 found that after identifying exceedances due to international transport, all remaining exceedances occurred only once wind speeds exceeded 20 miles per hour (mph), with most occurring under conditions when winds reached over 30 mph. Recognizing that these types of naturally occurring high wind conditions are not controllable, United States Environmental Protection Agency (U.S. EPA) regulations allow areas to identify natural events such as high wind days and exclude them from use in determinations of a region's air quality.

Figure 4. Photo of Windblown Dust on April 15, 2008

2. Fine Particulate Matter ($PM_{2.5}$)

Unlike PM_{10}, the fine portion of particulate matter ($PM_{2.5}$) reflects greater contributions from combustion related sources, with less influence from fugitive dust. As a result, the nature of $PM_{2.5}$ in Imperial County differs from PM_{10}. In 1997, U.S. EPA established new $PM_{2.5}$ standards to protect against both 24-hour and annual average exposures. The 24-hour standard was further tightened in 2006, lowering from 65 ug/m3 to 35 ug/m3. $PM_{2.5}$ levels throughout Imperial County have been below the annual standard of 15 ug/m3 since 2003. While Imperial County was recently designated as nonattainment for the revised 24-hour standard, considerable improvement has occurred since 2001. Figure 4 compares 24-hour concentrations at Imperial's three monitoring locations in 2001 and 2008. In 2001, $PM_{2.5}$ levels throughout Imperial County were considered unhealthy. Today, violations of the 24-hour standard are limited to the border site of Calexico, and the standard is exceeded by only 1 ug/m3. Similar to PM_{10}, these elevated levels at Calexico occur during December and January, and are due to transport of emissions from the neighboring city of Mexicali.

Figure 5. Imperial County $PM_{2.5}$ 24-hour Design Values (2001-2008)



3. Ozone

Ozone air quality has also improved significantly in Imperial County in recent years. Both concentrations and the number of exceedance days have decreased between 1997 and 2009. The number of exceedances days dropped from approximately 50 in 1997, to less than 2 in 2009. Imperial County attained the 1997 8-hour ozone standard of 0.08 ppm in 2008. However, the U.S. EPA is in the process of strengthening the 8-hour ozone standard. This new standard is expected to be promulgated in August 2010, in a range of 0.060 and 0.070 ppm. As a result, we expect that Imperial County will be designated as nonattainment for the new standard.

Meeting this more stringent standard in Imperial County will rely heavily on emission reductions in neighboring areas. Ozone levels in Imperial County are affected by transport from several other regions. Typically, transport impacts vary from day-to-day, depending on variations in wind patterns. However, Mexicali has an overwhelming impact on almost all Calexico exceedance days. In the northern area of the County, El Centro and Westmorland ozone levels are impacted by transport from both Mexicali and the South Coast region, as well as from San Diego County in the west.

II. Imperial County PM_{10} State Implementation Plan

Imperial County has been designated as nonattainment for the federal 24-hour PM_{10} standard. In order to meet Clean Air Act requirements for nonattainment areas, the Imperial County Air Pollution Control District (District) developed a State Implementation Plan (SIP) in 2009.

A. Planning Requirements

In 1987, U.S. EPA replaced its standard for total suspended particulates with standards that focused solely on PM_{10}. The 1990 Clean Air Act Amendments (Act) subsequently established moderate and serious classifications for PM_{10} nonattainment areas, with planning requirements applicable to each classification.

1. Moderate Area PM_{10} Attainment Plan

Imperial County was originally classified as a moderate PM_{10} nonattainment area which required reasonably available control measures (RACM), and set an attainment deadline of December 31, 1994. The District adopted RACM rules prior to being designated nonattainment. In October 9, 2001, U.S. EPA found that Imperial County attained the PM10 standard "but for" the emissions from outside the United States. However, on December 18, 2001, Earthjustice sued U.S. EPA regarding this determination. Subsequently, on August 3, 2004, U.S. EPA reclassified the Imperial Valley from a moderate to a "serious" PM_{10} nonattainment area. On December 11, 2007, U.S. EPA determined that the Imperial Valley failed to attain the PM_{10} standard by the required serious area deadline of December 31, 2001. In response to this finding, a SIP revision was required that provided for attainment of the PM_{10} standard in the Imperial Valley area as expeditiously as practicable.

2. Serious Area PM_{10} Attainment Plan

Imperial County developed the 2009 PM_{10} SIP revision with the following required elements:

1) Air Quality Assessment;
2) Emission Inventory;
3) Best Available Control Measures (BACM) and Best Available Control Technologies (BACT);
4) Transportation Conformity Budgets;

III. PLAN EVALUATION

The following sections provide the ARB staff evaluation of the 2009 PM_{10} SIP with respect to meeting the requirements of the Act.

A. Air Quality Assessment

The central requirement of an attainment SIP is to demonstrate how a region will meet the applicable air quality standard by the federal deadline. Traditionally, the first step in developing an attainment plan is the evaluation of recent air quality data and a determination of the peak concentration around which the control strategy must be designed to reduce concentrations to the level of the standard. This is known as the design value. For PM_{10}, it generally represents the highest measured concentration over a three year period. As part of the development of the 2009 PM_{10} SIP, District staff evaluated all exceedances that occurred between 2006 and 2008. During this period there were five days which exceeded the standard at various locations within the District. Based upon extensive technical analysis, the District determined that each of the five exceedance days were due to either international transport or high wind natural events.

1. High Wind Natural Events

Imperial County experienced three high wind natural events between 2006 and 2008. Table 3 lists the natural event dates along with the affected monitors, the 24-hour average PM_{10} levels and the maximum resultant wind speed.

Table 3. Imperial County High Wind Exceptional Events (2006-2008)

Date	Location and Concentration	Max wind speed
September 2, 2006	• Calexico-Ethel 164 $\mu g/m^3$, FRM • Calexico-Grant 233 $\mu g/m^3$, FRM • Westmorland 167 $\mu g/m^3$, FRM	23 mph
April 12, 2007	• Brawley 291 $\mu g/m^3$, FRM • Westmorland 155 $\mu g/m^3$, FRM	34 mph
June 5, 2007	• Brawley 281 $\mu g/m^3$, FRM • Calexico-Ethel 282 $\mu g/m^3$, FRM • El Centro 200 $\mu g/m^3$, FRM • Niland 162 $\mu g/m^3$, FRM • Westmorland 226 $\mu g/m^3$, FRM	34 mph

On September 2, 2006, the high PM_{10} levels were primarily the result of wind-entrained dust carried up into the atmosphere by high winds associated with a large thunderstorm system that impacted the southwestern United States and northwestern Mexico. Strong winds were observed on the east, southeast, northeast, and northwest borders of Imperial County, with wind gusts up to 47 mph at the Blythe, Yuma, and Thermal Airports. Air quality monitoring showed that this natural event also influenced PM_{10} air quality in Yuma, Arizona, and in the Coachella Valley.

On April 12, 2007, strong winds from the west with gusts of 30 mph over the

Anza Borrego Desert entrained dust into the atmosphere and caused two areas in Imperial County to record concentrations in excess of the federal 24-Hour PM_{10} standard. According to the Imperial Valley Press, winds were so high on April 12, 2007 that they overturned a big-rig, toppled trees, and the Energy Department was put on alert due to wind incidents in Brawley, Imperial, and El Centro. In addition, the California Highway Patrol issued a wind advisory warning motorists to slow down and drive cautiously. This natural event also impacted PM_{10} air quality in the Mojave Desert and the South Coast.

Similarly, on June 5, 2007, strong winds from the west with gusts of 33 mph over the Anza Borrego Desert entrained dust into the atmosphere and caused all five Imperial County monitors to record concentrations in excess of the federal 24-hour PM_{10} standard. Gusts as high as 47 mph were recorded at the Imperial Airport. High wind speeds and wind gusts were also recorded at the Blythe, Yuma and Thermal Airports, all of which are in close proximity to the Imperial Valley.

In 2007, U.S. EPA adopted the Exceptional Events Rule (Rule). The Rule recognizes that that there are certain naturally occurring, uncontrollable events such as high winds and wildfires that can result in exceedances of federal standards for which it is not appropriate to apply the normal planning process. The Rule therefore allows appropriately documented events to be removed from consideration of a region's attainment status. District staff developed extensive technical documentation for the three wind events that occurred in 2006 and 2007. ARB staff concurred with this analysis and submitted the documentation to U.S. EPA.

2. International Transport Events

Between 2006 and 2008 the remaining two exceedance days at the Calexico monitoring sites were due to international transport - December 21, 2006 and December 25, 2006. The District provided significant documentation in the 2009 PM_{10} SIP demonstrating the impact of transport and that the PM_{10} standard would not have been exceeded "but for" emissions from Mexico. The Act contains a specific provision (179B) for areas that are affected by international transport. While exceedances that occur due to international transport are still considered violations of the standard, the Act does not require a State to develop an attainment strategy addressing pollution that stems from international sources.

3. Specific Attainment Demonstration Provisions

In summary, three of the five exceedances days are considered high wind natural events which should be excluded from attainment planning because they are neither controllable nor preventable within the scope of the Act's planning process. The remaining two exceedance days would not have occurred in the absence of contributions from international transport. As discussed previously, the Act does not require an attainment demonstration for these types of events under the international transport provisions of 179B. Therefore, Imperial County is considered to have met the federal PM_{10} standard "but-for" these events and no attainment demonstration is required. U.S. EPA policy also states that the requirements for reasonable further

progress, a five percent yearly reduction in emissions, and contingency measures are not applicable since their sole purpose is to bring an area into attainment of the standard. Nevertheless, in the 2009 PM_{10} SIP, Imperial County addressed contingency measures to provide additional assurance that PM_{10} levels will remain below the standard. These contingency measures reflect reductions from adopted regulations beyond those required for a serious nonattainment area.

B. Emission Inventory

Emission inventories are fundamental elements of any air quality plan, incorporating the effects of growth and existing regulations to determine the expected emissions in future years. The District selected 2005 as the baseline year for the emission inventory and worked closely with ARB staff to improve the emission inventory for Imperial County. To determine the estimated emissions beyond 2005, staff prepared projections that used the baseline emission inventory, expected growth trends, and reductions from rules and regulations. External adjustments and improvements were made to certain source categories in the emission inventory. These adjustments and improvements are discussed in more detail in the 2009 PM_{10} SIP.

Table 2 presents the updated baseline and projected emission inventory for direct PM_{10} emissions in the County split by main source category for 2006 through 2010. In 2006, 72 percent (196 tpd) of the total emission inventory was from windblown dust. Area wide dust sources include fugitive dust from paved and unpaved roads, construction, and farming. The other area wide category includes waste burning, residential fuel combustion, and cooking. Stationary sources reflects fuel combustion and other industrial processes. Finally, mobile sources include emissions from both on- and off-road vehicles and equipment. While emission inventories are a required SIP element, it is important to note that understanding the nature of a region's PM10 problem is best characterized by what constituents are measured at the monitors. Analysis of Imperial County data has shown that fugitive dust is the dominant component of PM10.

Table 2. Imperial County PM_{10} Annual Average Emission inventory in 2006-2010 (tpd)

Source Category	2006	2007	2008	2009	2010
Area Wide Dust Sources	70	69	68	68	67
Other Area Wide Sources	3	3	3	3	3
Stationary Sources	3	3	3	3	3
Mobile Sources	2	2	2	2	2
Subtotal	78	77	76	76	75
Windblown Dust	196	196	196	196	196
Total emissions including windblown	274	273	272	272	271

C. District Control Strategy

The Act requires serious areas PM_{10} plans to implement Best Available Control Measures (BACM) for area sources and Best Available Control Technologies (BACT) for major stationary sources. According to the 2005 stationary source emission

inventory, there is only one PM_{10} major stationary source that operates in Imperial County. This source manufactures gypsum wallboard and related products, and is located approximately 20 miles west of the nearest PM_{10} monitoring site in Plaster City. This source is currently at BACT levels.

BACM is required for all area source categories that are considered significant contributors to violations of the federal PM_{10} standard. A source category is considered to be significant if its estimated contribution is 5 ug/m3 or higher to the total concentration. The significant source analysis outlined in the Imperial County's 2009 PM_{10} SIP determined that there were only two significant source categories in Imperial County, agricultural tilling and unpaved road dust.

Although only two source categories required BACM, in 2005 the District developed a comprehensive set of fugitive dust rules collectively known as Regulation VIII, addressing all fugitive dust categories in the inventory. The categories covered include:

- Construction and Earthmoving Activities
- Bulk Materials
- Carry-Out and Track-Out
- Open Areas
- Paved and Unpaved Roads
- Agricultural Conservation Management Practices

The two significant BACM sources are specifically controlled under rules 806 (Agricultural Conservation Management Practices) and 805 (Paved and Unpaved Roads). The selection of control approaches was based upon an assessment of rules in other PM_{10} nonattainment areas and their specific applicability to Imperial County. The adopted controls include watering or chemical stabilization of unpaved roads, cleaning up dust from paved roads, preventing track-out from construction sites, requiring dust control plans for federal lands, and application of dust reducing conservation management practices such as providing cover crops or reduced tillage on agricultural lands. The fugitive dust rules are expected to reduce PM_{10} emissions by over 16 tpd by 2015. In addition to these reductions, the Bureau of Land Management implements additional controls for windblown dust and the Imperial Irrigation District's Fallowing Program reduces dust from fallow fields.

These rules were developed through a public process that included representatives of the agricultural community, private industry, Coalition of Labor and Business, Farm Bureau, Bureau of Land Management, Border Patrol, Imperial Irrigation District, County Public Works Department, ARB, and U.S. EPA. The District held six public workshops to solicit comments. ARB staff reviewed the rules at that time and supported the District's adoption of these rules as BACM. In addition, at the Imperial County Board hearing, U.S. EPA staff testified that they believed that the Imperial County fugitive dust rules represented BACM level controls. Subsequent to their adoption, ARB staff submitted the rules to U.S. EPA in 2006 for adoption into the SIP. No action was taken by U.S. EPA until February 2010, at which time U.S. EPA proposed a partial approval of the rules, but also identified several rule components which they believed required

additional analysis in order to demonstrate BACM level equivalence. When evaluating BACM, U.S. EPA does not have specific defined criteria, but rather the analysis is done on a case by case basis, reflecting the nature of the sources in the region, and considering cost-effectiveness. Because of this, ARB staff believes that given the specific nature of sources in Imperial County, the rules continue to reflect an appropriate BACM level of control.

However, the District continues to look for cost-effective rule improvements that would further improve air quality. As discussed in the letter contained in Appendix A, the District has committed to additional rule improvements that would represent a strengthening of the SIP for Imperial County. These changes include more specific controls for off-highway vehicles, revising the conservation management practices application forms to be more specific on the required controls and frequency, narrowing the exemption and specifying dust control measures required for Border Patrol unpaved roads, and adding windblown dust controls for fallowed land. In a separate effort Imperial County is also in the process of updating their Smoke Management Plan to enhance public outreach and include a "good neighbor policy" to alert nearby residents of an upcoming burn. ARB staff support these efforts for the purpose of further improving public health in the region.

D. Other Clean Air Act Requirements

1. Transportation Conformity Budgets

The 2009 PM_{10} SIP establishes on-road motor vehicle emissions budgets for the years 2010, 2020, 2030, and 2035. The new emissions budgets for PM_{10} are shown in Table 4. The budgets are derived with EMFAC2007 projections and matched to activity data reported by the South Coast Association of Governments (SCAG). The new budgets will become applicable when U.S. EPA finds the budgets adequate. The conformity budgets are based on the average annual daily emissions for the Imperial County nonattainment area. The emissions budgets established in this Plan fulfill the requirements of the Act and U.S. EPA regulations to ensure that transportation activities support progress and attainment of the PM_{10} standards.

Table 4. Motor Vehicle Emission Budgets for PM_{10}* Imperial County, Annual Average, Tons per Day

	2010	2020	2030	2035
EMFAC Output*	0.8	0.7	0.8	0.9
Paved Road Dust	3.9	6.5	7.9	8.5
Unpaved Road Dust	24.5	24.5	24.5	24.5
Road Construction Dust	0.5	0.4	1.4	1.9
Reductions from District Rules **	4.5	8.8	9.1	9.2
Total	25.1	23.3	25.5	26.5
Motor Vehicle Emission Budgets (rounded up to the nearest ton)	**26**	**24**	**26**	**27**

* EMFAC 2007 with Imperial County activity provided by SCAG April 2009.

** Reductions from Imperial County APCD rules 801, 803 and 805.

CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC MEETING TO HEAR A REPORT ON THE SAN JOAQUIN VALLEY SMOKE MANAGEMENT PROGRAM AND CONSIDERATION OF MODIFICATIONS TO AGRICULTURAL BURNING REQUIREMENTS

The Air Resources Board (ARB or Board) will conduct a public meeting at the time and place noted below to hear a report on the San Joaquin Valley Smoke Management Program and consider concurrence with the modifications to agricultural burning prohibitions proposed by the San Joaquin Valley Air Pollution Control District (District).

DATE: May 27, 2010

TIME: 9:00 a.m.

PLACE: County Administration Center
1600 Pacific Highway
Board Chambers, Room 310
San Diego, California 92101

This item will be considered at a one-day meeting of the Board, which will commence at 9:00 a.m., May 27, 2010. Please consult the agenda for the meeting, which will be available at lest ten (10) days before May 27, 2010, to determine the schedule on which this item will be considered.

BACKGROUND

To meet the requirements of ARB's Smoke Management Guidelines, the District developed a comprehensive Smoke Management Program (Program) to minimize the impacts of agricultural burning on ambient air quality in the San Joaquin Valley. The Program establishes 103 zones in the Valley based on topographical, geological, and meteorological conditions. Through predicted meteorological conditions, the Program sets burning allocations in each zone to amounts that would not cause a public nuisance, impact smoke sensitive areas, or create or contribute to an exceedance of federal 8-hour ozone or 24-hour PM2.5 and PM10 standards. Due to the structure of the program, on any given day, burning may be allowed in many zones, however the total amount of acreage allowed in each zone is quite small to prevent air quality impacts. As a result of this program, emissions from agricultural burning have decreased by over sixty percent since 2002.

In 2003, Senate Bill 705 (Florez, Chapter 481, Statutes of 2003) was enacted requiring the District to further limit agricultural burning through a prescribed phase-out schedule. However, the bill also recognized that economic and technological impediments may exist that preclude the complete phase-out of all burning. Subject to ARB concurrence, the District may allow for continued burning of specific crops if the District determines all

the following conditions apply:

- There is no economically feasible alternative means of eliminating the waste;
- There is no long-term federal or state funding commitment for the continued operation of biomass facilities in the San Joaquin Valley or development of alternatives to burning; and
- The continued issuance of permits will not cause, or substantially contribute to, a violation of an applicable federal air quality standard (standard).

The District is now adopting the final phase of the SB 705 prohibitions in two steps. On April 15, 2010, the District amended their open burning rule to incorporate all SB 705 provisions. On May 20, 2010, the District will consider the ***Proposed Staff Report Recommendations of Agricultural Burning*** (Report), documenting the assessment of the economic feasibility of alternative modes of disposal for the materials with a June 1, 2010 burn prohibition date. These include crop activities such as surface harvested prunings, orchard removals, vineyard removals, and rice stubble.

PROPOSED ACTION

ARB staff has reviewed the ***Proposed Staff Report Recommendations of Agricultural Burning*** dated April 20, 2010 and finds that the grounds for postponing agricultural burn prohibitions for the crops identified in the report meet the conditions required by State law. Contingent upon adoption of the Report by the District Board without significant changes, ARB staff proposes concurrence with the District's determination. The District will revisit these postponements within five years.

AVAILABILITY OF DOCUMENTS

ARB staff has prepared a written Staff Report. Copies of the Staff Report may be obtained from ARB's Public Information Office, 1001 "I" Street, First Floor, Environmental Services Center, Sacramento, California 95814, (916) 322-2990. This notice and the Staff Report will be available from ARB's website at: http://www.arb.ca.gov/smp/district/district.htm

SUBMITTAL OF COMMENTS

Interested members of the public may also present comments orally or in writing at the meeting, and written comments may be submitted by postal mail or by electronic mail before the meeting. To be considered by the Board, written comment submissions not physically submitted at the meeting must be received **no later than 12:00 noon, May 26, 2010,** and addressed to the following:

Postal mail: Clerk of the Board, Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

Please note that under the California Public Records Act (Government Code section 6250 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request. Additionally, this information may become available via Google, Yahoo, and any other search engines.

The Board requests, but does not require 20 copies of any written submission. Also, ARB requests that written and e-mail statements be filed at least 10 days prior to the meeting so that ARB staff and Board members have time to fully consider each comment. Further inquiries regarding this matter should be directed to Ms. Sylvia Zulawnick, Manager of the Particulate Matter Analysis Section, Planning and Technical Support Division at (916) 324-7163, or Dr. Patricia Velasco, Staff Air Pollution Specialist, Planning and Technical Support Division at (916) 323-7560.

To request a special accommodation or language needs for any of the following:

- An interpreter to be available at the hearing.
- Have documents available in an alternate format (i.e. Braille, Large print) or another language.
- A disability-related reasonable accommodation.

Please contact the Clerk of the Board at (916) 322-5594 or by facsimile at (916) 322-3928 as soon as possible, but no later than 10 business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Para solicitar alguna comodidad especial o necesidad de otro idioma para alguna de las siguientes:

- Un intérprete que esté disponible en la audiencia
- Tener documentos disponibles en un formato alterno (por decir, sistema Braille, o en impresión grande) u otro idioma.

- Una acomodación razonable relacionados con una incapacidad.

Por favor llame a la oficina del Secretario del Consejo de Recursos Atmosféricos al (916) 322-5594 o envíe un fax al (916) 322-3928 no menos de diez (10) días laborales antes del día programado para la audiencia. Para el Servicio Telefónico de California para Personas con Problemas Auditivos, ó de teléfonos TDD pueden marcar al 711.

CALIFORNIA AIR RESOURCES BOARD

James N. Goldstene
Executive Officer

Date: May 6, 2010

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.arb.ca.gov.

State of California

California Environmental Protection Agency
AIR RESOURCES BOARD

Staff Report on the San Joaquin Valley Smoke Management Program and Consideration of Modifications to Agricultural Burning Requirements

Release Date: May 6, 2010
Scheduled for Consideration: May 27, 2010

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EXECUTIVE SUMMARY

The Air Resources Board (ARB or Board) is required under state law to review the implementation process for the phase-out of agricultural burning by the San Joaquin Valley Air Pollution Control District (District). The last phase of program implementation begins June 1, 2010, provided ARB concurs that the District has complied with specific statutory criteria. The phase-out of most agricultural burning is being accomplished through a schedule for specific types of agricultural waste established by SB 705 (Statutes of 2003, Florez; Health and Safety Code Sections 41855.5 and 41855.6). The law provides for postponement of the statutory schedules under certain conditions.

The requirements of SB 705 are being implemented in conjunction with California's longstanding smoke management programs adopted by air districts consistent with ARB regulations. ARB's statewide regulations for smoke management were comprehensively updated in 2000, and air districts were required to strengthen their smoke management programs. The combined effect of both sets of requirements has been an almost 70% reduction in total acreage of agricultural materials burned since 2002 in the San Joaquin Valley.

The first three phases of SB 705 addressed field crops, prunings, weed abatement, diseased crops, and orchards removals. This final phase for Board consideration would address phase-out of vineyard removal materials, prunings from almonds, walnuts, pecans, grape vines and canes, raisin trays, and other agricultural related materials (brooder paper, deceased goats, and diseased beehives). The District proposes some postponements as part of the final phase-out. The proposed Board action also includes continuation of previously approved postponements, with three modifications. The threshold for postponement for small orchard removals is lowered from 20 to 15 acres, fig orchards are now subject to the limits for orchard removals, and the phase-out for rice straw will remain at 30% until 2015.

The District may postpone the phase-out of burning for any of the materials if all of the following conditions are met:

- There is no economically feasible alternative means of eliminating the waste;
- There is no long-term federal or State funding commitment for the continued operation of biomass facilities in the San Joaquin Valley or development of alternatives to burning; and
- The continued issuance of permits will not cause, or substantially contribute to, a violation of an applicable federal air quality standard (standard).
- ARB concurs that the above requirements have been met.

Depending upon the commodity and specific waste material, the proposed postponements are based on either economic or technical infeasibility. The primary reasons for technical infeasibility are need for disease control and lack of alternatives.

To establish a basis for assessing economic feasibility, the District used analyses conducted by economic consultants and information obtained from the U.C Davis Cooperative Extension. The District used a return on sales (ROS) metric to set a threshold for economic feasibility of alternatives. That threshold is a 10% impact on profit.

Historically, ARB has used a 10% threshold of return on equity (ROE), not sales, to decide if alternatives are economically feasible. This methodology was established in a 1995 ARB report[1] by Dr. Peter Berck of UC Berkley. However, data on equity in the agricultural sector can be hard to find and is often outdated. When sufficient data cannot be found to calculate ROE, ROS can be used as a proxy. The District has a precedent of using the ROS approach with a 10% cut off for economic feasibility when developing District rules. This methodology and the 10% threshold are discussed in the publication *Socioeconomic Analysis Program Impact Screening and Analysis Procedures* which was prepared by Decision Economics, Inc. for the District in 1994.

From an air quality and public health perspective, the most important pollutant associated with agricultural burning is PM2.5. The District's smoke management program limits burning to avoid contributing to violations of the daily PM2.5 standard. The phase-out assists in reducing PM2.5 emissions that contribute to the annual PM2.5 standard. The combination of ARB's statewide smoke management regulation, the District's smoke management program, and the SB 705 phase-outs in 2005 and 2007 have resulted in about a 65% reduction in PM2.5 emissions from burning of agricultural materials since 2002.

The ARB staff has evaluated the potential for the limited remaining agricultural burning to contribute to measured PM2.5. Analyses were done for Fresno and Bakersfield using emissions inventory data and speciated monitoring data. Based on the District expected action on May 20, 2010, the estimated contribution of remaining burning to measured PM2.5 air quality levels is less than 3% in both Fresno and Bakersfield. Staff is proposing that, contingent on final action by the District Board on May 20, 2010, the Board concurs that the District has met the required statutory criteria.

[1] Berck, P., 1995. *Development of a Methodology to Assess the Economic Required by SB513/AB969.* Available at http://www.arb.ca.gov/research/apr/past/econ.htm#Economic_Impacts

I. INTRODUCTION

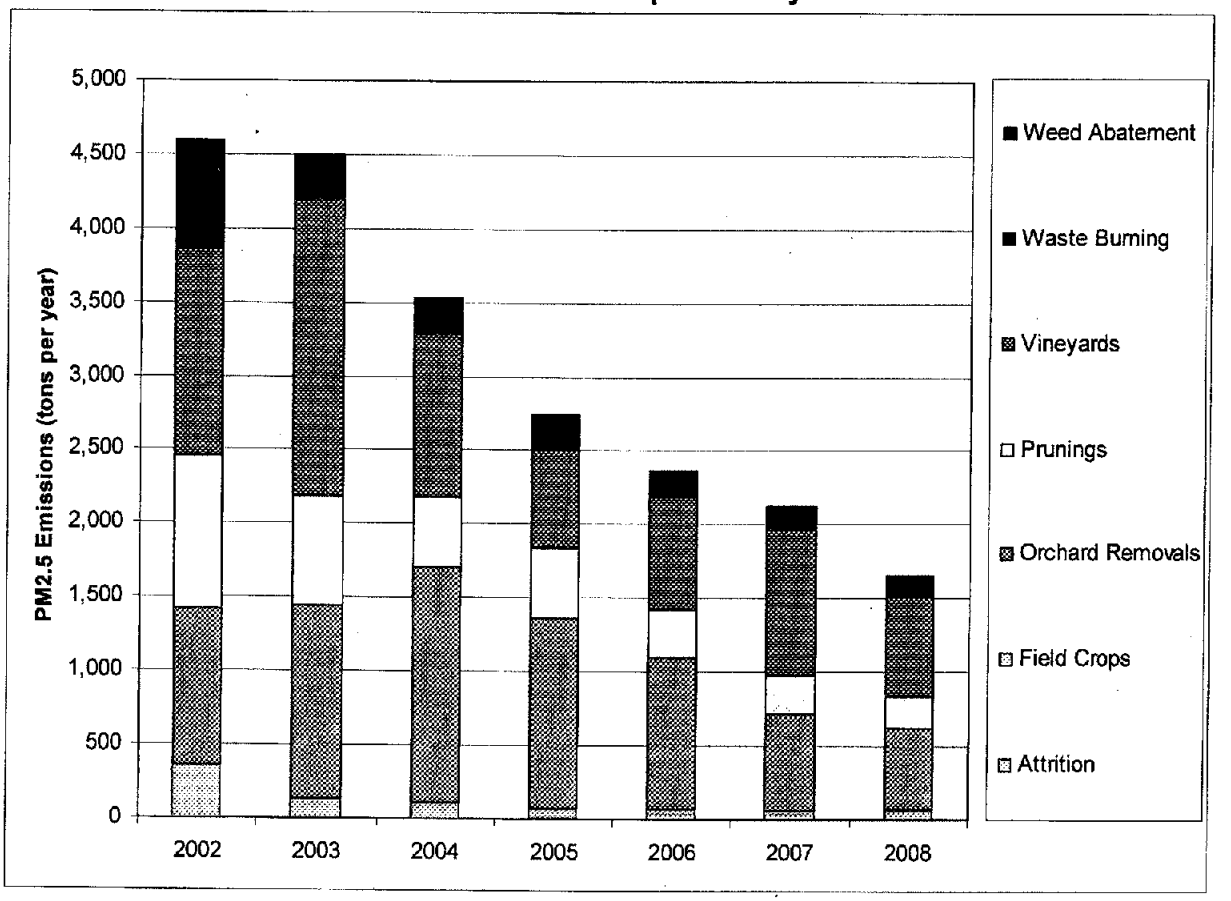
Management of Agricultural Burning in the San Joaquin Valley

Two State law requirements govern the management of agricultural burning in the San Joaquin Valley. In March 2000, the Air Resources Board (ARB or Board) adopted amendments to the State's Smoke Management Guidelines (Guidelines) to minimize the impacts from agricultural and prescribed burning on ambient air. The Guidelines emphasize effective planning, coordination among burners and air quality managers, and use of the most technically advanced air quality and meteorology burn management tools. The Guidelines required air districts to develop smoke management programs for ARB review and approval. In addition, in 2003 Senate Bill 705 was enacted requiring the District to develop a phase-out schedule for agricultural burning.

In response to the Guidelines, the San Joaquin Valley Air Pollution District (District) has developed an updated Smoke Management System (System) to minimize the impacts of agricultural burning on ambient air quality in the San Joaquin Valley. The System establishes 103 zones in the Valley based on topographical, geological, and meteorological conditions. Through predicted meteorological conditions, the System sets burning allocations in each zone to amounts that would not cause a public nuisance, impact smoke sensitive areas, or create or contribute to an exceedance of federal 8-hour ozone or 24-hour PM2.5 and PM10 standards. Agricultural burn allocations are made on a first come, first serve basis up to the day's cap. Burners who do not receive an allocation or a partial allocation are placed on a waiting list for a future day. Due to the structure of the system, on any given day, burning may be allowed in many zones, however the total amount of acreage allowed in each zone is limited to prevent air quality impacts.

While the San Joaquin Valley's System carefully regulates and effectively caps allowable agricultural burning, the District has further limited the types of agricultural materials that can be burned through implementation of SB 705. As a result, due to the parallel implementation of both the District's Smoke Management System and SB 705, significant progress in reducing the impacts of agricultural burning in the San Joaquin Valley has been achieved (Figure 1). Based on yearly data of acreage burned, these practices have reduced the total acreage of agricultural materials burned since 2002 by approximately 70%, which reduced particulate matter (PM2.5) emissions by almost 65%. In 2008, the remaining agricultural burning contributed approximately five percent to the total PM2.5 emissions in the San Joaquin Valley.

Figure 1. Decrease in Annual PM2.5 Emissions for Agricultural Burning in the San Joaquin Valley



Source: District Permit Data

Overview of SB 705 Implementation

As discussed in the previous section, SB 705 was codified in the California Health and Safety Code (sections 41855.5 and 41855.6) in 2003 requiring the District to further phase-out the open burning of agricultural crops and waste in the San Joaquin Valley. SB 705 also requires the District to establish best management practices for the control of other weeds; and to develop and adopt rules to regulate the burning of diseased crops through the issuance of conditional crop burning permits. The following schedule specifies the dates for SB 705 requirements and for commencement of burn prohibitions:

June 1, 2005

- Start of burn prohibitions for field crops, prunings, and weed abatement;
- Establish best management practices for the control of other weeds and maintenance; and
- Regulate the burning of diseased crops.

June 1, 2007

- Start of burn prohibitions for orchard removals.

June 1, 2010

- Start of burn prohibitions for vineyard removal materials, prunings from surface harvested crops, and other materials.

The District may postpone any of the prohibitions if the District determines all the following conditions apply:

- There is no economically feasible alternative means of eliminating the waste;
- There is no long-term federal or State funding commitment for the continued operation of biomass facilities in the San Joaquin Valley or development of alternatives to burning; and
- The continued issuance of permits will not cause, or substantially contribute to, a violation of an applicable federal air quality standard (standard).
- ARB concurs that the above requirements have been met.

The District addressed the SB 705 requirements for the first two deadlines through previous amendments to their Open Burning rule (Rule 4103). In September of 2004, the District amended rule 4103 to allow for conditional permitting to authorize the burning of diseased crops (Phase I). The rule was further amended in May of 2005 to eliminate burning of waste from field crops, prunings, and weed abatement operations, and to establish best management practices for other weeds (Phase II). On May 17, 2007, the District again amended rule 4103 to prohibit burning of orchard removal matter (Phase III). Postponements were adopted for some crops per SB 705 criteria. ARB staff concurred with these postponements.

The District is adopting the final phase (Phase IV) of the SB 705 prohibitions in two steps. On April 15, 2010, the District amended Rule 4103 to incorporate all SB 705 provisions. The amended rule requires the District to develop a report with recommendations on agricultural burning and to re-evaluate the report at least once every five years. On May 20, 2010, the District will consider the ***Proposed Staff Report Recommendations of Agricultural Burning*** (Report), documenting the assessment of the economic feasibility of alternative modes of disposal for the materials

with a June 1, 2010 burn prohibition date. In this phase, the District is:

- Assessing prohibitions for
  - Vineyard removal materials;
  - Surface harvested prunings (almonds, walnuts, pecans), grape vines, vineyard materials including grape canes and raisin trays; and
  - Other materials (brooder paper, deceased goats, and diseased beehives).

- Revisiting previously adopted postponements for
  - Orchard removals of citrus, fig, apple, pear, and quince crops;
  - Orchard removal of less than 20 acres at a single location;
  - Prunings from fig, apple, pear, and quince crops;
  - Weed abatement affecting waterways (ponding and levee banks); and
  - Phase-down of rice straw burning.

Some of the largest crops (by acreage) affected by the burn rule include almonds, grapes, citrus, walnuts, and apples. Recent poor economic conditions coupled with water shortages in the San Joaquin Valley has resulted in a decrease in acreage for all of these crops with the exception of almonds. Table 1 below shows the total acres planted for these crops in 2002 and 2007 in the San Joaquin Valley. Grapes, citrus, walnuts, and apples all saw a decrease in acreage over this time period. The amount of acres planted in almonds increased over this period, most likely do to very high almond prices from 2003 to 2007.

Table 1. Change in Crop Acreage in the San Joaquin Valley

	2002 (acres)	2007 (acres)	Change (acres)
Almonds	543,840	627,336	83,496
Grapes	585,626	557,549	-28,077
Citrus	227,624	214,215	-13,409
Walnuts	133,163	117,906	-15,257
Apples	20,436	10,230	-10,206

Source: USDA, National Agriculture Statistics Service

There has also been a decrease in the number of operations growing each crop, with the exception of almonds, as shown in Table 2. However, the small increase in almond operations does not compensate for the loss of operations in the other crops.
The decreases in acres planted and number of operations of these crops provides an indication of the profitability of growing them.

Table 2. Change in Number of Operations in the San Joaquin Valley

	2002	2007	Change
Almonds	4,956	4,978	22
Grapes	5,132	4,512	-620
Citrus	3,166	2,872	-294
Walnuts	2,937	2,470	-467
Apples	421	294	-127

Source: USDA, National Agriculture Statistics Service

II. ASSESSMENT OF DISTRICT STAFF PROPOSED PHASE-OUT

Overview

This section presents ARB staff's assessment of the District's staff's recommendations for agricultural burning prohibitions beginning in June 2010. For the purpose of determining concurrence as required by State law, the ARB staff review is focused on whether the District's determinations are consistent with the criteria specified in SB 705. ARB staff's assessment is based upon the version of the ***Proposed Staff Report Recommendations of Agricultural Burning*** released by the District staff on April 20 for consideration at the District's May 20, 2010 Board meeting.

State law requires the District to evaluate whether there are economically feasible alternatives to burning in order to postpone any burn prohibition. As a first step in the evaluation, the District must determine if there are technically feasible alternatives to the burning for the crops being addressed. The District must then determine if such alternatives are economically feasible. Table 3 presents a summary of the resulting District staff proposal. Since feasible alternatives are available, beginning on June 1, 2010, open burning of grape vine, grape cane, and fig crop prunings, as well as brooder paper and diseased goats will be prohibited. No technologically feasible alternatives were found for raisin trays; diseased beehives; pome fruit (apple, pear and quince) orchard removal and pruning materials; and for weed abatement affecting surface waterways. Thus, the District staff proposes that the burning of these materials be allowed. Although there are technically feasible alternatives for the remaining materials, these alternatives were found not to be economically feasible. As a result, the District staff proposes to allow burning of these materials. However, as shown in Table 3, limitations on the amount of burning allowed has been proposed for some crops based on differential costs. The District will revisit all postponements within five years to reassess both technical and economic feasibility.

To develop the proposal, the District worked closely with representatives from the agriculture community and other agencies in addition to consulting with biomass and

chipping industry representatives. The District staff conducted a public workshop on the proposal on May 14, 2010.

Table 3. District's Agricultural Burning Proposals for Phase IV

	Crop Category and Crop Type
Prohibit Burning	
Feasible Alternatives	***Surface Harvested Prunings*** • Grape Vine Prunings • Grape Canes
	Other Materials • Brooder Paper • Deceased Goats
	Fig Crop Prunings
Allow Burning	
No Technologically Feasible Alternative	***Surface Harvested Prunings*** • Raisin Trays
	Other Materials • Diseased Beehives
	Orchard Removal Matter and Prunings • Pome Fruits (Apple, Pear, Quince)
	Weed Abatement Affecting Waterways
No Economically Feasible Alternative	***Vineyard Removal Materials*** • Grapes and Kiwi Crops
	Orchard Removal Matter • Citrus Crops
Allow Limited Burning (Limited Economical Feasibility of Alternative)	
1. Only 70% of acreage can be burned; 2. Burning prohibited starting in June 2015.	***Rice Stubble (Straw)***
1. Prohibit burning at sites with 3,500 or more total nut acres; 2. For sites with less than 3,500 total nut acres: a. Allow burning of up to 20 acres of prunings per year, and b. Allow burning additional prunings, pending, i. Grower submittal of estimated shredding cost, and ii. District determination of financial impact and timing of shredding service availability.	***Surface Harvested Prunings*** • Almonds, Walnut, and Pecan Crops
Reduce burning allowance to 15 acres or less per location per year	***Orchard Removal*** • Other Orchards of 20 Acres or Less • Fig Crops

Discussion of District Staff Proposal

Prohibit Burning

Growers have already been using no-burn alternatives to dispose of some pruning materials, brooder paper, and deceased goats. It is common practice to shred grape vine and grape cane prunings and incorporate them into the soil. Farmers also shred fig prunings and leave them in place to decompose. Brooder paper gets sent to landfills and deceased goats are buried. Consequently, the burning of these materials will be prohibited beginning on June 1, 2010.

Allow Burning: Alternatives Not Technically Feasible

Based on an assessment of the potential alternatives to burning, there do not appear to be technically feasible alternatives available, and therefore no economically feasible alternatives for raisin trays, diseased beehives, pome fruit prunings and orchard removals, and weed abatement affecting surface waterways.

Raisin Trays

Raisin trays are paper trays used to dry the grapes on the ground. These trays contain polymer so that the moisture on the ground can not be absorbed in the raisin tray. The grapes remain on the raisin trays until they meet the appropriate moisture content. In the past, growers used recycling firms to dispose of the trays. These recycling firms shipped the trays to China for reuse. However, due to the value of the dollar, China has cut off the import of raisin trays and this alternative is no longer viable. Since the polymer does not degrade quickly, soil incorporation is not a feasible alternative to burning raisin trays. In addition, due to the polymer, biomass facilities will not accept raisin trays. Therefore, at this time there are no feasible alternatives to burning raisin trays and the District has proposed to postpone this burn prohibition.

Diseased Beehives

Recently, a phenomenon known as colony collapse disorder has been causing bees to mysteriously abandon their hives, leaving only the queen and worker bees. Bee pollination is vital to California's agriculture industry. If diseased beehives are transported, there is opportunity to spread the disease to other beehives in California. In addition, California regulations require that infested bee colonies be killed and if burned be done according to local district regulations. Therefore, in order to reduce the spread of disease and its impact on California's agriculture industry, the District has determined there is no alternative to burning diseased beehives and has proposed postponement of this burn prohibition.

Pome Fruit Prunings and Orchard Removal Matter

Pome fruits include apple, pear, and quince crops. The primary concern for pome fruits is their susceptibility to fire blight, a bacterial disease that kills blossoms, shoots, limbs, and potentially the entire tree. Chipping/grinding and composting create a potential opportunity for transfer and infection of nearby orchards. Fire blight is prevalent in the San Joaquin Valley and is a difficult disease to control. Burning of infected material is a preventive measure used by growers to help ensure the disease does not spread. In light of the disease issue, the District determined that there is no feasible alternative to burning pome fruit prunings or orchard removal matter at this time.

Weed Abatement Affecting Surface Waterways

Surface waterways have steep slopes and are in remote locations. The steep bank slopes need to be devoid of vegetation so that they can be checked for rodents. Available alternatives include hand crews, mowing, tilling, and chemicals. The labor-intensive removal of individual weeds on steep bank slopes creates worker safety issues and is technologically infeasible due to the magnitude of weed abatement required. Mowing and tilling on these steep banks also pose worker safety issues. Finally, spraying chemicals on the weeds near the waterways can cause the chemicals to run off into the waterways. The State Water Resources Control Board is advocating the elimination of spraying near waterways to avoid contamination. Based on worker safety and water quality concerns, there are no feasible alternatives to control weeds near waterways, thus the District has proposed postponement of this burn prohibition.

Allow Burning: Alternatives Not Economically Feasible

For the remaining crops discussed below, there are technically feasible alternatives to burning. These include:

- Shredding materials and leaving them on the ground;
- Tilling shredded materials into the soil;
- Chipping materials and transporting to a biomass power plants for use as fuel; and
- Baling of straw materials for various commercial purposes.

In order to assess the economic impacts that burning restrictions would have on these crops, the District contracted with an economic consulting firm. The District and consultant gathered information on crop profitability and estimates of compliance costs from affected industry stakeholders and other sources including the U.C. Davis Cooperative Extension Service. Using this data, the consultant estimated the net after tax profit ratios for the affected crops and calculated a ratio of profit per dollar of revenue for affected industries. The result is an analysis that shows the proportion of profits represented by the cost of compliance.

The district applied a 10% threshold to the ratio calculation described above, which is referred to as return on sales (ROS). If the ROS is greater than 10% (i.e. compliance cost is greater than 10% of net profit) then the mechanism analyzed as an alternative to burning is considered to not be economically feasible. In calculating the ROS, cost and profit data was averaged over a ten year period. Given the recent economic downturn, use of a ten year average represents a conservative approach, and ROS values based on more recent economic data would likely be higher.

Historically, ARB has used a 10% threshold of return on equity (ROE), not sales, to decide if alternatives are economically feasible. This methodology was established in a 1995 ARB report[2] by Dr. Peter Berck of UC Berkley. However, data on equity in the agricultural sector can be hard to find and is often outdated. When sufficient data cannot be found to calculate ROE, ROS can be used as a proxy. The District has a precedent of using the ROS approach with a 10% cut off for economic feasibility when developing District rules. This methodology and the 10% threshold are discussed in the publication *Socioeconomic Analysis Program Impact Screening and Analysis Procedures* which was prepared by Decision Economics, Inc. for the District in 1994.

Grape and Kiwi Crop Vineyard Removal Materials

The chipping of vineyard materials with subsequent transport and processing at biomass power plants is the most likely alternative to open burning. Grape and kiwi vine cultivation requires use of extensive trellis systems to support the vines. The support system consists of wires and may include wood or metal posts and stakes. In some instances, grape canes remaining after pruning get wrapped around the wires to provide the needed support. As vines mature and age, trellis wires become deeply embedded into the canes or cordons. To avoid mechanical damage to chippers and biomass power plants, the embedded wires need to be removed. Wire removal requires intensive manual labor, adding significant cost to vineyard growers. Biomass power plant operators have indicated they accept vineyard materials. However, in some cases, chipping operators refuse to process these materials because of the wires. In addition, due to the limited number of chipping contractors operating in the Valley, service may not be available according to the vineyard grower's schedule, which can cause delays in planting for the following season.

The ROS for the chipping/biomass power plant option for kiwi vineyard removal materials ranged between 11.1% and 16.6% for less than 100 acre (smaller) vineyards and between 9.5% and 14.1% for 100 acre or greater (larger) vineyards. For grape vineyard removal materials, the ROS ranged between 55.2% and 129% for smaller vineyards and between 46.9% and 109.7% for larger vineyards. Therefore, the District concluded that there are no economically feasible alternatives to the open burning of grape and kiwi crop vineyard removal materials and has proposed postponement of the burn prohibitions.

[2] Berck, P., 1995. *Development of a Methodology to Assess the Economic Required by SB513/AB969.* Available at http://www.arb.ca.gov/research/apr/past/econ.htm#Economic_Impacts

Citrus Crop Orchard Removal

Similar to vineyard removals, the chipping of citrus orchard removals with subsequent transport and processing at biomass power plants is the most likely alternative to open burning. The adobe soil in which citrus crops are usually grown is extremely difficult to remove from the extensive root system of citrus trees. Separating the roots from the trunk prior to chipping, as well as screening the chipped root material to remove excessive clumps all increase the costs associated with chipping citrus material. In addition, ground citrus wood produces stringy material. As a result, only three of the nine biomass facilities in the Valley accept citrus orchard removal materials. Those biomass facilities which do accept citrus chips will blend 25% to 30% of citrus material with other crops to promote better flow of the material through the equipment. Given the limited number of biomass facilities which will accept citrus material, as well as the need to blend only limited amounts with other materials, there is significant concern whether sufficient biomass capacity exists to handle all of the orchard removal material generated in the Valley.

Depending upon the amount of material removed, the cost to chip and haul material to a biomass facility is approximately 2 to 4 times higher per acre than open burning. ROS values ranged from 10.9% to 11.9% for small farms, and 9.4% to 10.3% for large farms. Given concerns regarding biomass capacity, as well as cost-effectiveness issues, the District determined that there is no economically feasible alternative to burning citrus crop orchard removal material at this time and has proposed postponement of the burn prohibitions.

Allow Limited Burning

Rice Stubble (Straw)

Previous rule amendments established a phase-down schedule for in-field burning of rice straw requiring partial phase-downs of 30% of the total acreage farmed through mid 2010, 50% through mid 2015, followed by full phase-out starting June 1st, 2015. The current District recommendation maintains the full phase-out in 2015, but removes the interim 50% limitation.

While growers have been implementing some alternatives to burning, such as baling rice straw for off-field use, economic and market factors limit the viability of this alternative. Within the last few years, the market for rice straw bales has become almost non existent. Furthermore, the limited supply of irrigation water in the San Joaquin Valley prevents use of post-harvest in-field straw degradation processes prevalent in the Sacramento Valley. The continuation of the 30% burning limitation allows the growers to limit burning using current alternatives to the best of their ability while allowing additional time to identify and implement other feasible alternatives. The District, therefore, determined that further reducing the rice straw burning in the San Joaquin Valley appears both technically and economically infeasible at this time.

Almond, Walnut and Pecan Prunings

Shredding and soil incorporation is the most likely alternative to open burning for almond, walnut, and pecan prunings. Due to differential cost impacts, evaluation of costs and practices looked at sites with total nut acreage crop of 3,500 acres or more (larger operations) and those with less than 3,500 acres.

- Total Nut Acreage of 3,500 Acres or More

In order to shred the prunings, farmers have two options, purchase a shredder or hire a custom shredder. Some large growers have already purchased shredders as an alternative to burning prunings. For agricultural operations whose total nut crop acreage is 3500 acres or more, it is more economically feasible to purchase a shredder than hire a custom shredder. The ROS for this alternative is 8.5% and therefore, below the District's threshold. Thus, the District has proposed prohibiting the burning of almond, walnut, and pecan prunings for growers with agricultural operations whose total nut crop is larger than 3500 acres since shredding and soil incorporation is an economically feasible alternative.

- Total Nut Acreage of Less Than 3,500 Acres

For agricultural operations whose total nut crop is less than 3500 acres at all operation sites, the purchase of a custom shredder is cost prohibitive. Therefore, costs associated with hiring a custom shredder were evaluated. Custom shredders charge a two-hour service fee and are capable of shredding up to 20 acres within this time. Therefore, for operations smaller than 20 acres, the cost becomes much higher on a per acre basis. While the District's contractor did not look specifically at the ROS for a 20 acre threshold, the contractor did determine that for 15 to 24.9 acres, the ROS would be 10.3% and therefore above the threshold established by the District. Therefore, the District has proposed allowing burning of up to 20 acres per year.

The ROS for pruning more than 25 acres was 10%. Growers have expressed concerns that due to the limited number of custom shredders operating in the San Joaquin Valley, their services may not be available within the time frame consistent with established pruning/spraying/irrigating practices. Therefore, the District has proposed to allow additional burning beyond the 20 acres provided:

- The agricultural operator submits to the District Air Pollution Control Officer (APCO) before the pruning operation is completed, a representative cost estimate(s) for shredding all prunings generated by the total nut acreage at the agricultural operation site. The cost estimate(s) shall reflect shredding in a time frame that allows the operator to proceed with established post-pruning cultural practices; and

- The APCO determines that either the submitted cost estimate(s) represent(s) an unreasonable financial impact to the operator, or that adequate shredding

services are not available in time for the operator to proceed with established post-pruning cultural practices.

Orchard Removal Matter of 20 Acres or Less

Since June 2007, the District has required a case-by-case economic justification for permitting burns of 20 acres or less in farms of greater that 100 cumulative acres. Analysis of this information led the District to limit the number of burning permits issued, in accordance with the provisions for narrow implementation of burning for orchards of 20 acres or less established in 2007.

Based on information collected as part of this case-by-case evaluation, the chipping/biomass option for orchard removal materials is cost effective for farms of less than 100 acres, with an estimated ROS of 7.0%. However, based on updated information gathered on grind and haul costs, the per-acre chipping costs increases significantly for the smallest orchards within this size range. While chipping becomes economically infeasible for the removal of 15 acres or less, the cost per acre appears to level out when chipping more than 15 acres. Therefore, the District recommends reducing the burn allowance threshold for orchard removals to 15 acres or less per location per year, with case-by-case economic determinations no longer required.

Fig Orchard Removal

Chipping of fig orchard removal material and subsequent transport to biomass power plants has been used by some larger operations. However, as for other small orchards, this option becomes too expensive and therefore infeasible when removing 15 acres or less. Therefore, the District has recommended limiting the burning allowance for fig orchard removals to 15 acres or less per location per year, equivalent to the requirements for other orchard removals.

Biomass Facility Funding Criterion

There is currently no long-term federal or state commitment for the operation of biomass facilities or the development of alternatives to burning. Biomass facilities have received funding from the California Energy Commission via the Existing Renewable Facilities Program (ERFP) and short-term federal tax credits through the Renewable Electricity Program Tax Credit, but there is no long term funding available at this time.

Ensuring the ability to finance and support biomass development by providing state-backed loan guarantees, government procurement programs, long-term contracting and other financial mechanisms would help stimulate the investment necessary to build the production capacity and infrastructure needed.

Air Quality Impacts

Daily (24-hour) PM2.5 and 8-Hour Ozone Standards

The San Joaquin Valley is currently designated nonattainment for the federal PM2.5 and 8-hour ozone standards. While the proposed postponements would allow some burning to continue, in practice, burning is substantially limited by the District's Smoke Management System. As described earlier, the System is designed to limit burning on high pollution days in order to avoid contributing to a violation of federal 8-hour ozone or 24-hour PM2.5 standards.

In addition, per District policy, agricultural burning is not allowed in specified zones when no-burn days have been declared for residential wood burning from November through February, the PM2.5 high season in the Valley. The District declares no-burn days when the potential for a PM2.5 concentration of 30 $\mu g/m^3$ or greater is predicted for a region within the Valley.

Finally, while these programs ensure that agricultural burning does not contribute to violations of short-term air quality standards, they are also designed to minimize localized public health impacts by carefully managing where and when burning can occur.

Annual PM2.5 Standard

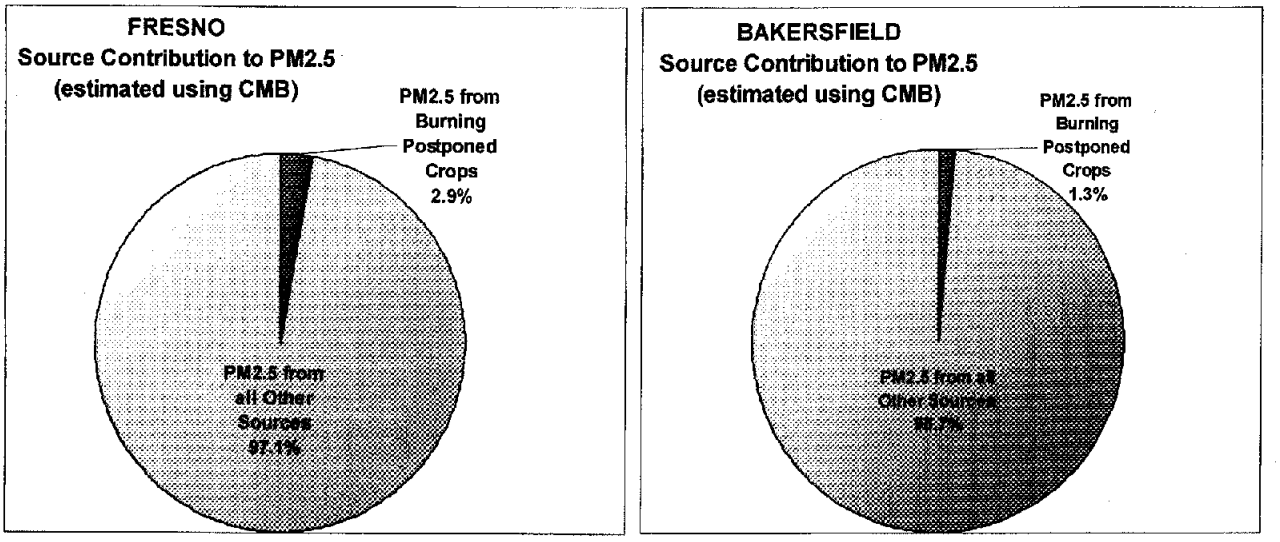
ARB staff also evaluated the impact of the agricultural burning postponements currently recommended in the District's ***Proposed Staff Report Recommendations on Agricultural Burning*** on the federal annual PM2.5 standard. This analysis showed that the postponement would not substantially contribute to a violation of the annual PM2.5 standard.

ARB staff's assessment used two source apportion modeling methods, Chemical Mass Balance and Positive Matrix Factorization, previously used in the District's 2008 PM2.5 Attainment Plan, Modeling results estimate smoke from vegetative burning, which reflects contributions from residential wood burning, agricultural and forest management burning, and wildfires. The contribution from agricultural burning was determined based on the proportion of agricultural burning emissions to total vegetative burning in the emission inventory. The source apportionment methods used data from 2004-2006.

PM2.5 emissions from agricultural burning have further decreased in recent years. Compared to the 2004-2006 average, 2008 PM2.5 emissions were 43% and 52% lower in Fresno and Kern Counties, respectively. Therefore, in 2008, the burning of crops with proposed postponements is estimated to contribute from 0.28 ug/m^3 to 0.51 ug/m^3 to annual PM2.5 concentrations, depending on location and source apportionment method. The 2008 annual design values for Fresno and Kern Counties are 17.1 ug/m^3 and 21.3 ug/m^3, respectively. Therefore, the emissions from the proposed burn

prohibition crops would contribute about 2.9% of the PM2.5 mass annually in Fresno County and about 1.3% in Kern County (Figure 2).

Figure 2. Contribution of Continued Agricultural Burning to Ambient PM2.5 Concentrations in Fresno and Bakersfield



III. STAFF RECOMMENDATION

ARB staff has reviewed the District's ***Proposed Staff Report Recommendations of Agricultural Burning*** dated April 20, 2010. ARB staff's evaluation focused on whether the District staff proposals comply with the following requirements specified in SB 705 for any postponements of the phase-out:

- There is no economically feasible alternative means of eliminating the waste;
- There is no long-term federal or State funding commitment for the continued operation of biomass facilities in the San Joaquin Valley or development of alternatives to burning; and
- The continued issuance of permits will not cause, or substantially contribute to, a violation of an applicable federal air quality standard.

Based on this evaluation, ARB staff believes that there continues to be a number of impediments to fully implementing alternatives to burning for selected crop categories. Issues include the availability of technically feasible alternatives, the higher costs of non-burning alternatives, prevention of the spread of disease, and the ability of chippers/shredders and biomass facilities to handle the increased load of agricultural material.

The comprehensive evaluation of potential alternatives, as well as the methodology for assessing economic feasibility, demonstrates that that there are no economically

feasible alternatives to burning for the crop categories the District has recommended for limited term postponements. In addition, despite several prior short-term biomass incentive programs, there are no long-term funding commitments for the continued operation of biomass facilities in the Valley. Finally, ARB staff's evaluation shows that due to the daily limitations on agricultural burning resulting from implementation of the District's smoke management system, as well as the significant decline in the overall amount of agricultural burning, the remaining burning will not cause or substantially contribute to violations of federal air quality standards.

ARB staff recommends that the Board concur with District's proposal, contingent upon approval by the District Governing Board.