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**PROPOSED
IMPLEMENTATION OF
SENATE BILL 656, SHER 2003**

FINAL STAFF REPORT

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I. EXECUTIVE SUMMARY

On July 13, 2005, the Yolo-Solano Air Quality Management District (District) Board of Director's will consider the proposed implementation schedule for Senate Bill 656 Sher 2003 (SB 656).

Reducing particulate matter (PM) air pollution is one of California's highest public health priorities. PM consists of very small liquid and solid particles suspended in the air. Particles smaller than 10 microns in size are known as PM10, fine particles less than 2.5 microns in size are known as PM2.5.

Ambient PM is comprised of both directly emitted PM such as dust or soot, known as primary PM, as well as PM formed in the atmosphere from the reactions of precursor gases, known as secondary PM. These precursor gases include nitrogen oxides (NOx), sulfur oxides (SOx), volatile organic compounds (VOC), and ammonia.

In 2003, the Legislature enacted Senate Bill 656 (SB 656, Sher), codified as Health and Safety Code (H&SC) section 39614, to reduce public exposure to PM10 and PM2.5. As a first step, SB 656 requires the California Air Resources Board (CARB), in consultation with local air districts, to develop and adopt a list of the most readily available, feasible, and cost-effective control measures that could be adopted to reduce PM10 and PM2.5. As a second step, SB 656 requires the CARB and air districts to adopt implementation schedules for appropriate CARB and air district measures by July 31, 2005. The implementation schedules will identify the selected subset of measures, and the dates for final adoption, implementation, and sequencing of selected control measures. The objective is to make progress toward attainment of State and National PM10 and PM2.5 standards.

The proposed list of control measures was adopted by CARB in November 2004. The list is based on rules, regulations, and programs existing in California as of January 1, 2004, for stationary, area-wide, and mobile sources. In developing the implementation schedule, CH&SC section 39614 requires each air district to prioritize adoption and implementation of proposed control measures based on the effect individual control measures will have on public health, air quality, emissions reductions, and on the cost-effectiveness of each control measure.

The development of the implementation schedule began with an assessment of the nature and severity of the PM problem in the District. The District identified appropriate control measures based on the magnitude and nature of the PM problem in the District. The District considered technological feasibility, emission reduction potential, rate of reduction, public acceptance, enforceability, and cost-effectiveness of these measures based on available information. The District tailored the implementation schedule accordingly. The following measures will be subject to a more in depth evaluation during the rule development process. The implementation schedule is as follows:

YSAQMD PM Control Measures		
Control Measure	Description of Measure	Estimated Time Frame
General Rules to Reduce Directly Emitted PM from Stationary and Area Sources		
Visible Emission Limits	Limits visible emissions to 20% opacity.	2007
Combustion Contaminants	Prohibits discharge of combustion contaminants to 0.1 grains per cubic foot of gas.	2007
Grain Loading	Limits emissions of PM from grain loading to 0.1 grains per cubic foot of dry exhaust gas.	2007
Combustion		
Residential Water Heaters	Will consider limiting emissions to 20 or 10 ng/joule	2008
Furnaces (Central Furnaces)	Will consider limiting NOx to 40 ng/joule for gas fired residential units rated at less than 175,000 btu/hr	2008
Fugitive Dust		
Paved Road Dust	Establish requirements for dust control including street sweeping and use of PM10 efficient street sweepers	2009-2010
Unpaved Road Dust	Establish requirements for dust control from unpaved roads	2009-2010
Construction, Carryout and Trackout, Demolition, Excavation, Extraction, Grading, and Other Earthmoving Activities	Establish requirements for dust from general construction activities	2009-2010
Agricultural Operations	Establish requirements for dust control from agricultural operations	2009-2010

II. BACKGROUND

Overview of Particulate Matter

Particulate matter is a mixture of liquid and solid particles suspended in the air, which vary in size and composition. Particles less than ten microns in size are referred to as PM₁₀ and those less than two and a half micron in size are referred to as PM_{2.5}. For comparison, the diameter of a human hair ranges from approximately 50 -100 microns. Ambient PM is comprised of both directly emitted PM such known as primary PM, as well as PM formed in the atmosphere from the reactions of precursor gases, known as secondary PM.

Primary sources include stationary, mobile, area-wide, and natural particulate generating processes. Sources of primary PM include mechanical processes such as windblown dust, sea salt, road dust and combustion generated particles such as fly ash and soot. Secondary PM comes from gases chemical reactions involving oxygen, water vapor, reactive species, and pollutants such as SO_x, NO_x, VOCs, and ammonia. Secondary particles may come from many sources formed under varying atmospheric conditions, resulting in more difficulty in relating ambient concentrations of secondary species to sources of precursor emissions.

Emission inventories alone may not account for secondary particles formed in the atmosphere from precursor gases. Emission inventories quantify criteria pollutants directly emitted from specific sources. The emissions are based on methodologies developed for specific categories of sources. While the emission inventories are useful tools for quantifying primary PM, more analysis is needed to effectively quantify secondary PM.

Coarse and fine particles display different physical and chemical properties. Coarse particles tend to settle more rapidly (minutes to hours) whereas fine particles tend to remain suspended in air for a larger time (days to weeks). Coarse particles tend to travel shorter distances than fine particles. Coarse particles generally travel less than a kilometer, whereas fine particles can travel in the order of hundreds of kilometers. The reaction rate for the secondary formation of particles can be a function of particle size. Therefore secondary formation of particles is an important component of fine particle concentration.

Health Effects from PM Exposure

Reducing particulate matter air pollution is one California's highest public health priorities. Mounting scientific evidence links exposure to particulate matter especially fine particles, to asthma attacks, pneumonia and bronchitis, acute respiratory symptoms, decreased lung function, premature death, respiratory related hospital admissions and emergency room visits, and work and school absence. The most sensitive groups, the elderly, those with pre-existing heart and lung disease, children and infants, and asthmatics have an increased risk of experiencing the harmful effects from exposure to particulate matter. Exposure to PM₁₀ and PM_{2.5} is of special concern because these small particles are not filtered by the bodies natural defense mechanisms, but pass into the respiratory tract. Finer particles have the ability to penetrate and lodge deep into lungs.

Many components of fine particulate matter can be toxic, and therefore pose significant health risks. Particulate matter found in diesel emissions include at least 16 hydrocarbons that are classified as possibly carcinogenic. Compounds found in the vapor phase of diesel exhaust include benzene, formaldehyde, 1-3 butadiene and ethylene dibromide. Diesel PM contributes approximately 70% percent of all the cancer risk associated with all currently identified toxic air contaminants in the State.

State and Federal Standards

The United States Environmental Protection Agency (U.S. EPA) and CARB have adopted ambient air quality standards for PM10 and PM2.5 listed in Table 1. California's standards are the most health protective in the nation, and are designed to provide additional protection for the most sensitive groups of people.

Virtually the entire State is in nonattainment for the State PM10 standard, with most urban areas and a few isolated sub-areas for the State PM2.5 standard. Attainment of California's standards is expected to result in the yearly prevention of an estimated 6,500 premature deaths, 400,000 incidences of lower respiratory symptoms among children ages 7-14, and over two million lost work days for the State (CARB).

Table 1: State and National Particulate Matter Ambient Air Quality Standards. The levels of standards are expressed in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).

Ambient Air Quality Standards		
	California ($\mu\text{g}/\text{m}^3$)	National ($\mu\text{g}/\text{m}^3$)
PM₁₀		
Annual	20	50
24-hour	50	150
PM_{2.5}		
Annual	12	15
24-hour	-----	65

Yolo-Solano Attainment Status

The District is currently in attainment for the National PM10 and PM2.5 standards. However, the District is in nonattainment for State PM10 standards, and unclassified for the State annual PM2.5 standard. An unclassified status has been designated due to insufficient data to support a classification of attainment or nonattainment. The following table lists the 24-hour and annual designation values for the State standards in the 2001-2003 period. The designation value is the value used for determining attainment status. Designation values represent the highest 24-hour PM10 concentration measured during the three year period, after concentrations measured during highly irregular and infrequent events have been excluded, and the highest estimated PM10 and Pm2.5 annual average in the same period.

Table 2: Yolo-Solano Designation Values for State Standards (2001-2003)

	PM10 (? g/m ³)		PM2.5 (? g/m ³)
	24-Hour	Annual Average	Annual Average
Designation Value	87	28	IC

IC-Incomplete Data

The following table includes the designation values for each monitoring site in the District. The data shows all monitoring sites in exceedance of State PM10 standards. West Sacramento recorded the highest concentrations. Although data are not complete for all years and sites, PM2.5 annual average concentrations at Woodland are below the State annual PM2.5 standard.

Table 3: Monitoring Site Designation Values for State standards (2001-2003)

Site	PM10 (? g/m ³)		PM2.5 (? g/m ³)
	24-Hour	Annual Average	Annual Average
Davis	No Monitor	No Monitor	IC
Vacaville	74	21	No Monitor
West Sacramento	87	28	No Monitor
Woodland	86	27	8

IC -Incomplete Data

The following table summarizes PM10 and PM2.5 concentrations and number of exceedances of State standards. The table lists maximum concentrations measured in the District from any monitor . The information is used to estimate the number of days the District exceeds the State standards. The table demonstrates the District exceeded State standards for PM10. In 2003, annual PM2.5 levels remained below the State annual PM2.5 standard, however there is insufficient data to determine if the standard was exceeded in 2001 and 2002.

Table 4: PM10 and PM2.5 Concentrations and Exceedances (2001-2003)

Year	PM10			PM2.5	
	Calculated Days over State Std	Max 24-hour (? g/m ³)	Max Annual Average (? g/m ³)	Max 24-hour (? g/m ³)	Max Annual Average (? g/m ³)
2001	30	101	28	57	IC

2002	37	87	28	69	IC
2003	12	70	16	42	8

IC - Incomplete Data

III. PARTICULATE CHARACTERIZATION AND SOURCE CONTRIBUTORS

Seasonal Variation

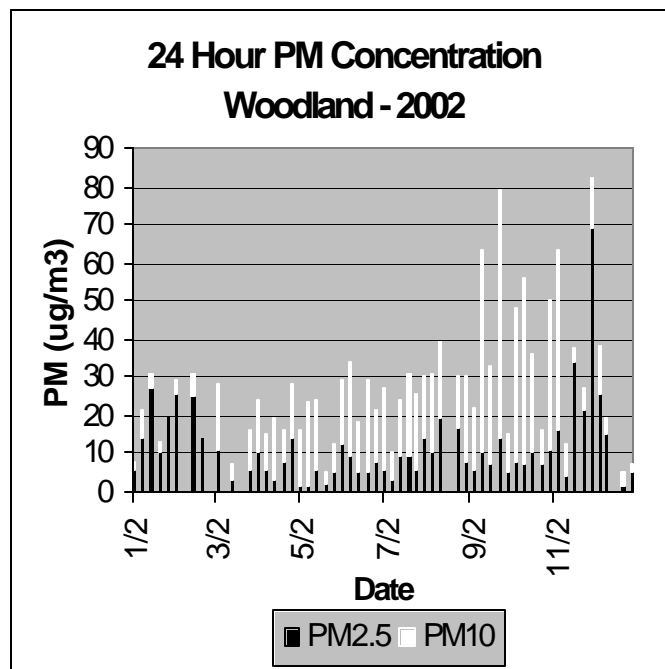
The size, concentration, and chemical composition of PM vary by season and by region depending on the mix of contributing sources and meteorology. Many areas exhibit strong seasonal patterns, whereas others have a more uniform distribution.

The District is considered to be a part of the Sacramento Air Basin. The Sacramento region displays strong seasonal variations in PM, with higher PM10 and PM2.5 concentrations in the fall and winter months due to increased activity for some emission sources and meteorological conditions that are conducive to the buildup of PM.

The following figures illustrate the seasonal variation of PM10 and PM2.5. Peak concentrations of PM10 are recorded during the early fall and winter. The coarse fraction (particles between PM2.5 and PM10 in size) is largest during the early fall. The coarse fraction is primarily due to activities that resuspend dust, such as emissions from paved and unpaved roads and construction. Peak concentrations of PM2.5, however, are observed in the late fall and winter. The colder and more stagnant conditions during this time of the year are conducive to the buildup of PM2.5, including the formation of secondary ammonium nitrate.

Figure 1: Seasonal Variation of PM10 and PM2.5, Concentrations Recorded in Woodland in 2002

The total height of the bars represents PM10 concentrations, while the black portion of the bars represent the PM2.5 fraction. The remaining white portion of the bar represents the coarse fraction.



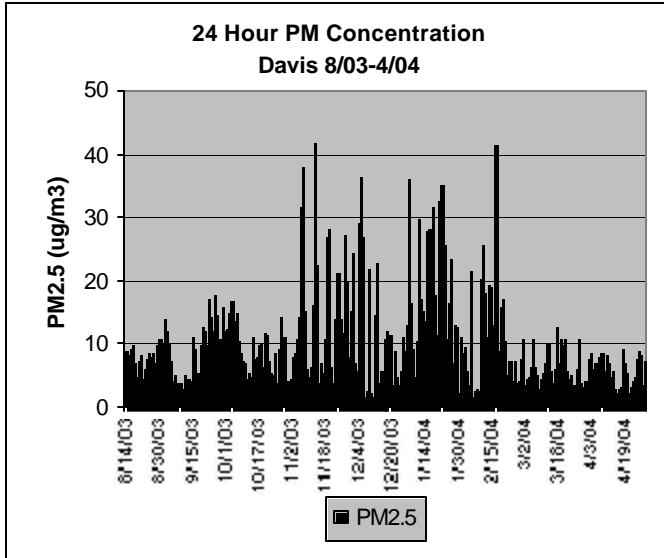


Figure 2: Seasonal Variation in PM2.5 Concentrations, Recorded in Davis from August 2003 until April 2004.

During the winter, the PM 2.5 size fraction drives the PM concentrations. Based on 2000-2003 monitoring data, it is estimated the PM2.5 contribution to ambient PM10 at the Woodland monitoring site to be approximately 80% during December and January, and approximately 40% on an annual average basis.

Chemical Composition of Particulate Emissions

There is no chemical composition data specific to the District. Therefore Staff analyzed information from other sites in the air basin. The CARB, operates monitors assessing various chemical species contributing to PM2.5 and PM10. This data combined with “chemical fingerprints” for various emissions sources illustrates the major contributors to ambient particulate levels. These analyses are called chemical mass balances (CMB). This data includes contributions from secondary sulfate and nitrate formed from reactions in the atmosphere of nitrogen oxides and sulfur oxides from motor vehicle exhaust and other combustion processes. The following figures illustrate contributions from secondary nitrate and sulfate are significant contributors to PM10 and PM2.5 in the winter.

Sacramento Winter PM10 (1991-1996)

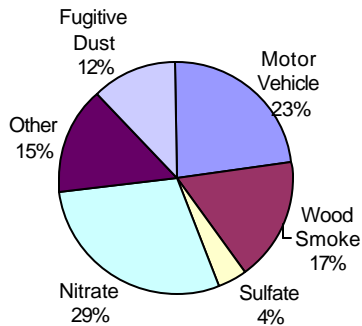


Figure 3: PM10 CMB Source Data

Sacramento Winter PM 2.5 (1991-1996)

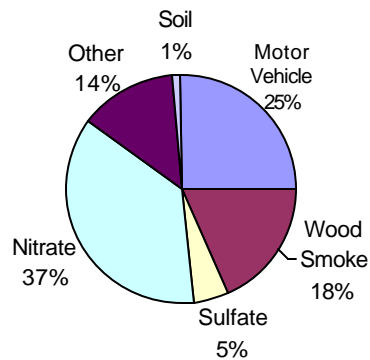


Figure 4: PM2.5 CMB Source Data

Emission Inventory

The CARB maintains an emission inventory which estimates criteria pollutants directly emitted from source categories, including stationary sources, area-wide sources, mobile sources, and other mobile sources. Emissions are based on methodologies developed for specific sources within each category. The following charts were plotted based on the CARB emission inventory for the District.

2004 Emission Inventory Annual PM 10

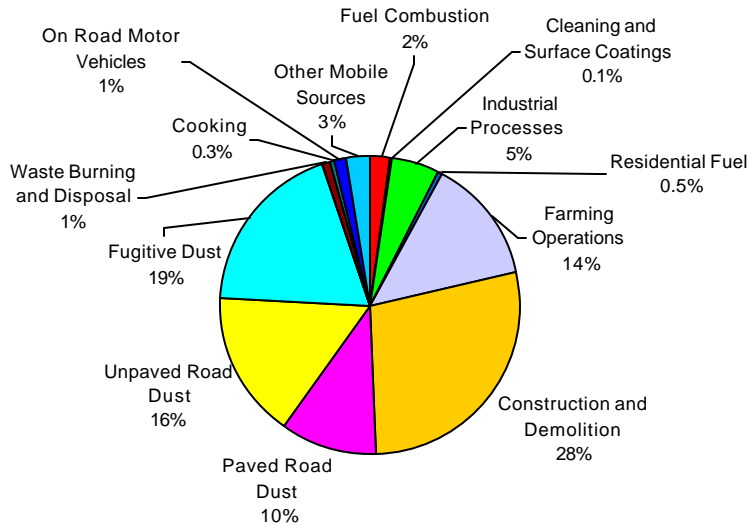


Figure 5: 2004 Emission Inventory PM10 Annual Average.

Figure 5 was plotted using information from the CARB emission inventory. The results used represent the annual average of PM10 emitted, reported in tons per day. The annual average was used for this chart because analysis of the seasonal variation for PM10 shows PM10 levels start increasing in the late summer months and peak in the early fall. Therefore, using a summer or winter model may not be adequate for representing approximate contributions from sources during either of those seasons.

2004 Emission Inventory Winter PM 2.5

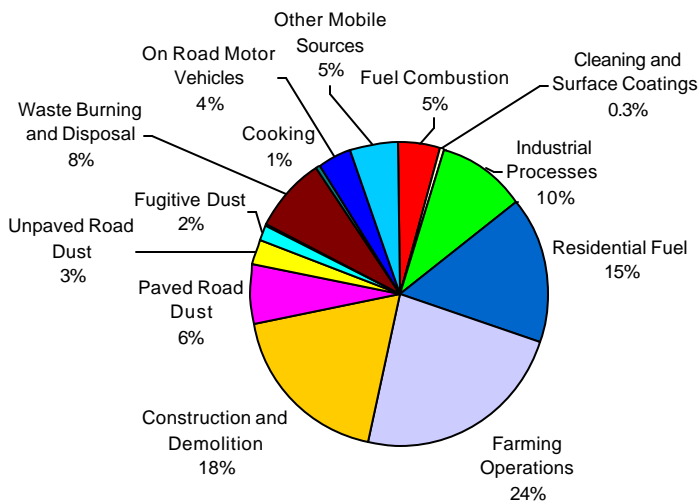


Figure 6: 2004 Emission Inventory PM2.5 Winter Average.

The results used represent the expected contribution of each category to directly emitted PM2.5 for the winter season. The winter season was used for PM2.5 because analysis of the seasonal variation for PM2.5 suggested PM2.5 levels are highest in the late fall and winter seasons and can drive the particulate concentration during these months.

IV. SELECTION PROCESS

FOR PROPOSED MEASURES

As required by SB 656, CARB prepared three lists of proposed control measures which could be implemented to make progress toward attainment of State and federal standards for particulate matter. The first two lists include control measures that are or could be employed by CARB, and the third list includes control measures for local air districts to consider. The first two lists concentrate on strategies for mobile sources, portable equipment, consumer products, and airborne toxic control measures. The list of measures directed for air districts, include measures for stationary sources, transportation-related programs, and incentive programs considered to be readily available, feasible, and cost-effective.

The list of control measures for local air districts is a compilation of measures which generally represents the best level of emission control that had been adopted by an air district by January, 1, 2005. The list is considered to have the potential for the greatest degree of health protection, as well as, provides adequate measures for areas with the most severe nonattainment problems.

It is the intent of SB656 for air districts to select a subset of measures from the list appropriate to the level of control needed given the district's individual PM problem. Areas with more severe problems, or with contributions from unique sources need to consider the broader group of measures. CARB recognizes some areas are closer to attainment and may be able to select from a shorter list of basic measures. CARB also compiled information which identified areas of concern specific to air basins.

A provision of SB656, prohibits the District from including control measures which are similar to control measures already adopted or scheduled for adoption within two years of the adoption of the implementation schedule. Additionally, the implementation schedule may not include measures the District has adopted or is scheduled to adopt within two years of the adoption of the implementation schedule as part of the districts ozone attainment plan.

Prioritizing PM Control Measures for Yolo-Solano

District staff performed a preliminary evaluation and screening of the comprehensive list of control measures provided by CARB. The list was divided into three categories, potential SB656 control measures, SB656 control measures -already adopted, and SB656 control measures excluded -no sources. The potential measures were identified for further evaluation. Measures were excluded if the measure or a substantially similar measure has been adopted by the District or is covered in an existing rule. Measures that the District has already committed to adopting or amending, as part of the 2003 Triennial Plan were included on this list of measures to be excluded. The third category has been amended to include measures which will not be included because the District has no sources, emissions from this source category are minimal, or the District has concluded it will have minimal impact on emissions. The finalized table divided into the three categories is included as Attachment A.

Assessing the nature and severity of the PM problem in the District, is a necessary first step in prioritizing the control measures suitable for adoption. Control measures were prioritized based on the effect the measure will have on public health, air quality, emission reductions, and cost effectiveness, appropriate to the specific needs of the Yolo-Solano District. In this examination, the District considered technological feasibility, emission reduction potential, rate of reduction, public acceptance, enforceability, and placed emphasis on measures identified by CARB as areas of concern for the Sacramento Valley Air Basin. The areas of concern specific to Yolo-Solano include paved and unpaved roads, secondary ammonium nitrate and sulfate, and vehicles.

The following table includes the list of identified potential PM control measures, including prioritization analysis, estimated time frame, and then a ranking of high (H), low (L), or medium (M). The ranking is based on the prioritization in combination with cost effectiveness. The ranking designates whether the measure will be on list and the placement of identified measures. In prioritizing these control measures, the analysis was based on existing data resources. The estimated cost effectiveness was generally based on the numbers provided by CARB for the measures. These figures were taken from the staff reports of Districts who have adopted the measures. In addition the numbers were adjusted for analyses the District has internally performed, or information obtained from other Districts. A more refined analysis will be conducted at the time the measure is evaluated for adoption. Each control measure selected will be subject to the District's rule adoption proceeding.

Potential SB 656 Control Measures					
Measure #	Control Measure	Description of Measure	Prioritization	Estimated Cost Effectiveness \$/ton	Ranking
Fugitive Dust					
24-28, 32, 38-43	Construction: Earthmoving	Establish requirements for earthmoving, demolition, and grading operations, such as application of water, chemical stabilizers or dust suppressants.	Relevant source of emissions, no similar rule or regulation of source type by District, public acceptability unknown, require additional resources for enforcement	\$100-\$28,293	L
30-31	Carryout and Track-out	Requirements for track-out removal, track-out control devices at public roads.			L

Potential SB 656 Control Measures					
Measure #	Control Measure	Description of Measure	Prioritization	Estimated Cost Effectiveness \$/ton	Ranking
33-34	Paved Road Dust:	Establishes requirements for road including use of PM10 efficient sweepers by governmental agencies	Target source of emissions, no similar rule or regulation in place of source type by District, public acceptability unknown, require additional resources for enforcement	\$33-\$2,850	L
36-37	Unpaved Roads/ Parking	Set control requirements for unpaved roads, paved shoulders, curbing, chemical suppressants. Establishes requirements for sweeping.	Target source of emissions, no similar rule or regulation in place of source type by District, public acceptability unknown, require additional resources for enforcement	\$56-\$12,293	L
44	Agricultural Operations	Set requirements for agricultural sources, treating unpaved roads, watering, and other dust-reducing measures.	Target source of emissions, expected low public acceptance, require additional resources for enforcement	\$8-\$958	L
Combustion Sources					
51.c	Furnaces (Central Furnaces)	Sets a NO _x limit of 40 ng/joule for gas fired residential units rated at less than 175,000 btu/hr	Secondary PM source, other districts have implemented, compliant furnaces already available, questionable emission reductions, are furnaces sold already meeting Nox limit	Minimal to \$6,800	M
52	Residential Water Heaters (NOx)	Limits the emissions to 20 ng/joule and set a future limit of 10 ng/joule.	Secondary PM source, already have a water heater rule could be easily implemented, estimated to have a limited impact on emissions	\$2,000-\$16,000	M

Potential SB 656 Control Measures					
Measure #	Control Measure	Description of Measure	Prioritization	Estimated Cost Effectiveness \$/ton	Ranking
General Rules to Reduce Directly Emitted PM from Stationary and Area Sources					
89	Visible Emission Limits	Limits visible emissions to 20% opacity.	Limits emissions from many sources, rule already in place for sources, can be easily enforced, other districts have had similar rule in place with these restrictions for decades so will have public acceptability	TBD	H
90	Combustion Contaminants	Prohibits discharge of combustion contaminants to 0.1 grains per cubic foot of gas.		TBD	H
91	Grain Loading	Limits emissions from PM from grain loading to 0.1 grains per cubic foot of dry exhaust gas.		TBD	H

V. MEASURES PROPOSED

After evaluating the ranking of the control measures, the District has assigned a time frame to the identified measures based on available District resources. The District will further evaluate the measures based on the order of the ranking, taking into consideration commitments to rule making already made. The information is presented in the Executive Summary in table format.

2007 Visible Emission Limits, Combustion Contaminants, Grain Loading
 2008 Residential Water Heaters, Central Furnaces
 2009-2010 Fugitive Dust

VI. PUBLIC COMMENTS AND STAFF RESPONSES

Staff held a public workshop on June 1, 2005, to discuss the implementation of SB656. District staff reviewed the potential control measures which may be adopted, identified probable measures, and discussed a preliminary time line for implementation. Notification was sent to surrounding Air Districts, City Manager Offices within the District, building/planning/community development departments within the District, all city and county libraries within the District, and all permitted sources in the District. The workshop notice

was published in all newspapers widely circulated in the District including the Vacaville Reporter, Woodland Daily Democrat, Davis Enterprise, Winters Express, Dixon Tribune, West Sacramento Legal, and the River News Herald.

A copy of the public workshop notice, list of control measures, and Staff Report, were posted on the District's web page.

Public Workshop

The public workshop was attended by one (1) representative from industry, one (1) City of West Sacramento representative, one (1) Solano County representative, one (1) El Dorado County AQMD representative

District Staff will attempt to paraphrase the verbal comments that were discussed during the workshop and respond to each comment.

Comment 1. Industry expressed concern regarding the adoption of rules already in place in other Districts. Enquired if the measures would be adopted as stated in the list of potential measures. Concerned because they weren't involved in the rule making in these measures.

Response 1. District explained the implementation schedule is a list of when the measure will be subject to the District's rule making procedures. During this period the District will follow rule development protocol. The District will take an in depth look at the control measures to determine which requirements will be developed. This will include an evaluation of relevant measures other Districts have developed. During this procedure the District will open the rule for discussion from industry, and any other affected or interested party to ensure the rule will be a good fit for the District. Staff encouraged the submittal of formal comments.

Written Comments

In response to the discussion at the workshop written comments were submitted to the District by one company and are included in Attachment B.

Response 1. The District is not committing to any specific requirements in publishing the implementation schedule. The schedule outlines a timeline the District will evaluate the category of control measures identified, and examine if adoption of individual requirements are warranted under formal rule making protocol. During this period, the District will solicit public input and work with any potentially affected sources to develop a rule which is specific to the air

issues of the District.

VII. REFERENCES

1. SMAQMD Staff Report, SB656 Assessment and Control Measure Evaluation (May 10, 2005).
2. State of California. California Air Resources Board, 2005 Emission Inventory.
3. State of California. California Air Resources Board, Historical Air Quality.
4. State of California. California Air Resources Board, Proposed List of Measures to Reduce Particulate Matter -PM10 and PM2.5 (Implementation of Senate Bill 656, Sher 2003).
5. State of California. Senate Bill 656 (Sher 2003).
6. U.S. Environmental Protection Agency (NCEA), Air Quality Criteria for Particulate Matter Volume I (October 2004).

ATTACHMENT A

The District staff has performed a preliminary evaluation and screening of the listed control measures. The measures have been split into three categories, as follows:

1) Potential SB656 Control Measures

These measures will be evaluated by staff and discussed through the public workshop process. For these measures, unless otherwise noted, the estimated cost effectiveness is what was identified by the ARB. There were several categories for which the ARB did not estimate cost effectiveness, and therefore these measures are listed as To Be Determined (TBD) if our District will have to develop a number.

2) SB656 Control Measures Excluded - Already Adopted

These measures (or substantially similar measures) are covered by existing District rules or by rules that the District has committed to adopting/amending as part of the 2003 Triennial Plan and therefore will not be identified in the implementation schedule. No further measures are required for these source categories.

3) SB656 Control Measures Excluded - No Sources/Minimal Emissions

These measures will not be included in the implementation schedule because the District has no sources, has minimal emissions from the source category, or expects the measure to have a minimal impact on emission reductions or District air quality.

Potential SB 656 Control Measures				
Measure #	Strategy	Description of Measure	Comment	Estimated Cost Effectiveness \$/ton
Fugitive Dust				

Potential SB 656 Control Measures				
Measure #	Strategy	Description of Measure	Comment	Estimated Cost Effectiveness \$/ton
24	Construction: Earthmoving	Application of water or dust suppressants to limit the visible dust emissions (VDE) to an opacity limit of 20% or prohibit VDE beyond property lines. A dust control plan could be required for large parcels moving specified amount of earth.	Many of the measures identified for fugitive dust (#24 - 43) are considered by the District's planning staff as part of the California Environmental Quality Act (CEQA) process. The measures that are appropriate are recommended as mitigation strategies. The District will evaluate the San Joaquin Valley and South Coast districts' rules and consider whether any of the measures are appropriate for our District.	\$197 - \$304
25	Construction: Demolition	Application of dust suppressants to limit VDE to 20% opacity and prohibit VDE beyond the property line. Bulk material and track-out requirements could be set.		\$197
26	Construction: Grading Operations	Requires pre-watering to limit VDE to 20% opacity, phasing of work, and the application of stabilizers to areas where construction will not begin for a set time period after grading.		\$197
27	Inactive Disturbed Land	Restricts vehicle access, requires the application of water/dust suppressants, stabilization of the surface, and prohibits VDE beyond the property line.		\$197
28	Bulk Materials: Handling/ Storage	Establishes wind barriers, watering, prohibits VDE beyond the property line, and limits VDE to 20% opacity.		\$1,151 (handling) - \$28,293 (storage)
30	Carryout and Track-out	Requires track-out removal, track-out control devices at public roads.		\$100 - \$186,000

Potential SB 656 Control Measures				
Measure #	Strategy	Description of Measure	Comment	Estimated Cost Effectiveness \$/ton
31	Carryout and Track-out: Clean-up Methods	Requires manual sweeping, either with a brush /broom with wetting or operating a PM 10 street sweeper with 80% efficiency.		TBD
32	Disturbed Open Areas	For non-agricultural parcels three acres or larger: application of water/dust suppressants to unvegetated areas to limit VDE to 20% opacity, posting of “no trespass” signs or installation of barriers to prevent access to areas. Non-agricultural parcels for residential or non-residential use over half acre: application of stabilizers, or establishing drought resistant vegetation as quickly as possible.		\$197 - \$7,020
33	Paved Road Dust: New/Modified Public and Private Roads	Requires paved shoulders for roads with average daily trips of 500 or more.		\$5, 577 - \$11,300
34	Paved Road Dust: Street Sweeping	Requires the use of PM 10 efficient street sweepers by governmental agencies or their contractors where the contract date, purchase date, or lease date is after a specified date.		\$100 - \$1,119

Potential SB 656 Control Measures				
Measure #	Strategy	Description of Measure	Comment	Estimated Cost Effectiveness \$/ton
36	Unpaved Parking Lots/Staging Areas	On days with 75 or more vehicle trips, water, washed gravel, or chemical /organic dust suppressants must be applied or the use of other methods to control VDE to 20% such as vegetative materials, or paving. Days with 100 or more vehicle trips requirements for stabilized surfaced must be met. Another option is to require a Fugitive PM 10 Management Plan which achieves 50% control efficiency.		\$344 - \$12,293
37	Unpaved Roads: Control Requirements	The same measures discussed in the previous category as well as set applicability standards for unpaved roads including size and location requirements, and periodic treatment.		\$56 - \$5,920
38	Weed Abatement Activities	Pre-activity requirements including, pre-watering, phasing work, water application during activity, and stabilization during inactive periods.		TBD
39	Windblown Dust: Definitions	Defining windblown dust as any visible emissions from any disturbed surface generated by wind alone.		TBD

Potential SB 656 Control Measures				
Measure #	Strategy	Description of Measure	Comment	Estimated Cost Effectiveness \$/ton
40	Windblown Dust: Construction/ Earth Moving	Water application, ceasing active operations, chemical stabilizer application, and stopping vehicular traffic.		\$197
41	Windblown Dust: Disturbed Areas	Applying water and chemical stabilizers.		\$197
42	Windblown Dust: Bulk Materials/ Storage Piles	Requires water application or temporary coverings.		\$197 - \$462
43	Windblown Dust: Open Areas	Requires 50% vegetation cover, or 75% wet or saturated water cover, or 4 inch gravel to areas that cause or contribute to an exceedance of the federal PM 10 standard.		\$697
44	Agricultural Operations	Limits fugitive dust from off-field agricultural sources by requiring Fugitive Dust Management Plans, ceasing tilling/mulching activities during periods when wind speeds are high, limiting fugitive dust from livestock operations by ceasing activity under certain conditions, treating unpaved access areas with pavement, gravel or asphaltic road-base, or requiring a dust plan.		\$8 - \$958
Combustion Sources				

Potential SB 656 Control Measures				
Measure #	Strategy	Description of Measure	Comment	Estimated Cost Effectiveness \$/ton
51.c	Furnaces (Central Furnaces)	Sets a NO _x limit of 40 ng/joule for gas fired residential units rated at less than 175,000 btu/hr		Minimal cost to \$6,800
52	Residential Water Heaters (NOx)	Limits the emissions to 20 ng/joule and set a future limit of 10 ng/joule.	District Rule 2.37 already in place. Currently sets limits to 40 ng/joule.	\$2,000-\$5,400 (20 ng/joule) \$4,400-\$16,000 (10 ng/joule)
General Rules to Reduce Directly Emitted PM from Stationary and Area Sources				
89	Visible Emission Limits	Limits visible emissions to 20% opacity.	District Rule 2.3 currently limits visible emissions to 40% opacity.	TBD
90	Combustion Contaminants	Prohibits discharge of combustion contaminants to 0.1 grains per cubic foot of gas.	District Rules 2.11, 2.12 already in place. Limits the release of PM to 0.3 grains/ cubic foot.	TBD
91	Grain Loading	Limits emissions from PM from grain loading to 0.1 grains per cubic foot of dry exhaust gas.	District Rule 2.11 already in place. Limits the release of PM to 0.3 grains/ cubic foot.	TBD

SB 656 Control Measures Excluded - Already Adopted			
Measure #	Strategy	Description of Measure	Comment
Wood Burning Fireplaces and Heaters			
1	Public Awareness Program	Informs public about potential health hazards of wood smoke and encourages better burning practices.	District Rule 2.40 already in place.
2-3	Curtailment During Periods with Predicted High PM Levels	Mandatory or voluntary curtailment of wood burning activities during periods with high PM concentrations	
4-6	Require all Specified Wood Burning Devices Installed be US EPA-Certified, Phase II or Equivalent	Prohibits the sale and/or installation of wood burning heaters and/or appliances, that are not U.S. EPA Phase II certified or equivalent.	
7-9	Number of Units	Limits the number of appliances that may be installed in new and/or existing residential and/or nonresidential properties.	
10	Replacement of Non-Certified Appliances upon Sale of Property	Requires replacing, removing or rendering inoperable any non-U.S. EPA Phase II certified appliance upon sale or transfer of property.	
11	Control of Wood Moisture Content	Sets moisture standard for “seasoned wood” offered for sale.	
12	Prohibits Fuel Types	Prohibits the burning of material not intended for wood-burning heaters or fireplaces.	
Non-Agriculture Open Burning			

SB 656 Control Measures Excluded - Already Adopted			
Measure #	Strategy	Description of Measure	Comment
13-16	Prohibition of Residential Open Burning	Prohibits outdoor residential burning, and burning of greenwaste. Limits open burning to permitted activities.	District Rule 2.8 already in place.
17	Mandatory Curtailment of Non-Agricultural Open Burning	Prohibits planned burning during days with high PM or ozone concentrations.	
18-19	Control Smoke Production	Limits burns to 25 per day. Sets emission limits for mechanized burners, and requires permit.	
20-23	Performance Standards for Allowed Burns	Sets drying times, pile requirements, restricts ignition hours, requires soldering fires to be extinguished, requires clearing prior to burning, sets permit requirements.	
Combustion Sources			
45	Boilers Steam Generators and Process Heaters	Limits NO _x to between 5-40 ppmv depending on fuel type, use and burner capacity.	Committed to amending Rule 2.27 in 2003 Triennial Plan.
46	Turbines	Limits NO _x emissions to between 9-65 ppm.	District Rule 2.34 already in place.
47	IC Engines	Limits NO _x emissions from engines over 50 bhp, to between 25-125 ppmv, and VOC emissions to 250-750 ppmv, or CO emissions to 2000 ppmv.	Committed to amending Rule 2.32 in 2003 Triennial Plan.
Composting and Related Operations			

SB 656 Control Measures Excluded - Already Adopted			
Measure #	Strategy	Description of Measure	Comment
54	General Administrative Requirements	Requires composting and chipping and grinding facilities to register and provide facility information including feedstock , product generated, and process description. Requires annual updates.	Sources currently being required to obtain District permits.
55	Chipping and Grinding Operations	Establishes holding or processing time requirements to prevent inadvertent decomposition.	
Storage, Transfer and Dispensing Operations			
57	Gasoline Transfer and Dispensing Facilities	Limits VOC emissions through equipment and operational requirements.	District Rule 2.22 already in place.
58	Organic Liquid Storage	Limits VOC emissions through operational and equipment requirements.	District Rule 2.21 already in place.
Product Manufacturing			
60	Coatings and Ink Manufacturing	Sets forth operational and “housekeeping” requirements.	All sources in District under permit and have housekeeping requirements in place.
62	Food Product Manufacturing and Processing	Limits the VOC content of solvents used in products to between 120-400g/l, or requires use of control device.	Covered by Rule 2.31, which the District has committed to amending in 2003 Triennial Plan.
63	Pharmaceuticals and Cosmetics Manufacturing Operations	Sets forth equipment and operational requirements.	District Rule 2.35 already in place.

SB 656 Control Measures Excluded - Already Adopted			
Measure #	Strategy	Description of Measure	Comment
64	Polyester Resin Operations	Limits monomer content of products to 28-50%	District Rule 2.30 already in place.
Coating Operations			
67	Adhesives and Sealants	Limits VOC content of products to between 30-850 g/l, or requires use of control equipment.	Committed to amending Rule 2.33 in 2003 Triennial Plan
68	Architectural Coatings	ARB's Suggested Control Measures.	District Rule 2.14 already in place.
70	Graphic Arts	Limits VOC content of products to between 150-300 g/l, or requires installation of control equipment.	Committed to amending Rule 2.29 in 2003 Triennial Plan
74	Metal Parts and Product Coatings	Limits VOC content of coating to between 2.3 and 3.5 lbs/gal.	District Rule 2.25 already in place.
78	Screen Printing Operations	Specifies VOC content for materials used, sold, and distributed.	District Rule 2.29 already in place.
80	Vehicle Refinishing	Limits VOC emissions from coatings through operating practices and limiting VOC content to between 2.8-7.0 lbs/gal.	District Rule 2.26 already in place.
82	Wood Products Coatings	Limits VOC content of products to between 275-760 g/l, or requires use of control device.	District Rule 2.39 already in place.
Solvent Cleaning and Degreasing			
83	Cleaning Operations	Controls VOC emissions through limiting VOC content of products and setting equipment and operating practices.	Committed to amending in 2003 Triennial Plan
84	Degreasing Operations		
85	Use of Solvents		

SB 656 Control Measures Excluded - Already Adopted			
Measure #	Strategy	Description of Measure	Comment
86	Soil Decontamination	Limits VOC emissions from contaminated soil, and sets procedures to limit emissions during removal of contaminated soil.	The District has a policy for soil aeration.
87	Solid Waste Landfills	Limits VOC emission though installation and/or requirements for gas collection and control systems.	District Rule 2.38 already in place.
Programs that Reduce PM Emissions from Mobile Sources			
Incentive Programs			
92	DMV Funds(AB 2766): Motor Vehicle Registration Fee Program	Assess's MV fees to support programs reducing air pollution.	The District already has programs in place. The District utilizes DMV funds and Clean Air Funds to support many programs. The District also uses funding from regional programs such as Carl Moyer and SECAT, which are administered by Sacramento.
93	Heavy-Duty Engine Incentive Program	Uses air District and Carl Moyer funds to help fleets pay for new lower emission heavy-duty engines, lower emission retrofits, and engine replacements. Provides incentive funds for the differential cost associated with reduces emission technology as compared to the cost of conventional technology.	
94	Lower Emission School Bus Program	Provides financial incentives to school districts replacing older school buses.	
95	Moyer Program	Provides funds for the incremental cost of cleaner than requires engines and equipment.	

SB 656 Control Measures Excluded - Already Adopted			
Measure #	Strategy	Description of Measure	Comment
96	Sacramento Emergency Clean Air Transportation (SECAT) Program	Provides funding for the cost of retrofitting existing engines with newer, cleaner engines or paying a significant amount of the cost of a newer vehicle, to cleanup the HDD truck fleet.	
97	Light and Medium Duty Vehicle Program	Provides incentives for new OEM alternative fuel vehicles.	
98	Lawn Mower Buy Back Program	Provides funds to offset purchase of electric mowers.	
Transportation Related Programs			
101	Spare the Air Program	Encourages general public and employers to reduce transportation related emissions.	Programs already in place.
102	Public Awareness Programs	Implement programs which, support trip reduction programs, encourage alternate modes of transportation, encourage cities and counties to incorporate beneficial air quality policies, promote low emission vehicles, continue public education.	
103	Leveraging Other Sources for Transportation Funding	Receive money from funding sources for transportation related projects.	

SB 656 Control Measures Excluded - No sources/Minimal Emissions			
Measure #	Strategy	Description of Measure	Comment
Combustion Sources			

SB 656 Control Measures Excluded - No sources/Minimal Emissions			
Measure #	Strategy	Description of Measure	Comment
29	Storage, Handling, and Transport of Petroleum Coke, Coal, and Sulfur	Limits opacity to 10% opacity, requires enclosure, approved plan for open piles, street sweeping, paved roads, and covers for transport trucks	There are no sources from this category in the District.
35	Paved Road Dust: Street Sweeping Sand & Cinders Used for Anti-skid Material on Icy Roads, VMT Limit, & Free Bus	Requires vacuum-street sweeping to remove sand and cinders used as anti-skid material during winter storms.	The roads in the District are not typically treated in this fashion, therefore this is not a source category.
48	Lime Kilns	Limits NOx emissions to between 0.10-0.20lbs/MMBtu	There are no sources from this category in the District.
49	Cement Kilns	Limits NOx emissions to 6.4-7.2 lb/ton clinker produced ave. over 30 days, 11.6 lb/ton clinker produced ave. over 24 days. Limits PM to 30 lb/hr for kiln feed rates ? 75 tons/hr, 0.4 lb/hr for kiln feed rates ? 75 tons/hr.	There are no sources from this category in the District.
50	Petroleum Coke Calcining Operations	Does not allow coke calcining equipment unless SO2 emissions are reduced by at least 80%.	There are no sources from this category in the District.
51.a.	Furnaces (Glass Melting)	Limits NOx emissions to 4.0-5.5 lbs/ton of glass pulled.	There are no sources from this category in the District.

SB 656 Control Measures Excluded - No sources/Minimal Emissions			
Measure #	Strategy	Description of Measure	Comment
53	Commercial Charbroiling Operations	Requires new and existing chain driven charbroilers to be equipped with a catalytic oxidizer control device.	PM source but not a major source, has been implemented in other districts, not a currently permitted source, would require additional District resources to implement and maintain program, low impact on air quality expected based on emission inventory
Composting and Related Operations			
56	Composting	Requires co-composting operations to reduce VOC and ammonia emissions by 80%.	There are no co-composting sources in the District.
Leaks and Releases			
59	Equipment Leaks (Valves and Flanges)	Sets VOC and/or methane emission limits to 100-500 ppm.	District Rule 2.23 already in place. Currently sets limits to 1,000 ppm. VOC emission sources already reviewed for SIP planning, low impact on air quality and emissions
Product Manufacturing			
61	Fiberboard Manufacturing	Limits VOC emissions by requiring use of capture and control systems.	There are no sources from this category in the District.

SB 656 Control Measures Excluded - No sources/Minimal Emissions			
Measure #	Strategy	Description of Measure	Comment
65	Polymeric Cellular Products (Foam)	Sets emission limits for polymeric cellular products through operational controls, and limits VOC emissions to between 2.4 -2.8 lbs/100 lbs of product (or 98% efficient control)	Not a target source for PM but is a major VOC source, already permitted, controls in place in other districts, no additional resources needed to implement or maintain, VOC emission sources already reviewed for SIP planning
66	Surfactant Manufacturing	Requires VOC emissions to be reduced to 0.5 lb/1000 lbs of surfactant produced, or by 95% by weight. Requires Operational practices.	There are no sources from this category in the District.
Coating Operations			
69	Glass Coatings	Limits VOC content of coating products to between 2.3-6.7 lbs/gal, or requires installation of control equipment.	There are no sources from this category in the District.
71	Magnet Wire Coating Operations	Limits magnet wire coating to 200 g/l, and requires use of emission control systems.	There are no sources from this category in the District.
72	Marine Coating Operations	Limits VOC content of coatings to between 275-650g/l. Requires use of non-VOC materials, allows for use of control equipment.	There are no sources from this category in the District.
73	Metal Container, Closure, and Coil Coating Operations	Limits VOC emissions through operational controls and limiting VOC content of products to 660 g/l	There are no sources from this category in the District.

SB 656 Control Measures Excluded - No sources/Minimal Emissions			
Measure #	Strategy	Description of Measure	Comment
75	Motor Vehicle Assembly Line Coating Operations	Sets forth VOC emission and content limits.	There are no sources from this category in the District.
76	Paper, Fabric, and Film Coating Operations	Specifies VOC content for applicable coatings, and sets forth application method and cleaning requirements.	There are no sources from this category in the District.
77	Plastic, Rubber, and Glass Coatings	Specifies VOC content for coatings, or requires use of emission control system.	There are no sources from this category in the District.
79	Spray Booth Facilities	Requires high VOC emitting facilities to reduce emissions to 65% beyond rule requirements through use of a control device.	The only high emitting facility in our District already complies with the requirements.
81	Wood Flat Stock Coatings	Limits VOC content of products to 250 g/l, or requires use of control device.	There are no sources from this category in the District.
Miscellaneous			
88	Woodworking Operations	Requires PM10 emission control device, and requires sawdust storage bins to prevent visible emissions.	Not a target emission source, sources already regulated through permit, specific rule not warranted, regulated through BACT and visible emissions, low impact on emission for controlling specific category makes sense to control through adoption of VE rule
Programs that Reduce PM Emissions from Mobile Sources			
Transportation Related Programs			

SB 656 Control Measures Excluded - No sources/Minimal Emissions			
Measure #	Strategy	Description of Measure	Comment
99	On-Road Motor Vehicle Mitigation Options	Requires employers of 250 or more to implement a program to reduce mobile source emissions generated by employee commute to meet an annual emission reduction target, or employers can implement an employee commute reduction program.	Vehicles are a target source, no similar program in place at District, require additional resources to create and implement program, only a handful of sources in this category low expected impact on emission and air quality, questionable public acceptability
100	Transportation Outreach Program	Required employers with 100 or more employees to register with the air district and collect data on their employee's commute distances and ride sharing practices.	Vehicles are a target source, this measure has no impact on emissions and air quality, no similar program in place at District, require additional resources to create and implement program, questionable public acceptability

ATTACHMENT B



TEICHERT AGGREGATES

Established 1887

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RECEIVED JUN 09 2005
JF

June 7, 2005

Nancy Fletcher
Yolo-Solano Air Quality Management District
1947 Galileo Court
Suite 103
Davis, CA 95616

RE: Implementation of Senate Bill 656, Sher 2003

Dear Ms. Fletcher:

Thank you for the opportunity to attend the Workshop on the planned implementation of Senate Bill 656 (Sher 2003) which was held at the Yolo-Solano Air Quality Management District (District) main office on June 1st. In regards to that workshop I would like to make the following formal comments:

- Please ensure that the implementation schedule proposed to the California Air Resources Board (CARB) does not commit the District to specific prescriptive fugitive dust measures, but instead, generalized strategies. I am particularly concerned that if specific conditions are identified to CARB, that CARB will attempt to hold the District to the specific conditions at the expense of the iterative rulemaking process. In short, we would be forced to live with another District's rule that we had not participation in.
- Please ensure that in your preparation of the District implementation schedule, that you preserve the right of the District to develop fugitive dust rules that are responsive to local conditions, sources, and interactive communication during rule development. I am concerned that CARB will pressure the District to adopt specific measures and conditions of rules that were developed in one District and ignore the fact that those conditions and rules may not be appropriate or necessary in another District. Note that the cost effectiveness numbers are based on very specific assumptions and understand that if those assumptions were to change, so would the priority listing.

I feel somewhat uneasy about this entire process that the Districts are being forced to undertake. It essentially turns the whole Air District rulemaking process on it's head. The point of the Air Districts is to allow the iterative rulemaking process between regional stakeholders and agency personnel who can understand and be responsive to air issues specific to a particular region. In addition, the point of attainment dates for air quality standards is to allow time for transition to cleaner technologies and strategies. In this process, both the independence of the Air Districts and the point of attainment dates are tossed out the window at the potential expense of regional cooperation.

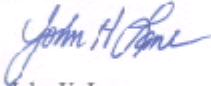
Letter: Nancy Fletcher, YSAQMD
RE: Implementation of Senate Bill 656, Sher 2003
June 7, 2005

Page 2 of 2

The result may be unnecessary or unintelligent fugitive dust rules propagated throughout the state. Please do what you can to avoid this when putting together your response to CARB on this matter.

Please feel free to contact me at (916) 484-3256 for further discussion or if you have any questions.

Sincerely,



John H. Lane
Environmental Engineer

cc: file