

Appendix C: District Control Measures

Section 2 of this Progress Report presents an overview of the District's far-reaching control strategy. This Appendix presents summaries of each District rule, feasibility study, and incentive program discussed in Section 2.

C.1 District Rule Commitments from the 2008 PM_{2.5} Plan

Stationary Gas Turbines (Amendment)

Plan Control Measure: S-COM-5

Rule number: Rule 4703

Adopted: September 20, 2007

Summary:

District Rule 4703 (Stationary Gas Turbines) limits NO_x emissions from stationary gas turbines that are subject to District permitting requirements and that have ratings equal to or greater than 0.3 megawatt (MW) or a maximum heat input rating of more than 3.0 million British thermal units per hour (MMBtu/hr). A stationary gas turbine is a rotating, internal combustion engine, used for generating electricity or mechanical energy. A large number of the Valley's existing gas turbines are used for cogeneration, generating both electrical energy and steam for thermally enhanced oil recovery operations.

During rule development, staff identified approximately 150 permitted gas turbines operating in the San Joaquin Valley, of which 76 larger units are already subject to stringent NO_x limits and 74 smaller units which are subject to the amended, more stringent NO_x limits. The new NO_x limits are based on advanced emission controls and consider any specific circumstances discussed during the public workshop process.

Boilers, Steam Generators & Process Heaters >5MMBtu/hr (Amendment)

Plan Control Measure: S-COM-1

Rule number: Rule 4306 (Rule Sunsetting)

Adopted: October 16, 2008

Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5 MMBtu/hr (New Rule)

Plan Control Measure: NA

Rule number: Rule 4320

Adopted: October 16, 2008

Boilers, Steam Generators & Process Heaters 2-5 MMBtu/hr (Amendment)

Plan Control Measure: S-COM-2

Rule number: Rule 4307

Adopted: October 16, 2008

Summary:

The District's permits system identified nearly 1,200 units that are affected by this rule project. Boilers are used in a variety of manufacturing plants, hospitals, refineries, schools, and large office buildings. Steam generators, particularly the larger units, are primarily used in the oil production industry to generate steam for heavy oil production enhancement. Process heaters provide heat for industrial and commercial processes including food production and manufacturing.

Amendments to Rule 4306 are administrative amendments to address EPA concerns and make Rule 4306 approvable for inclusion in the State Implementation Plan (SIP). Amendments to Rule 4307 reduce NOx emissions by removing or altering previous exemptions. Units subject to Rule 4306 are now also subject to new Rule 4320. New Rule 4320 imposes advanced NOx, SOx, and PM controls that go well beyond Reasonably Available Control Technology (RACT) on larger units, based on their size, fuel type, and fuel usage. Since the available technology for certain units is expensive, the rule provides an innovative option to allow businesses to make case-by-case decisions based on their own unique economic circumstances. Rather than install controls, businesses have the option of paying an annual emissions fee based on the total actual emissions. Fees collected under Rule 4320 will fund District-administered emission reduction incentive projects, enabling the District to procure reductions that are necessary to protect public health.

Glass Melting Furnaces (Amendment)

Plan Control Measure: S-COM-7

Rule number: Rule 4354

Adopted: October 16, 2008

Summary:

Glass-making facilities within the Valley represent four different glass making sectors - container, flat, continuous fiber, and fiberglass wool. There are 16 glass-melting furnaces at eight different facilities subject to Rule 4354, of which 14 furnaces are currently producing glass. The amendments to the rule strengthen limits for NOx for existing glass melting furnaces, and impose specific limits for SOx and PM10.

Residential Water Heaters (Amendment)

Plan Control Measure: S-COM-9

Rule number: Rule 4902

Adopted: March 19, 2009

Summary:

Rule 4902 is a point-of-sale rule that regulates the emission standard of new and replacement residential water heaters. Rule 4902 applies to manufacturers, distributors, retailers, and installers of natural gas-fired residential water heaters, rated less than or equal to 75,000 Btu/hr, that are sold in the Valley after January 1, 2011. District staff estimates approximately 955,000 units will be affected by the rule as new units are purchased. Rule 4902 meets or exceeds other air district standards for this source category.

Commercial Charbroiling (Amendment)

Plan Control Measure: S-IND-9

Rule number: Rule 4692

Adopted: September 17, 2009

Summary:

The *2008 PM2.5 Plan* committed District staff to expanding the applicability of the Rule 4692 to include under-fired charbroilers. After meeting with restaurant operators and control equipment vendors, the District determined that the cost of PM2.5 emission reductions would be unreasonably high. The *PM2.5 Plan* called for a reduction of 2.2 tpd of PM2.5. In removing under-fired charbroilers from control requirements, the rule project will not achieve the target emission reductions. Amended Rule 4692 achieves some reductions due to a reduced exemption threshold for chain-driven units.

Due to the extremely high cost, rather than require under-fired charbroilers control technology in amended Rule 4692, the District initiated an incentive grant program to advance the development of under-fired charbroiler emissions control technology. The Charbroiler Incentive Program (ChIP) debuted in 2010 to promote the development and use of emissions control devices for under-fired charbroilers. The pilot program explores the viability of emissions control devices for different-sized cooking operations. The District has worked closely with the California Restaurant Association (CRA) to promote the ChIP program and garner interest. The District is conducting additional outreach to affected stakeholders and the industry to increase awareness and potential interest in the incentive program.

District staff will present a comprehensive assessment of under-fired charbroiler control devices to the District Governing Board in 2011 for consideration of potential future amendments to this rule.

Flares (Amendment)

Plan Control Measure: S-IND-21

Rule number: Rule 4311

Adopted: June 18, 2009

Summary:

Flaring is a high temperature oxidation process used to burn combustible components, mostly hydrocarbons, of waste gases from industrial operations. District Rule 4311 is applicable to operations involving the use of flares with the exception of flares operated in municipal solid waste landfills, which fall under Rule 4642 (Solid Waste Disposal Sites).

The amendments establish requirements for the development and submittal of flare minimization plans (FMP), establish new monitoring and reporting standards, and set sulfur oxide performance targets for petroleum refineries. Staff estimates that rule amendments affect 137 permitted flares. No emissions reductions were quantified for these amendments, thus this rule does not appear in Table 2-1.

Wood Burning Fireplaces and Wood Burning Heaters (Amendment)

Plan Control Measure: S-COM-11

Rule number: Rule 4901

Adopted: October 16, 2008

Summary:

District Rule 4901 reduces emissions of PM and NO_x from wood burning fireplaces, wood burning heaters, and outdoor wood burning devices by prohibiting wood burning in areas subject to the rule when air quality is forecast to exceed a curtailment threshold.

The *2008 PM_{2.5} Plan* originally scheduled Rule 4901 to be amended by the Third Quarter of 2009, but during the hearing for the *PM_{2.5} Plan*, Governing Board members asked the schedule be advanced to realize the significant emissions reductions and associated health benefits sooner. The District completed amended Rule 4901 October 2008, about a year ahead of schedule. The amendment lowered the mandatory curtailment level to a 24-hour average PM_{2.5} level of 30 micrograms per cubic meter (µg/m³). The rule was also clarified to include outdoor wood burning devices such as chimineas, outdoor fireplaces, fire pits, and burn bowls in mandatory curtailments. The amendment also removed the 3,000 foot elevation exemption so that residences at all elevations will be subject to mandatory curtailments unless they qualify for another exemption, such as no available natural gas service.

In addition, Rule 4901 now contains a contingency provision to lower the mandatory curtailment level to a 24-hour average PM_{2.5} level of 20 µg/m³. This contingency measure will go into effect if the Valley fails to attain the 1997 PM_{2.5} standards by April 2015.

Boilers, Steam Generators & Process Heaters >0.075 MMBtu <2.0 MMBtu/hr (Amendment)

Plan Control Measure: S-COM-3

Rule number: Rule 4308

Adopted: October 17, 2009

Summary:

District Rule 4308 is a point-of-sale rule that regulates the emission standard of new and replacement of boilers, steam generators, process heaters or water heaters. Amended Rule 4308 applies to any person who supplies, sells, offers for sale, installs, or solicits the installation of these units with a rated heat input capacity between 0.075 MMBtu/hr and 2.0 MMBtu/hr.

Small boilers, steam generators, process heaters, and water heaters are used throughout the Valley to provide space heating and hot water for commercial use, along with steam for manufacturing processes. The units are typically found in manufacturing facilities, government facilities, general merchandise stores, restaurants, hotels, hospitals, educational institutions, refineries, and other institutions. Based on the best available information, District staff estimate that approximately 17,600 units are subject to Rule 4308.

The 2009 amendments tighten NOx emission limits for units that run on Public Utility Commission (PUC)-gas, thus lowering the NOx emission limits to the most effective level while using cost effective controls that minimize disruption to the Valley's economy.

Employer Based Trip Reduction Programs (New Rule)

[Also known as the "eTRIP Rule"]

Plan Control Measure:M-TRAN-1

Rule number: Rule 9410

Adopted: December 17, 2009

Summary:

With more than 80 percent of the Valley's NOx emissions coming from mobile sources, the eTRIP Rule is designed to reduce commute-related Vehicle Miles Traveled (VMT), and thereby reduce passenger vehicle emissions. Toward that end, eTRIP Rule requires large employers to implement marketing and educational programs, and provide the necessary infrastructure that encourages and enables employees to use alternative modes of transportation to work rather than single-occupancy vehicle use.

The eTRIP Rule applies to an estimated hundreds of worksites throughout the Valley and accounts for thousands of commuting employees from public and private sectors. A menu-based approach gives employers the opportunity to choose the measures that are most effective for their individual situations. The eTRIP Rule does not impose a specific employee participation rate on employers; however, it does require adequate reporting to ensure that employers devise and implement their Employee Trip Reduction Plan (eTRIP), and measure employee participation in alternative commute options.

Open Burning (Amendment)

Plan Control Measure:S-AGR-1

Rule number: Rule 4103

Adopted: April 15, 2010

Summary:

Rule 4103 applies to open burning conducted in the Valley, with the exception of prescribed burning and hazard reduction burning which is addressed by Rule 4106 (Prescribed Burning and Hazard Reduction Burning). Rule 4103 limits the amount and type of materials that can be burned and restricts when such burning can occur.

Since 2004, to assure that open burning of agricultural materials did not cause any violations of health-based ambient air quality standards, agricultural burning has only been permitted under the District's comprehensive Smoke Management System (SMS), which uses real-time meteorological information to analyze the impact of burning on air quality and appropriately limit burn allocations. Also, since 2004, in accordance with the requirements of California Health and Safety Code Sections 41885.5 and 41855.6, the District Governing Board has adopted a series of amendments to Rule 4103, which have effectively prohibited the

burning of field crops, weeds, and most tree pruning and orchard removal materials. These measures have resulted in significant reductions in the acres burning and PM emissions.

On May 20, 2010, the District's Governing Board approved a comprehensive agricultural burning report with the District's findings and recommendations for the materials and crops subject to the June 1, 2010 deadline. ARB concurred with these recommendations and will review the matter again in two years.

Natural Gas-Fired, Fan-Type Residential Central Furnaces (Amendment)

Plan Control Measure:S-COM-10

Rule number: Rule 4905

Projected completion: 2014

Summary:

Rule 4905 is a point-of-sale rule applicable to any person or business that supplies, sells, offers for sale, installs, or solicits the installation of natural gas-fired, fan-type, residential central furnaces with a rated heat input capacity of less than 175,000 Btu/hr, and for combination heating and cooling units with a rated cooling capacity of less than 65,000 Btu/hr. Rule 4905 requires any new or replacement natural gas-fired, fan-type residential central furnace to operate at or below an emissions rate of 0.093 pounds of NO_x per MMBtu (equivalent to 40 nanograms of NO_x per Joule (40 ng/J)).

More stringent emission limits were originally scheduled for adoption in 2010, but the District determined that advanced low-NO_x technology is in the early stages of development for residential furnaces and is not yet commercially available. Because of this consideration, the Governing Board extended the rule adoption schedule to the fourth quarter of 2014 to allow the District to assist with the development of new advanced low-NO_x residential furnace technology in partnership with the South Coast Air Quality Management District (SCAQMD). Once low-NO_x technology has been developed, staff will also investigate the potential of an incentive program for natural gas-fired, fan-type central furnaces that comply with the lower emissions limit before the regulatory compliance date. If feasible, the incentive program will be brought to the Governing Board for approval prior to implementation of any new limits. This rule amendment will take advantage of all technology advancements and other new information gained during the intermediate period, achieving potentially more reductions than possible with current technology.

Reciprocating Internal Combustion Engines (Amendment)

Plan Control Measure:S-COM-6

Rule number: Rule 4702

Projected completion: 2011

Summary:

Rule 4702 limits NO_x emissions from internal combustion (IC) engine with a rated brake horsepower greater than 50 brake horsepower. The types of engines subject to this rule include stationary spark-ignited (SI) engines and

stationary compression-ignited (diesel) engines. The *2008 PM2.5 Plan* committed to amending Rule 4702 to further reduce emissions from this source category. However, knowing that Valley businesses had already invested millions of dollars to control IC engine emissions staff determined that additional controls may not be cost effective or feasible for all engines; as such, the District did not commit to any specific emission reductions goals for this rule project.

Staff is considering the feasibility of lowering the current NOx limits and establishing other emission requirements for engines covered by this rule. Some options being explored include establishing alternative control requirements, providing mitigation fee options, and exploring the use of incentive funding to achieve emission reductions. Although the *2008 PM2.5 Plan* calls for adoption of this rule in the fourth quarter of 2010, more time is needed to fully consider the outstanding issues and potential remedies. This project is tentatively scheduled to be presented to the Governing Board for public hearing in 2011.

C.2 2008 PM2.5 Plan Feasibility Studies

Small Spark-Ignited Engines and Agricultural Spark-Ignited Engines

Plan Control Measure: S-COM-6A

Rule number: Rule 4702

Status: Completed

Summary:

As discussed in Section 2.2, the District has evaluated this category and, as a result, commenced the rule development process to amend this rule.

Prescribed Burning

Plan Control Measure: S-GOV-6

Rule number: Rule 4106

Status: Completed

Summary:

District Rule 4106 (Prescribed Burning and Hazard Reduction Burning) permits, regulates, and coordinates the use of prescribed burning and hazard reduction burning to optimize the potential for smoke dispersion while minimizing smoke impacts to public health. For the Feasibility Study, staff researched the use and cost effectiveness of prescribed burning and hazard reduction burning inclusive of the potential for incentives, legislative changes, budget allocations, and programs to reduce untimely emissions. Control methods evaluated in the study included the use of timely and enhanced prescribed burning to prevent wildfires, operation of air curtain burning at the wildland/urban interface, and/or increased use of alternatives to burning (biomass, chipping, removal).

The Feasibility Study, completed in 2009, found that the enormous emissions produced by wildfires can be reduced by increasing and modifying prescribed burning, pile burning, and hazard reduction burning implementation. The

Feasibility Study determined that in order to reduce wildfire emissions, the following actions would be required:

- Increase legislative action for more prescribed burning resources, implement policy modification to raise the priority of air quality-related public health concerns;
- Coordinate efforts between multiple agencies; and
- Allocate resources for public education.

These Feasibility Study recommendations have been embodied in the District's Legislative Platform, which continues to include a recommendation for "Curbing Wildfires and the Associated Adverse Public Health Impacts." Also, policy development/interagency coordination....Furthermore, during the wildfire and prescribed-burn season, the District participates in daily coordination calls with multiple agencies. The District has also developed brochures and hosts a webpage to educate the public on hazard-reduction burning, issues a daily burning forecast, and provides the public with a phone number to obtain additional information about hazard-reduction burning and prescribing burning including daily prohibition updates.

Solid Fuel Boilers, Steam Generators, Process Heaters

Plan Control Measure: S-COM-4

Rule number: Rule 4352

Status: Completed

Summary:

Rule 4352 (Solid Fuel Fired Boilers, Steam Generators, and Process Heaters) limits NO_x emissions from boilers, steam generators, and process heaters (units) fired on solid fuel. These units are used in facilities including petroleum coke, coal, municipal solid wastes, tires, or biomass materials.

The Feasibility Study, completed in 2010, indicates that selective catalytic reduction (SCR) and regenerative selective catalytic reduction (RSCR) are technologically feasible to achieve additional NO_x emission reductions. The District will be considering various control options during the rule making process for amended Rule 4352 in 2011.

Indirect Source Review (ISR) Enhancement

Plan Control Measure: M-OTH-8

Rule number: Rule 9510

Status: Completed

Summary:

Rule 9510 (Indirect Source Review (ISR)) is designed to mitigate emissions associated with development and construction projects. Operators are required to mitigate construction emissions and operational emissions by establishing percentages, or pay mitigation fees if the emissions not mitigated by the required amount. The District uses mitigation fees to fund pollution control projects. ISR impacts three main source categories: (1) Vehicles used for commuting to and

from a development project after its completion; (2) Heavy-duty vehicles such as trash haulers; and (3) Off-road equipment, including street sweepers; small off-road engines such as lawn equipment using IC engines-mowers, edgers, and leaf blowers; and heavy-construction machinery. The Feasibility Study, completed in 2010, contains the following conclusions and recommendations:

- The ISR program plays an important role in the District's overall emission reduction efforts;
- There is no indication that the rule is overly burdensome to the development industry;
- Developments are increasingly air-friendly because of the rule, and the minimal per-unit cost directly delivers significant emission reductions that are not obtainable through other, more traditional regulatory approaches; and
- There is no need to modify the ISR rule at this time.

Lime Kilns

Plan Control Measure: S-COM-8

Rule number: Rule 4313

Status: Completed

Summary:

District Rule 4313 (Lime Kilns) limits NOx emissions from lime kilns to no more than 0.1lb/MMBtu for gaseous fuel-fired kilns; 0.12 lb/MMBtu for distillate fuel oil-fired kilns; and 0.20 lb/MMBtu residential fuel oil-fired kilns. This source category pertains to facilities operating lime kilns in a wide variety of manufacturing and processing operations, including food and agriculture.

This Feasibility Study was completed in 2011 and found there are no lime kilns currently operating in the Valley. The emissions inventory for this category is zero and no emission reductions could be expected from any rule amendments.

Fugitive PM10 Prohibitions (Regulation VIII)

Plan Control Measure: S-IND-4

Rule number: Regulation VIII

Status: Continuing through 2011

Summary:

Existing Regulation VIII (Fugitive PM10 Prohibitions) is comprised of eight rules that regulate fugitive dust emissions. Specifically, Regulation VIII applies to activities that have the potential to emit or result in primary PM10 fugitive dust emissions such as construction, demolition, or other earthmoving activities; handling, transport, and storage of bulk materials; landfill operations; unpaved roads and or vehicle/equipment traffic areas; disturbed open areas; and off-field agricultural sources.

The PM2.5/PM10 ratios utilized and promulgated by different agencies are not consistent. Therefore, District staff contacted federal, state, and local agencies

and research institutes to determine if any research had been completed or was being conducted to confirm or refine the PM2.5/PM10 ratios.

The majority of those contacted stated that the PM10 value is likely overestimated because this value is incorrectly calculated based on sample Total Suspended Particulates (TSP). Since PM2.5 is calculated from PM10, the PM2.5 is also overestimated. However, it was agreed that the ratio of PM 2.5 to PM10 is generally correct (although highly variable depending on the source).

The District's initial review suggests the PM2.5 emissions are overestimated based on the emission inventory methodology and contact with other agencies. The first phase of the District's Feasibility Study analysis evaluated PM2.5 and PM10 concentration variations as related to wind speed. The District found that PM2.5 is inversely related to wind speed for the evaluation period. However, information is needed regarding particulate speciation and proximity to sources of fugitive dust that would be regulated by Regulation VIII. As such, the District intends on supplementing its existing analysis and expects to complete the study in 2011.

Conservation Management Practices (CMP)

Plan Control Measure: S-AGR-2

Rule number: Rule 4550

Status: Continuing through 2011

Summary:

Existing Rule 4550 (Conservation Management Practices) requires agricultural growers and animal feeding operation producers to implement at least one method of Conservation Management Practice (CMP) for each of the applicable CMP categories for their operations. The CMP selected by the growers and producers must be specified in their CMP Plan and approved by the District.

Currently, PM2.5 emissions from agricultural sources are not well-defined. The District is actively involved in studies to assess emissions from this category. The District expects to complete this Feasibility Study in 2011.

Dryers, Dehydrator, and Ovens

Plan Control Measure: S-COM-11

Rule number: Rule 4309

Status: Continuing through 2011

Summary:

District Rule 4309 (Dryers, Dehydrators, and Ovens) requires dehydrators to be fired on PUC-quality natural gas; all other units have a NOx emission limit of 3.5 to 5.3 ppmv using an oxygen correction factor. This source category includes any dryer, dehydrator, or oven. Some examples of units subject to this rule are onion dehydrators, dryers that convert liquid milk to dried milk, and units used to dry aggregate at asphalt plants.

There is no current data regarding the proportion of additional units that are at least 5 MMBtu/hr or larger that will be subject to this rule at this time. At full implementation of the current rule requirements, NOx emissions from units subject to the rule are estimated at 66% of uncontrolled emissions.

The bulk of the dryers, dehydrators, and ovens operate at temperatures that are too low for efficient operation of NOx emission control systems, therefore add-on controls are not an option for this source category. Some currently exempt units operate for a short limited season, for example, dryers and humidifiers at cotton gins, so the amount of NOx emission reductions from these units would be small since nearly all exempted units run on PUC natural gas which is a clean burning technology.

This Feasibility Study is currently in progress and is expected to be completed in 2011. The following are options under consideration for this Feasibility Study:

- Diversify the rule applicability by reducing the total heat input cut-off for units subject to the rule below the current 5.0 MMBtu/hr. Since the industries would be varied, more analysis would be needed throughout the rule development project to adequately assess the technology available for these lower heat input units; and
- Identify technological advancements in equipment.

Cotton Gins

Plan Control Measure: S-IND-8

Rule number: Rule 4204

Status: Continuing through 2012

Summary:

District Rule 4204 (Cotton Gins) requires the use of BACT-level 1D3D cyclones for existing cotton gins according to a compliance schedule. The rule requires that new cyclones or replacement parts of existing cyclones have the dimensional characteristics of the Enhanced 1D3D cyclone or the 1D3D with expansion chamber. Rule 4204 also regulates the trash conveyance systems on gins. This source category includes all cotton ginning facilities within the District. It is important to note that Rule 4204 is currently the most stringent in the nation for this source category to control PM10.

The Cotton Gin Feasibility Study was originally scheduled to be completed in 2009; however, the completion date has been revised. The District is waiting on study results from a nationwide characterization of the "Cotton Gin Particulate Matter Emissions Project" to help determine the PM2.5 percentage in cotton ginning PM10 emissions. State that we've been actively involved in vetting/reviewing this study... Initial study results should be available by the end of January 2011. Staff has already begun compiling emission inventory and background information on the cotton gins located in the San Joaquin Valley. After receiving the PM2.5 percentage results, staff will be able to form the

emissions inventory and will know better how to proceed with the technology assessment component of the District Feasibility Study. Anticipated completion of this Feasibility Study is 2012.

The following are options to be investigated for this Feasibility Study:

- Examine the PM_{2.5} fraction of the emissions from this category and use that information to develop a representative emissions inventory;
- If the inventory appears to be significantly large and contribute to the non-attainment problem, examine control effectiveness for PM_{2.5} reduction strategies that could be used to reduce the PM_{2.5} inventory; and
- Further review of available research is necessary to determine feasible, cost-effective control measures, should they be necessary.

Fireworks

Plan Control Measure: M-OTH-10

Rule number: NA

Status: Continuing through 2012

Summary:

There is currently no District Rule to address fireworks or pyrotechnic displays, nor is there a known emissions inventory for these sources in the Valley.

The use of fireworks displays is an integral part of traditional 4th of July events. However, large fireworks displays can, in some circumstances, be potentially significant sources of air pollutant emissions. The District alerts the public to the potential for short-term air quality impacts that may result from the use of 4th of July fireworks. With appropriate documentation, air quality data associated with 4th of July events can be flagged as having been caused by exceptional events under §319 of the Clean Air Act.

This Feasibility Study is currently in progress and is expected to be completed in 2012. The following are options to be investigated for this Feasibility Study:

- Explore all possibilities of gaining emission reductions from sources under its jurisdiction;
- Examine legal limitations in state law; and
- Examine potential future control options, which include cities and municipalities passing ordinances that limit or prohibit the use of fireworks during periods of unhealthy air quality, or potential District regulations to require facilities to use pneumatic launchers and other abatement measures to reduce emissions from fireworks and pyrotechnic displays.

C.3 District Incentive Programs

C.3.1 New Incentive Programs Implemented

In addition to the continuation of the District's successful grant programs, the following new programs were implemented subsequent to the approval of the *2008 PM_{2.5} Plan*:

California Proposition 1B Goods Movement Emission Reduction Program (Prop 1B)

In 2008, the District consolidated advocacy efforts in order to secure additional funding under the State's Prop 1B Program for the Valley. The Prop 1B program provides incentive funds to replace existing heavy-duty trucks or locomotives and funding to retrofit or replace diesel engines in heavy-duty trucks, locomotives, and harbor craft that are used to transport goods in California. The District was awarded approximately \$46 million in late 2008 for the first year of Prop 1B programs. The second year of funding was delayed because of California's fiscal situation in 2009 and was combined with the June 2010 disbursement for an award of approximately \$92 million for eligible equipment projects.

DERA National Clean Diesel School Bus Replacement Program

The District submitted a competitive grant application to EPA for American Recovery and Reinvestment Act (ARRA, 2009) under the Diesel Emissions Reductions Act Program and was awarded \$4 million to replace 77 school buses equipped with medium heavy-duty diesel engines model years 1980 and older, with new diesel and Compressed Natural Gas (CNG) buses. The new diesel buses will achieve up to 90% reduction in diesel particulate matter (PM) emissions and the CNG buses will achieve 100% reduction in PM. Eligible buses are owned by public school districts within the San Joaquin Valley Air Basin boundaries.

Lower-Emission School Bus Program (LESBP)

The District began implementing the LESBP in 2008 to provide incentive funds for the replacement of 1986 and older school buses and for the retrofit of 1987 and newer school buses with diesel particulate filters (DPF). Within the first year of implementation, the District distributed over \$4.3 million to school districts within Valley boundaries. By the end of 2010, a total of 703 school buses had been retrofitted and 109 buses replaced, totaling over \$23 million with approximately \$17 million more to be contracted in 2011. Because of the extreme success of the first year of implementation, ARB has contracted with the District to administer the program for other California air districts. The District accepted over \$25 million in LESBP funds to implement the program for 18 other air districts.

Carl Moyer Voucher Incentive Program (VIP)

VIP is a state-wide program funded with grants from the Carl Moyer Program to provide small fleet owners (three trucks or less) with vouchers to expedite funding to replace or retrofit their 2002 or older engine model year heavy duty diesel trucks. These fleet owners can receive up to \$45,000 to replace eligible trucks, or up to \$10,000 to retrofit eligible trucks with an engine model year of 2004 - 2006. VIP expedites application processing and approval to within five days of receipt of a complete application, and reimbursement requests are processed within ten days. The District was the first California air district to implement the VIP and to date has processed four times as many vouchers as the next leading air district with more than \$1.1 million in vouchers issued to truck owners.

Technology Advancement Program (TAP)

The primary goal of TAP is to advance technology and accelerate the deployment of innovative clean air technologies that can bring about emission reductions as rapidly as feasible. More information on TAP is available in Section 2.4.3 of this Progress Report.

Charbroiler Incentive Program (ChIP)

The District designed ChIP to achieve maximum, cost-effective PM emission reductions associated with the cooking of meat on under-fired charbroilers. In this program, the District provides funding for the retrofit of under-fired charbroilers operating in the Valley based on cost-effectiveness while allowing the operator to determine the best control technology for their operation. Estimated funding required for each operation ranges from approximately \$20,000 to \$80,000. On average, this will fund 60% to 90% of the capital cost. The District worked closely with the California Restaurant Association to promote the program and garner interest. Applications for ChIP were accepted during an application period open from August 2010 through February 2011.

Energy Efficiency and Conservation Block Grant (EECBG, ARRA)

The District identified energy efficiency and conservation as an important component in reducing emissions necessary to reach attainment of federal ozone health-based air quality standards. The District collaborated with the San Joaquin Valley Clean Energy Organization on behalf of 36 cities and counties in the Valley to administer and implement the EECBG program to provide energy efficiency retrofit projects in jurisdictional facilities. Such projects include: converting existing lighting to energy efficient fluorescent bulbs; LED street light retrofits; heating, ventilation, and air conditioning system upgrades, and motor and pump replacements to newer high-efficiency models. This collaborative effort secured approximately \$4 million in EECBG funds from the California Energy Commission for these jurisdictions.

California Zero Emission Agricultural Utility Terrain Vehicle (Ag UTV) Rebate Program

The Ag UTV program was established to promote the production and operation of zero-emission agricultural utility terrain vehicles in California agricultural operations. ARB funds the program, and the District administers the program statewide. Funds for the program are appropriated from the ARB's Air Quality Improvement Program (AQIP) and total \$990,000 in total funding. The District started the Ag UTV program on May 4, 2010 and offers on average \$2,350 towards the purchase of a new zero-emission agricultural utility terrain vehicle. Sixteen new vehicles have been put into service through this program since its inception.

Lawn and Garden Equipment Replacement (LGER) Program

The LGER program is a voucher program available to the general public to replace existing gas powered lawn mowers with new cordless electric lawn mowers. Funds allocated to the program totaled \$417,600 from ARB's AB118 LGER program and \$135,000 from the Advanced Emissions Reductions Option (AERO) funds generated from District Rule 4320. Applications were accepted for the program starting November 8, 2010 and continued being accepted for about two weeks depending on the applicant's county of residence. The solicitation period was extremely successful and the District received approximately 4,400 applications putting the program into oversubscription status. To date 1,270 vouchers have been redeemed and 2,195 vouchers have been distributed.

Off Road Agricultural Tractor Replacement Program

The off road Agricultural Tractor Replacement Program is a program that replaces tier 0 off-road agricultural tractors with new tier 3 or cleaner agricultural tractors. The program application period opened in the middle of November 2010 and continued through January 31, 2011. Funding for this program comes from a combination of local, state and federal sources. Projects are funded on a dollar-per-horsepower basis and contracts must be established before purchases are made. Contracts for the next phase of this program will be awarded during early summer 2011.

C.3.2 Incentive Programs in Development

In light of past successes and the ongoing need for additional emissions reductions, the District continues to develop new avenues for incentive funding opportunities. The following programs are currently in development.

Air Quality Action Center for Technology & Innovation for the Valley (AQ-ACTIV)

The District, in collaboration with Valley universities, looks to establish the AQ-ACTIV. This partnership will provide the District the opportunity to leverage available resources

to build regional capacity for research, technology demonstration projects, and expended emissions measurements and testing in the Valley.

Other State & Federal Funding Opportunities

The District has taken the lead in preparing a number of regional and large-scale grant applications that will benefit air quality in the hopes of bringing much-needed funds into the Valley. The District has recently requested from EPA's National Clean Diesel Campaign (NCDC) \$2,995,613 to replace 57 drayage trucks that operate in ports and intermodal rail yards and travel within the San Joaquin Valley with new cleaner trucks that meet or exceed the 2007 emissions standard and \$3,000,000 to repower either three switcher locomotive, 3 Medium Horse Power (MHP) locomotives or 4 intrastate line haul locomotives that operate in the San Joaquin Valley with either new locomotives having multiple Tier 3 non-road gen-set engines or single Tier 2 or Tier 3 engines.

The District has also partnered with the NRCS to increase funding opportunities for Valley farmers. The Environmental Quality Incentives Program (EQIP) provides a voluntary conservation program for agricultural sources to promote agricultural production and environmental quality as compatible goals. EQIP offers financial and technical assistance to eligible participants to install or implement conservation management practices. Funding provided by EQIP goes toward the following programs:

- Replacement of diesel internal combustion engines;
- Conservation tillage;
- Dust control on unpaved roads;
- Smoke reduction by chipping and removal of orchard and vineyard prunings;
- Dairy waste utilization;
- Precision pesticide spray technology; and
- Establishment of windbreaks around confined animal facilities.

Those who engage in livestock or agricultural production are eligible to participate in EQIP. NRCS offers contracts based on the effectiveness of the practice and overall benefit to air quality and the environment in the form of incentive payments and cost-shares of 50 percent of the overall cost to implement the proposed conservation practice. From 1998 through 2008, EQIP was responsible for \$65.2 million used to combat air pollution, with half the funding provided by EQIP and half contributed by local farmers and ranchers. The District worked with NRCS, using approximately \$3 million in District funds, to help fund tractor replacement for Valley farmers. The District continues to work closely with NRCS and has signed an agreement with NRCS, ARB and EPA to give SIP creditability to the NRCS and District only tractor replacement programs.

C.3.3 Incentive Funding Sources

The District relies on a combination of funding sources to support its comprehensive incentive program. The annual amount of funding available to the District is currently more than \$112 million for the 2010-2011 fiscal year. The primary sources of these funds includes expected revenue from the District's Indirect Source Review Rule, voluntary development mitigation agreements, local DMV surcharge fees, the state's Carl Moyer Program, Prop 1B, and various federal funding sources.

DMV Surcharge Fees

Revenue derived from motor vehicle surcharge fees provide California air districts with funds to meet a portion of their responsibilities mandated under the California Clean Air Act (CCAA). To date, such fees have provided funding for District activities, such as planning, monitoring, enforcement, and technical studies necessary to implement the CCAA, including incentive programs that reduce motor vehicle emissions. Approximately \$10 million of this funding is available annually for incentive grants.

In 2010, the District was faced with a very difficult issue of 1-hour ozone nonattainment penalty fees (Section 185 fees) mandated by the federal government. In October 2010, the District Governing Board ordered a that a program be developed to satisfy the Section 185 mandates while exempting well-controlled Valley businesses from the penalty, and supplemented the program with an annual \$12 motor vehicle fee. Revenues generated by the new motor vehicle fee will be reinvested in the Valley, awarded to Valley businesses, residents, and municipalities, to reduce mobile source emissions, which account for about 80% of the Valley's NOx emissions.

Indirect Source Review (ISR) & Voluntary Emission Reduction Agreement (VERA) Fees

From March 2008 – February 2009 the District used \$2,349,829 in ISR and VERA fees to fund 516 projects consisting of repowering various types of diesel powered industrial portable equipment such as agricultural irrigation pumps and generators, with either cleaner diesel engines or by conversion to electric motors. From March 2009 – February 2010 the District used \$406,833 in ISR and VERA fees to fund 49 projects consisting of repowering various types of diesel powered industrial portable equipment such as agricultural irrigation pumps and generators, with either cleaner diesel engines or by conversion to electric motors. In early 2010 the District collaborated in a new program with the US Department of Agriculture Natural Resources Conservation Service (NRCS) to utilize \$2 Million to co-fund the replacement of 102 agricultural tractors.

C.4 Fast Track Measures

Advanced Emission Reduction Options (AERO)

The nation's most stringent control measures are in place in the Valley, and some Valley businesses have implemented several generations of costly control technologies. Despite these efforts, the Valley still needs additional emissions reductions. For select stationary control measures, the AERO program sets emission reduction goals based on advanced technologies, but also provides several compliance options for operators who may be unable to utilize such advanced technologies. The specified emission reduction options would include control of the subject equipment, mitigation fees, specified offsite reductions, and alternative onsite approaches. Each option has ensured that reductions are surplus, enforceable, quantifiable, and permanent. The District now considers AERO options during each rulemaking project.

Alternative Energy

Alternative energy source usage can reduce and slow the growth of NOx emissions from utility power generation. Potential alternative energy sources include, but are not limited to, landfill gas; VOC and methane from confined animal facilities; agricultural waste products such as prunings, rice stalks, and orchard removal materials; biosolids; VOC from oil and gas production plants and other industrial facilities that are incinerated using flares or thermal oxidizers; solar; and hydrogen fuel cells. The viability of these alternative energy sources depends on the cost comparison to traditional energy sources, generally the combustion of fossil fuels.

The District has developed a guidance document as a resource for Valley residents, businesses, farmers, ranchers, and local governments to use when considering clean energy options in the San Joaquin Valley, including the use of incentive funding options for alternative fuel vehicles. Additionally, as part of the 2010 Legislative Platform, the District committed to supporting legislation that provides additional biomass capacity utilizing agricultural materials and expanding net metering and feed in tariffs for the utilization of solar and other renewable sources of energy.

Energy Conservation

Increased energy efficiency can improve Valley air quality and reduce energy costs. The District included energy efficiency as a priority in its 2010 Legislative Platform, and the Governing Board approved the District's Regional Energy Efficiency Strategy (REES) in January 2010. REES is a coordinated and collaborative process that engages regional partners and stakeholders, including potential recipients of proposed tools and programs.

The District has been working closely with San Joaquin Valley utilities, public and nonprofit agencies, and local energy experts. By serving as a regional energy efficiency leader, the District has been helping the Valley participate in state and federal initiatives

and funding opportunities. These additional resources will contribute to reduced greenhouse gas emissions, reduced NOx emissions, and improved air quality in the Valley. The District has also identified regional barriers that have hindered energy efficiency options in the past. Cost can be prohibitive, so developing reliable and sustainable funding streams can remove an important barrier to help the Valley encourage development and utilization of new energy efficiency technologies.

The District also serves as a role model by evaluating its own energy efficiency and conservation practices. The District's Energy Conservation Committee evaluates internal energy policies and usage patterns, then identifies no-cost and low-cost energy conservation and waste minimization opportunities within its offices. Based in part on this experience, the REES's educational component informs energy users to the financial and air quality benefits of energy efficiency.

Episodic & Regionally-Focused Controls

Real-time air quality measurement and meteorological forecasting enable the District to apply some regulatory controls in a more focused manner. The District's Smoke Management and "Check Before You Burn" Programs use real-time meteorological unhealthy air quality. The District's daily forecasts include episodic and county-specific prohibitions on prescribed burning, agricultural burning, and fireplace and woodstove burning. Additional episodic and regionally focused controls could be used to "surgically" control emissions during the worst days of the ozone and PM2.5 seasons. The District will consider episodic controls and regionally-focused controls during future rule development and attainment plan efforts to optimize the benefits of each measure.

Green Contracting

Green contracting is the practice of considering environmental impacts when selecting service providers, favoring service providers that use energy efficient equipment, provide environmentally preferable products, operate lower emission vehicles, etc. By incorporated aspects of green contracting into their existing purchasing policies, public agencies and businesses can save money, improve efficiency, reduce waste, and lessen environmental impacts. The District's guidance document, *Green Purchasing and Contracting: A Guide to Reducing Environmental Impacts Through the Procurement Process*, encourages the voluntary adoption of green contracting practices and includes policy templates, an objectives checklist, and a model resolution for local governments.

Green Fleets

Green fleet programs can reduce operating costs, decrease greenhouse gas and criteria pollutant emissions, and improve organizational reputation. The District has achieved significant emissions reductions from encouraging fleet turnover through incentive funding made available by Proposition 1B and other funding sources. Green Fleets is a component of the District's Green Purchasing and Contracting guidance.

Heat Island Mitigation

Decreased ambient temperatures can slow the formation of ozone and lower energy consumption, which reduces emissions. The District's Urban Heat Island Mitigation Guidance Report provides a resource to increase understanding of the effects and potential mitigation of the urban heat island effect. The report includes a model ordinance and resolution as well as numerous voluntary mitigation measure suggestions.

High Speed Rail

In November 2008, California voters approved Proposition 1A, the *Safe, Reliable, High-Speed Train Bond Act*, to provide \$9.95 billion in bonds (with federal and private matching funds required) to establish a high-speed train service linking Southern California, the Central Valley, and the San Francisco Bay Area. This project has the potential to dramatically reduce passenger car trips through the Valley, reduce emissions, and improve air quality. The California High Speed Rail Authority and partners are currently holding public meetings and workshops as they develop Environmental Impact Reports for each major section of the proposed railway.¹ District staff will continue to participate in many of the meetings and workshops.

Inland Ports and Short Sea Shipping

Inland Ports and Short Sea Shipping could provide significant emission reductions in the Valley by reducing truck travel between the Valley and the Port of Oakland. However, it would require considerable infrastructure, for which the District is actively lobbying for federal and state funding. Additionally, the District has taken a leadership role and facilitated meetings with Port of Oakland, Valley agricultural representatives, and other stakeholders to develop implementation ideas in pursuit of a "marine highway" system.

Truck Replacement/Retrofit

District staff has coordinated with an advisory committee to effectively use Proposition 1B funds to reduce emissions from heavy-duty diesel trucks driven in the Valley. The District is has been processing grants for truck replacements, repowers, and retrofits funded by the state's Proposition 1B Goods Movement Emission Reduction Program.

¹ The annual report for this project can be found at www.cahighspeedrail.ca.gov/news/CHSRAPProgramSummaryReportJuly2009.pdf.