

**Carl Moyer Memorial Air Quality Standards
Attainment Program**

Lower-Emission School Bus Program

AUDIT REPORT

**San Joaquin Valley Air Pollution Control District
Fiscal Years 2002/2003 – 2005/2006**

**Prepared by:
Mobile Source Control Division
Air Resources Board**

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Executive Summary

This report covers the 2007 audit of the San Joaquin Valley Air Pollution Control District's (San Joaquin Valley APCD or District) implementation of the Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program) and the Lower-Emission School Bus Program (School Bus Program). In general, the ARB found that the San Joaquin Valley APCD operates strong and robust incentive programs. Audit findings, which are discussed below, are relatively minor.

The Carl Moyer Program achieves reductions in air pollution by providing grants that fund the extra cost of voluntary purchases of heavy-duty diesel vehicles, engines, and equipment that meet cost-effectiveness criteria and achieve emission reductions that are surplus to regulatory requirements. The Carl Moyer Program is implemented at the local level by California's 35 local air pollution control/air quality management districts under the oversight of the California Air Resources Board (ARB).

The School Bus Program is a voluntary grant program to clean up the aging school bus fleet that serves California's public schools. That program provides grants to purchase new school buses that replace older, high-emitting buses and to retrofit existing diesel buses with ARB-verified diesel emission control systems. Some of the more populous air districts, including the San Joaquin Valley APCD, implement the new bus purchase component in their regions.

The San Joaquin Valley APCD has jurisdiction over the air quality in the San Joaquin Valley air basin, which comprises San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare counties and a portion of Kern County. The San Joaquin Valley air basin does not meet federal or California health-based ambient air quality standards for ozone (smog) or particulate matter (soot). Its air quality ranks among the worst in the nation. The projects funded under the Carl Moyer Program are critical in achieving emission reductions for the region and will be an important component of the San Joaquin Valley APCD's federally-required State Implementation Plan – the District's strategy for achieving healthful air. In addition, the emission reductions achieved by the School Bus Program play an important role in reducing children's exposure to harmful air pollutants during their developing years.

The ARB has awarded the San Joaquin Valley more than \$48 million in State funds for the Carl Moyer Program over the first nine years of the program (fiscal years 1998/1999 to 2006/2007). The District has leveraged State funds with over \$14.5 million in local match during those same years, utilizing funds generated by motor vehicle fees. In addition, since the School Bus Program's inception in 2000, the San Joaquin Valley APCD has been awarded over \$6.7 million in State School Bus Program funds and has contributed \$10.4 million in local funds.

This audit focused on the San Joaquin Valley APCD's Carl Moyer Program as conducted during the 2002/2003 and 2003/2004 fiscal years; the ARB staff also reviewed aspects of that program as it was conducted during the 2004/2005 and 2005/2006 fiscal years. The ARB staff audited the School Bus Program as conducted during the 2005/2006 fiscal year since that is the first year that the San Joaquin Valley APCD administered the new bus replacement portion of that program.

The ARB contracted with the California Department of Finance Office of State Audits and Evaluations (Department of Finance) to perform an in-depth review of the fiscal elements of the San Joaquin Valley APCD's Carl Moyer and School Bus Programs during the same audit years. While ARB staff worked closely with Department of Finance staff and there was some overlap between the two reviews, the Department of Finance focused on fiscal issues following their own departmental procedures for their portion of the audit. The methods and results of the fiscal portion of the audit are covered in a separate report. Therefore, both reports should be viewed together to get a complete perspective of San Joaquin Valley APCD operations.

The ARB's audit of San Joaquin Valley APCD's implementation of the Carl Moyer Program found a strong and robust program that for the most part meets the requirements of the Health and Safety Code and the applicable Guidelines. As a result of the audit, ARB is making three findings: inaccurate reporting of enforceable emission benefits, funds expended slightly late in one year, and required documentation that is missing or inaccurate in some cases. The ARB's audit of the San Joaquin Valley APCD's implementation of the School Bus Program found minor documentation-related errors and no major program deficiencies during the audit's target year.

The audit also found that the San Joaquin Valley APCD's Carl Moyer Program includes a number of commendable elements that go above and beyond the basic Carl Moyer Program requirements. Most noteworthy are the District's commitment to the program, extensive review of project invoices, long-standing dedication to completing pre- and post-inspections, and its quick and thorough responsiveness to Carl Moyer Program-related issues.

For the School Bus Program, commendable elements include dedicating sufficient staff to administer a well-run program, facilitating consistency with the School Bus Program Guidelines through tailored application packets and thorough documentation of each project, and contributing a substantial amount of local funding - in excess of State funding - for school bus replacements.

I. Overview

A. Background

This report covers the 2007 audit of the San Joaquin Valley Air Pollution Control District's (APCD or District) implementation of the Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program) and the Lower-Emission School Bus Program (School Bus Program).

The Carl Moyer Program provides grant funds for the incremental cost of voluntary purchases of a variety of cleaner-than-required heavy-duty diesel vehicles, engines, and equipment. The Carl Moyer Program accelerates the turnover of old highly-polluting engines, reduces costs to the regulated community, and accelerates the commercialization of advanced emission controls. The California Air Resources Board (ARB) distributes State funds to California's 35 local air pollution control/air quality management districts, develops the Carl Moyer Program Guidelines (<http://www.arb.ca.gov/msprog/moyer/moyer.htm>) to assist in program implementation, and provides program oversight. Local air districts implement a major part of the Carl Moyer Program. Districts select, fund, and monitor specific clean air projects in their areas.

The School Bus Program helps clean up the aging school bus fleet that serves California's public schools. It provides grants to purchase new school buses to replace older, high-emitting buses and to retrofit existing diesel buses with ARB-verified diesel emission control devices. The ARB distributes State School Bus Program funds to the California Energy Commission and qualifying local air districts, develops the School Bus Program Guidelines (<http://www.arb.ca.gov/msprog/schoolbus/schoolbus.htm>), and provides program oversight. The California Energy Commission and participating local air districts implement the program using ARB's Guidelines.

San Joaquin Valley Air Pollution Control District

The San Joaquin Valley APCD has jurisdiction over the air quality in the San Joaquin Valley air basin, encompassing nearly 25,000 square miles. The air basin is comprised of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare counties and the valley portion of Kern County. The San Joaquin Valley air basin does not meet federal or California health-based ambient air quality standards for ozone (smog) or fine particulate matter (soot). Its air quality ranks among the worst in the nation.

The emission reductions achieved by the Carl Moyer Program play an important role in improving the San Joaquin Valley APCD's air quality and will be a key component of the their federally-required State Implementation Plan – the District's strategy for achieving cleaner air. Over the first six years of the Carl Moyer Program, the San Joaquin Valley APCD has funded over 1,700 cleaner engines, the majority of which are replacement engines for agricultural irrigation pumps. Those projects have reduced NO_x emissions by over 1,800 tons per year and diesel particulate matter emissions by approximately 80 tons per year. In addition, the emission reductions achieved by the School Bus

Program help reduce San Joaquin Valley children's exposure to harmful air pollutants during their developing years. Through a combination of State and local funding, the San Joaquin Valley APCD has replaced 101 older, high-polluting buses and has retrofitted 332 existing diesel school buses with emission control devices. The San Joaquin Valley APCD also encourages new bus purchases, repowers, and retrofits via a District fleet rule for school buses.

The San Joaquin Valley APCD ranks second after the South Coast Air Quality Management District in total Carl Moyer Program funds received. The San Joaquin Valley APCD has been awarded more than \$48 million in Carl Moyer Program funds over the first nine years of the program (from the 1998/1999 fiscal year through the 2006/2007 fiscal year). The San Joaquin Valley APCD is leveraging these State funds with over \$14.5 million in local match funds. Further, the San Joaquin Valley APCD has been awarded over \$6.7 million in State School Bus Program funding since 2000 with approximately \$5.6 million awarded during the audit's target years (discussed below). Additionally, the San Joaquin Valley APCD has collected over \$10 million in local vehicle registration fees since May of 2005 as authorized by Assembly Bill 923 (AB 923; Statutes of 2004, Chapter 707). These vehicle registration fees typically overlap both the Carl Moyer and School Bus Program requirements in that they must be used for Carl Moyer Program eligible projects, projects adhering to the School Bus Program Guidelines, or for an Agricultural Assistance Program.

Overview of ARB's Audit

State law provides the ARB with oversight responsibilities and the authority to audit district Carl Moyer and School Bus Programs (Health and Safety Code sections 39002, 39003, 39500, 39600, 39602, 39605(b), 41500, 44287, and 44291). Additionally, the scope of this audit included a review of funds generated by the \$2 motor vehicle registration fee surcharge that was authorized in 2004 by Assembly Bill 923 because the projects funded through these motor vehicle fees must meet specified State requirements (Health and Safety Code section 44229(b)).

To maximize the efficiency of the audit process and reduce the resource impacts on ARB and the San Joaquin Valley APCD, and due to the number of similarities between the Carl Moyer Program and the School Bus Program, parallel audits were conducted. Both programs are voluntary grant programs for heavy-duty vehicles/engines, there is some overlap in their sources of funding, and there is also some overlap in the staff who administer those programs.

In 2006, the ARB conducted audits of the Carl Moyer Programs of the Ventura County Air Pollution Control District, the Sacramento Metropolitan Air Quality Management District, the South Coast Air Quality Management District, and the Butte County Air Quality Management District. ARB recently completed its audit of the Carl Moyer Program of the Bay Area Air Quality Management District and plans to return to audit the South Coast Air Quality Management District in 2007. Detailed reports on completed audits can be viewed at <http://www.arb.ca.gov/msprog/moyer/audits/audits.htm>. While the Carl Moyer Program

audits conducted in 2006 included general monitoring for the School Bus Program, this was the second formal ARB audit of a district's implementation of its School Bus Program. In addition to the 2006 audits, several years ago ARB conducted a comprehensive review of the air quality programs of the San Joaquin Valley APCD that included a review of the District's Carl Moyer Program. The Carl Moyer Program portion of the program review focused on fiscal years 2000/2001 and 2001/2002. The report can be viewed at <http://www.arb.ca.gov/audits/sjv/sjvaudit05.pdf>.

This audit focused on the San Joaquin Valley APCD's Carl Moyer Program as conducted during the 2002/2003 and 2003/2004 fiscal years, with a review of aspects of that program as it was conducted during the 2004/2005 and 2005/2006 fiscal years. The audit also focused on the School Bus Program as conducted during the 2005/2006 fiscal year. That year was the only year included because it was the first year that the San Joaquin Valley APCD administered the new school bus replacement portion of the program. At the time of the audit, retrofit projects funded under the 2005/2006 School Bus Program were still in the early stages of implementation and had not yet reached any deadlines with which to conduct an evaluation of that portion of the School Bus Program.

The audit for both programs followed a number of similar general procedures. More detailed information regarding the audit procedures is presented later in this report in the sections specific to each of the two programs. Generally, though, the audit was conducted in two main phases; a desk review and an on-site review.

For the desk review, ARB staff first developed criteria to select projects. Staff then visited the San Joaquin Valley APCD headquarters office in Fresno, copied the files of the selected projects, and brought the copies back to ARB offices for review. Audit staff also reviewed other San Joaquin Valley APCD documents such as forms, contracts, and procedure manuals. Staff remained in close communication with the District throughout this process to clarify issues as they arose and to request additional materials as needed.

The on-site review included field inspections of selected Carl Moyer Program projects, followed by a second visit to the San Joaquin Valley APCD office. During that visit, ARB audit staff presented the San Joaquin Valley APCD with the questions and concerns discovered during the audit and gave the District an opportunity to present additional information to address them. Any remaining concerns were discussed with San Joaquin Valley APCD management during the exit interview.

The San Joaquin Valley APCD was given an opportunity to provide, for ARB consideration prior to finalizing the audit results, information that mitigated concerns raised and a plan for mitigating remaining issues. Such information, which was provided to ARB within a few days after the exit interview, has been reflected in this report. The San Joaquin Valley APCD is also given an opportunity to formally respond to the audit results. The San Joaquin Valley APCD's formal response to this report, along with any additional mitigation plans, will complete this audit.

In addition to the programmatic audit conducted by ARB staff, the ARB contracted with the California Department of Finance Office of State Audits and Evaluations (Department of Finance) to perform an in-depth review of the fiscal elements of the District's Carl Moyer and School Bus Programs during the same audit years. While ARB staff worked closely with Department of Finance staff, and while there was some overlap between the two reviews, the Department of Finance focused on fiscal issues and followed their own departmental procedures for their portion of the audit. The methods and results of the fiscal portion of the audit are covered in a separate report. Therefore, both reports should be viewed together for a complete perspective of San Joaquin Valley APCD operations.

II. Carl Moyer Program Audit

A. San Joaquin Valley APCD's Implementation of the Carl Moyer Program

The San Joaquin Valley APCD's Carl Moyer Program is one component of the District's broader Emission Reduction Incentive Program that administers incentive funds from a number of sources. The San Joaquin Valley APCD's website http://www.valleyair.org/Grant_Programs/GrantPrograms.htm provides more detailed information regarding its grant and incentive programs. The San Joaquin Valley APCD awards Carl Moyer Program funds on a first-come, first-served basis. Applications are accepted on an on-going basis, year round. Typically, the San Joaquin Valley APCD receives numerous applications that, if all were funded, would exceed its annual Carl Moyer Program grant allocation.

The San Joaquin Valley APCD's website includes different application packets and corresponding instructions for each type of project. Applications can also be obtained at all three of the San Joaquin Valley APCD's offices. The San Joaquin Valley APCD provides outreach via public workshops and meetings, one-on-one meetings, newspaper publications, and District mailing lists. San Joaquin Valley APCD staff conduct outreach at events such as the World Ag Expo, farm organization meetings, town hall meetings, and the San Joaquin Valley Air Quality Symposium. Staff makes application materials available at all such events.

San Joaquin Valley engine dealers assist with a majority of the applications that the San Joaquin Valley APCD receives. The dealers often help applicants fill out the necessary forms. As a result, the San Joaquin Valley APCD holds informational workshops for dealers to advance their knowledge of the Carl Moyer Program, inform them of Carl Moyer Program Guideline changes, and to address any problems that arise. Such workshops occur every few years.

Most of the San Joaquin Valley APCD's projects funded under the Carl Moyer Program have been agricultural irrigation pump repowers and replacements, comprising more than 90 percent of the engines funded over the first six years of the program. There are numerous applicants for such projects and they are very cost-effective. Also, because

the San Joaquin Valley APCD's Emission Reduction Incentive Program administers funds from a variety of sources in addition to the Carl Moyer Program, program staff match different project types with the most suitable funding sources. The San Joaquin Valley APCD has found that Carl Moyer funds have been well suited for funding agricultural irrigation pump projects in the past and has, to a large degree, used other funding sources to pay for other project types. However, Carl Moyer Program funds have been utilized for other source categories such as on-road, off-road, locomotive, and forklifts.

The San Joaquin Valley APCD has for the past few years used a strategic spending plan for its Emission Reduction Incentive Program to apportion the funding awarded to different source category types. The Air Pollution Control Officer plays an active role in developing this plan and makes the ultimate funding decisions with regard to how much is to be provided to different project category types. This is a fluid process and spending priorities may shift from month to month. Sometimes the emphasis on the type of project that receives priority for funding is determined by the window of opportunity with regard to surplus emissions or available co-funding (e.g., Pacific Gas and Electric and Southern California Edison agricultural engine electrification funds).

San Joaquin Valley APCD staff maintains an electronic database for project information and retains hardcopies of project documents and information in its files. Each project has its own file folder that contains the original application and contract, a working copy of the application, project checklists, emission calculations, letters, monitoring and inspection reports, and all notes and correspondence pertaining to the project.

When the San Joaquin Valley APCD staff receive an application, they check it for completeness and notify the applicant within five working days as to whether it is complete or incomplete. For agricultural irrigation pump projects, San Joaquin Valley APCD staff determine whether the equipment is subject to permit and, if so, notify the Permits Department for appropriate action. Next, each potential project is pre-monitored by the Compliance Department. Inspectors note the old engine's make, model, location, etc. and check for signs that the engine is currently functional (makes sure the engine starts, shows signs of current use, etc.).

After pre-monitoring, the project is assigned to program staff for an eligibility determination. San Joaquin Valley APCD staff verify pertinent information regarding the old and new engines; obtain required documentation; and perform calculations to determine emission reductions, cost-effectiveness, and the maximum amount of funding for which the project is eligible.

The San Joaquin Valley APCD performs an environmental justice evaluation of prospective projects by referring to maps of census tracts that are shaded according to whether a tract meets the District's environmental justice criteria – i.e., if the population of non-white individuals exceeds 50 percent and if the population (including white) below the national poverty level exceeds ten percent. The project location coordinates (ascertained during the pre-inspection) are looked up on the map to determine whether

the project is located in an environmental justice area. For agricultural pumps, this is straightforward – the location of the pump is used. For mobile sources, the San Joaquin Valley APCD uses available information that appears to make the strongest link to exposure, e.g., the location of the company headquarters, the route of a school bus, etc.

The San Joaquin Valley APCD mails an offer letter along with a contract for signature to applicants that have been selected. It takes approximately four to six months from the receipt of an application to the signing of a contract, depending on the type of project. If there are extenuating circumstances, some proposed projects can take longer. The time between an applicant receiving an offer letter and getting the contract signed can be very short (several days) or can take several weeks to a month. The longer end of that time range may occur in instances when the Board Chair is required to approve the contract. For individual projects less than \$20,000, after the Director of Finance and the legal office approves a contract, the Air Pollution Control Officer makes the final approval. For contracts greater than \$20,000, the Board Chair must also approve.

Once a project is implemented (e.g., a farmer installs a new agricultural pump engine and destroys the old one), the applicant (now referred to as the grantee since the application has been approved) sends the San Joaquin Valley APCD a claim for payment packet. This packet contains a claim for payment form, an itemized invoice, a certificate of insurance, and an old engine status form. San Joaquin Valley APCD staff review the packet for completeness and contact the grantee if any additional information is needed. Then the San Joaquin Valley APCD Compliance Department conducts a post-monitoring inspection to inspect the new engine and to verify the proper disposal of the old engine.

Once the post-monitoring report is approved by program staff, the payment claim is reviewed. San Joaquin Valley APCD staff compare what was claimed with the original quote and the grant amount. Staff also check for ineligible costs on the invoices and for other irregularities (e.g., the District does not pay for self-installation of engines). Once any needed adjustments are made, project staff forward the claim for peer and management review and then to the Finance Department for payment. In addition to hardcopy claims, the San Joaquin Valley APCD maintains a database to process and track payments. Finance staff keep the original hardcopy claim for payment form, including the invoices: a copy of those documents are kept in the incentive program project file.

Grantees are required to report to the San Joaquin Valley APCD once a year for the life of the project (but no longer than five years) on the anniversary date of installation or invoice purchase date. San Joaquin Valley APCD staff remind the grantees of this requirement via a letter that includes a blank reporting form.

B. Audit Procedure

State law (Health and Safety Code 44291) requires the ARB, as part of its oversight responsibilities, to monitor district Carl Moyer Programs to ensure that funded projects

actually achieve the expected emission reductions. Further, the ARB is required to monitor district Carl Moyer Programs to ensure that they are conducted in a manner that is consistent with the ARB's Carl Moyer Program Guidelines. The law also directs the ARB to recapture funds from a district under circumstances where the ARB identifies district Carl Moyer Program deficiencies and the district fails to correct such deficiencies. Besides identifying Carl Moyer Program deficiencies, audits also provide the ARB with a mechanism for identifying the strengths of district Carl Moyer Programs. These strengths are shared with other districts and can be useful in improving the State Carl Moyer Program as a whole.

This section describes in more detail the audit procedures used to evaluate the San Joaquin Valley APCD's implementation of the Carl Moyer Program. In order to minimize resource impacts on the San Joaquin Valley APCD and to better utilize ARB staff resources, the audit procedure was modified somewhat from that of previous Carl Moyer Program audits conducted in 2006.

This part of the audit focused on the San Joaquin Valley APCD's Carl Moyer Program as conducted during the 2002/2003 and 2003/2004 fiscal years. During those fiscal years, State Carl Moyer Program funds were provided under Proposition 40 – California's Clean Water, Clean Air, Safe Neighborhood Parks and Coastal Protection Act. The ARB reviewed the San Joaquin Valley APCD's Carl Moyer Program for the 2002/2003 and 2003/2004 fiscal years for consistency with the Health and Safety Code and with the 2003 Carl Moyer Program Guidelines, which were the Guidelines in effect for those two years.

The ARB staff also reviewed the San Joaquin Valley APCD's Carl Moyer Program as it was conducted during the 2004/2005 and 2005/2006 fiscal years to determine how well the San Joaquin Valley APCD adapted to changes in State law that provided for a significant influx in funding, resulting in Carl Moyer Program expansion (Assembly Bill 923, Statutes of 2004, Chapter 707; and Senate Bill 1107, Statutes of 2004, Chapter 230).

For the same four fiscal years (2002/2003 – 2005/2006), ARB staff also reviewed related projects that were funded with local District match funds, earned interest funds, and District funds collected from an additional \$2 motor vehicle registration fee authorized by Assembly Bill 923.

Desk Review

As discussed earlier, the audit was conducted in two main phases; a desk review and an on-site review. The desk review began on February 7, 2007. This phase, which is described in detail below, included a number of steps; a file review of selected projects for project eligibility, an in-depth review of a subset of those project files, and a review of a number of San Joaquin Valley APCD forms used in the Carl Moyer Program.

To initiate the audit, ARB audit staff met with San Joaquin Valley APCD management and staff at the District office in Fresno and conducted an entrance interview. During

the entrance interview, San Joaquin Valley APCD management and staff were briefed on the audit process and introduced to key ARB and Department of Finance audit staff. Also during this initial visit, San Joaquin Valley APCD Carl Moyer Program staff were asked to provide specific program documents and access to District files. San Joaquin Valley APCD staff also met with audit team members and guided them through the procedures the District uses to run its Carl Moyer Program.

ARB audit staff used a procedure that applied risk factors to select specific projects to audit. The main objective of that procedure was to choose projects that would be considered a higher risk, and thus a higher audit priority. This was done in response to a recommendation made by the Department of Finance in its 2006 evaluation of the administration, funding, and tracking procedures of the ARB Carl Moyer Program (http://www.arb.ca.gov/msprog/moyer/audits/2006/dof_eval_12-21-06.pdf). Another objective was to choose a broad sample of project types that reflected the source category types funded under the Carl Moyer Program. Projects that ranked higher in risk in each project category funded by the San Joaquin Valley APCD were chosen for audit. Another criterion used to select projects was the source of funding for the project (e.g., Carl Moyer Program, match, and funds authorized by Assembly Bill 923).

During the visit to the San Joaquin Valley APCD office on February 7, 2007, the ARB staff photocopied individual project files and general program files. This initial file-gathering process ended on February 8, 2007, at which time the ARB staff brought the photocopied files back to the ARB's offices in Sacramento and El Monte to conduct the desk review over the span of the next few weeks. Because the San Joaquin Valley APCD staff had no prior knowledge of what files would be chosen, ARB staff provided the San Joaquin Valley APCD with a list of such projects at the end of the visit. Attachment 1 lists all the 24 projects reviewed for the Carl Moyer Program audit. The projects selected for review included:

- Six fiscal year 2002/2003 projects, representing the on-road, off-road, agricultural pump, and infrastructure source categories;
- Five fiscal year 2003/2004 projects, representing the on-road, off-road, and agricultural pump source categories;
- Five fiscal year 2004/2005 projects, representing the on-road, off-road, and agricultural pump source categories;
- Six fiscal year 2005/2006 projects, representing the on-road, off-road, agricultural pump, and forklift source categories; and
- Two other projects, representing different funding sources and the on-road and locomotive source categories.

After returning to the ARB offices, audit staff performed an initial desk review of the selected projects to check whether the San Joaquin Valley APCD properly determined eligibility for funding. To conduct this review, staff evaluated information contained in project applications, cost-effectiveness data and calculations, regulatory requirements that would impact the surplus nature of the projects, Health and Safety Code requirements, Carl Moyer Program Guideline and advisory requirements, and any relevant San Joaquin Valley APCD eligibility requirements.

Audit staff next conducted a more in-depth review of a subset of the 24 projects. The six projects selected for in-depth review (shown in Attachment 1) represent each of five source categories (i.e., the on-road, off-road, forklift, agricultural pump, and locomotive categories) and an infrastructure project. This step of the process checked important administrative and technical details, consistent with audits of Carl Moyer Programs of other districts that the ARB conducted in 2006. For this in-depth review, audit staff followed the project documentation throughout the life of the project – from the time of application through the purchase of the equipment and into the grantee's reporting period. This investigation checked whether all required documents were available and whether they were consistent with the requirements of the San Joaquin Valley APCD's contract, the appropriate Carl Moyer Program guidelines and advisories, the Health and Safety Code, and any other applicable regulations.

Another step in the desk review was an evaluation of key San Joaquin Valley APCD Carl Moyer Program documents. These included the following:

- The District's newly-developed policies and procedures manual
- Application forms for different years and source category types
- Contract language for different years and source category types
- Project inspection forms
- Grantee reporting forms

Throughout the course of the desk review, ARB staff maintained frequent contact with District staff to clarify issues and to request additional information.

San Joaquin Valley APCD Rule 4702, "Internal Combustion Engines – Phase 2"

As part of the review of each selected project's eligibility for funding, ARB audit staff considered relevant requirements that potentially impacted the surplus nature of the project's emission reductions. Such considerations are integrated into ARB's Carl Moyer Program Guidelines for requirements that apply Statewide. In addition, the ARB audit staff considered the impact of relevant local requirements of the San Joaquin Valley APCD. Thus, in this audit the ARB considered, where applicable, the impacts of the San Joaquin Valley's internal combustion engine rule (Rule 4702) on projects reviewed. That rule was amended in 2005 to include engines used in agriculture, which were previously exempted from permit requirements and associated emission control requirements. Agricultural irrigation pump engine replacements and repowers have been predominant project types in the San Joaquin Valley APCD's Carl Moyer Program; their eligibility for funding under the Carl Moyer Program is impacted when Rule 4702 requirements affect the surplus nature of the emission reductions from such projects.

Under the provisions of Rule 4702, internal combustion engines greater than 50 brake horsepower (bhp) that are used in agriculture will be subject to emission limits. Those emission standards will be phased in beginning in 2010 for most compression-ignited (diesel) engines. In addition, spark-ignited engines and non-certified compression-ignited engines that are greater than 500 bhp and operate more than 1,000 hours per year will be subject to emission standards starting in 2008. However, that compliance

date may be extended to January 1, 2010 in cases where the owner agrees to replace such an engine with an electric motor. An owner of an engine subject to the rule will be required to obtain a permit for the engine or to register it with the San Joaquin Valley APCD, depending on the magnitude of the emissions of the agricultural operation at which the engine is located.

On-site review

The on-site portion of the audit began April 17, 2007. That day marked the first field inspection conducted by ARB audit staff. For this phase of the audit, a subset of the projects selected for eligibility review were inspected by audit staff. Such inspections covered seven of the 24 projects selected for eligibility review, which were chosen to represent the range of project types funded. These included an agricultural pump project, an off-road project, two on-road projects, a forklift project, a locomotive project, and an infrastructure project. The specific projects inspected are indicated in Attachment 1.

Field inspections were conducted on different days during mid- to late-April, 2007. The field inspections checked whether the specific engine/project on-site was in proper working order and consistent with information in the project file such as the application, contract, and invoices. ARB audit staff met with project grantees and inspected and photographed the projects. San Joaquin Valley APCD staff arranged the site visits and accompanied ARB staff on the inspections.

The last part of the on-site phase of the audit was conducted from April 30 through May 4, 2007. Over those days, ARB audit staff visited the San Joaquin Valley APCD office and first met with District staff to brief them in detail regarding the issues and concerns identified. This afforded the San Joaquin Valley APCD an opportunity to provide the ARB auditors with information to address those issues and concerns.

While on site, ARB staff continued their evaluation of the San Joaquin Valley APCD's Carl Moyer Program. The ARB staff interviewed several key San Joaquin Valley APCD Carl Moyer Program staff as well as the program supervisor regarding their practices in implementing the Carl Moyer Program. ARB staff viewed and pulled data from the District's electronic database for corroboration with information ARB had on record. ARB staff reviewed additional project data to check calculation procedures and performed an analysis of District expenditures.

The on-site review concluded with two meetings. The first was an in-depth briefing of San Joaquin Valley APCD staff regarding the details of the audit's potential findings and recommendations. The second meeting was an exit interview with the ARB and San Joaquin Valley APCD's Air Pollution Control Officer and other executive management personnel, where policy level discussions took place regarding remaining concerns and their implications to the Carl Moyer Program. Once the on-site audit was complete, the San Joaquin Valley APCD was given ten working days to provide the ARB with additional information that the ARB could consider in this audit report. The San Joaquin Valley APCD has provided ARB with information to mitigate some issues raised, as well

as a mitigation plan addressing many of the findings of this audit. This information has been taken into account in Section IV of this report.

C. Commendable Efforts

The commendable efforts included in this section are noteworthy accomplishments by the San Joaquin Valley APCD. Commendable efforts are exceptional practices that may serve as a model for other California district's Carl Moyer Programs.

1. San Joaquin Valley APCD's Commitment to the Program

The San Joaquin Valley APCD has been actively involved in the development and implementation of the Carl Moyer Program since its inception and has shown a strong commitment to ensuring that its implementation of the Carl Moyer Program is successful. The San Joaquin Valley APCD's Carl Moyer Program is one component of the District's broader Emission Reduction Incentive Program that administers incentive funds from a number of sources. Currently, that broader program is staffed by 18 people. Along with rank and file staff, this includes a Program Manager, a Supervising Air Quality Specialist, and two Senior Air Quality Specialists. Additionally, the Emission Reduction Incentive Program uses inspectors from the District's Compliance Department to conduct field inspections on Carl Moyer Program projects. Overall, the San Joaquin Valley APCD annually devotes approximately six personnel years to administering the Carl Moyer Program. The considerable staff resources devoted by the District to implementing the Carl Moyer Program contribute to a strong and robust program.

2. Extensive Invoice Review

The San Joaquin Valley APCD has made a concerted effort to ensure that invoices are accurate and that only eligible expenses are paid. The 2005 Carl Moyer Program Guidelines require, as part of the terms for payment, a district to receive itemized invoices from grantees prior to disbursing payment (Pt. I, Ch. II, Sec.VIII.C.2). The San Joaquin Valley APCD performs an extensive review of invoices received from applicants including verifying costs, recalculating tax and eliminating ineligible expenses.

3. Engine Inspections

The 2005 Carl Moyer Program Guidelines require districts to complete pre- and post-inspections for all projects that receive funding (Pt. I, Ch. II, Sec. IX.A and IX.B). Pre-inspections are completed to verify that the information in an application is accurate and that the engine is operational. Post-inspections are completed to verify that engine purchase/installation occurred as per the requirements of the contract. The San Joaquin Valley APCD has been conducting pre- and post-inspections on projects on a voluntary basis since the beginning of the program, long before required by the 2005 Guidelines.

4. San Joaquin Valley APCD's Responsiveness

The San Joaquin Valley APCD has shown a high degree of responsiveness to requests made by ARB staff throughout this audit process and also, more generally, to issues that have developed in the course of the District's implementation of the Carl Moyer Program. San Joaquin Valley APCD staff provided requested materials quickly and as a result, a number of items listed in the recommendations and findings portions of this report (sections II. D. and IV. A.) include a discussion of the modifications and improvements the District has already made or is in the process of implementing. In addition, some recommendations ARB staff originally intended to make as a result of this audit, such as including the environmental justice status of a project in the project file and including additional information in the pre- and post-inspection forms, have already been implemented by the San Joaquin Valley APCD and are therefore not included in this report.

D. Recommendation for Future Carl Moyer Program Improvement

San Joaquin Valley APCD should consider improving the current implementation of the Carl Moyer Program as noted below. This recommendation does not require a response from the San Joaquin Valley APCD, although the District may comment on the recommendation in its written response.

1. Ensure Process Transparency through Proper Documentation

ARB recommends that the San Joaquin Valley APCD ensure that all proper documentation is in place so that the entire process, on a project level and also on a program level, is transparent. This recommendation includes updating the District's policies and procedures manual as well as including additional documents in the program files.

Documentation: During the audit, ARB staff observed that the hardcopy project files did not consistently include required documentation. Although this documentation was not in the project files, the San Joaquin Valley APCD was able to provide it to the ARB upon request.

The ARB recommends that the District include in the project file all documentation necessary to show that all steps in the funding and eligibility process was followed in accordance with the Carl Moyer Program Guidelines. The San Joaquin Valley APCD has indicated to the ARB that it has begun to implement additional measures (e.g., including the environmental justice evaluation in the file checklist and making a copy of the payment stub for the file) to ensure complete project documentation.

Policies and Procedures: The 2005 Carl Moyer Program Guidelines requires districts to maintain a current policies and procedures manual outlining the district's overall plan and day-to-day process for implementing the Carl Moyer Program (Pt. 1, Ch. 2, Sec. IV.G). All procedures that impact project selection, contracting, invoicing, payment, monitoring, and enforcement must be included in the policies and procedures manual. San Joaquin Valley APCD submitted to ARB its initial draft of the policies and procedures manual in December, 2006, and submitted an updated version in March, 2007.

Although the San Joaquin Valley APCD's policies and procedures manual contained all the basic required elements, ARB is recommending inclusion of the following to improve the clarity and completeness of the District's documentation regarding how it implements its Carl Moyer Program:

- A description of the San Joaquin Valley APCD's method for developing the default applicant cost-share values that it uses for determining the incremental cost eligible for funding,
- A description of the method used by the San Joaquin Valley APCD for annually requesting a copy of proof of insurance from the grantee, and
- A description of the method the San Joaquin Valley APCD uses to fund projects and an identification of where the record of a project's funding source is located.

Additionally, the ARB reviewed the San Joaquin Valley APCD's policies and procedures manual independently from the audit process and provided comments to the District. Recommendations from that review should assist the San Joaquin Valley APCD in developing a more robust policies and procedures manual.

The District has indicated that it is currently in the process of updating all of the Emission Reduction Incentive Program Department policies and procedures. ARB recommends, as part of that update, the San Joaquin Valley APCD modify its Carl Moyer Program policies and procedures manual to more accurately reflect how the District runs its program, and to incorporate the clarifications stated above.

III. School Bus Program Audit

A. San Joaquin Valley APCD's Implementation of the School Bus Program

To implement the School Bus Program, the San Joaquin Valley APCD uses a procedure similar to that used to implement the Carl Moyer Program, which was described in Section II of this report. Implementation variations between the two programs are primarily a function of differing program requirements.

The San Joaquin Valley APCD began administering its new bus replacement program in the 2005/2006 fiscal year. Prior to that, the San Joaquin Valley APCD received a State funding allocation for new bus replacements during every year such funds were available and the California Energy Commission administered the program. For the 2005/2006 fiscal year funding, the Legislature directed funds to specifically replace

pre-1977 model year buses, in order of oldest bus first. The ARB granted \$4,340,000 to the San Joaquin Valley APCD for the replacement of 31 specific pre-1977 model year school buses. Prior to receiving funds from the ARB, the San Joaquin Valley APCD Governing Board approved an increase in the District's budget and San Joaquin Valley APCD staff contacted specific school districts that were identified by the ARB as eligible for School Bus Program funding to request that they submit applications for funding.

The School Bus Program requires that the school district complete an application including the name of the school district, information about the bus or buses to be replaced, and information about the bus or buses to be purchased with the grant funding to replace their eligible buses. The San Joaquin Valley APCD specifies that the applicant include California Highway Patrol safety certification, a school board resolution authorizing the application submittal or a supplemental approval form, and price quotes for the replacement bus and any infrastructure needed.

The San Joaquin Valley APCD sends a funding agreement or contract between it and the school district for signature once an application is deemed complete and acceptable. The work of purchasing the new bus and destroying the old bus begins once the contract is executed.

The school district receives a copy of the executed contract and a copy of a guidance package that includes a claim for payment form, a form to verify destruction of the old bus, and an annual report form that, when completed, assures the San Joaquin Valley APCD that the new school bus remains in service within the San Joaquin Valley APCD for at least five years. The guidance document also includes a checklist reminding the school district to submit a completed and signed claim for payment form, invoices, canceled checks and receipts, a completed and signed vehicle destruction verification form, dismantling receipts, and proof of insurance for the new school bus.

Receipt of the claim for payment triggers a physical inspection of the new school bus by the San Joaquin Valley APCD staff. San Joaquin Valley APCD staff complete a document titled "Heavy-Duty Program Monitoring Report Post-Inspection" that indicates completion of a physical inspection and verification that the inspected bus meets the criteria of the funding agreement or contract between the San Joaquin Valley APCD and the school district.

San Joaquin Valley APCD School Bus Fleet Rule

Although not specifically included for review during the audit, the San Joaquin Valley APCD encourages new bus purchases, as well as repowers and retrofits, via their School Bus Fleet Rule adopted on September 21, 2006. That rule applies to school bus fleets of one or more, whether privately or publicly owned. For buses not already replaced, repowered, and/or retrofitted with eligible incentive funds, the San Joaquin Valley APCD rule requires replacement of pre-1978 buses over 8,500 pounds and either replacement, repower, or retrofit of post-1977 buses (excluding those manufactured after October 1, 2002) by January 1, 2016. This rule is designed to reduce emissions from on-road fleet vehicles performing public service, thereby

reducing the public's exposure to air toxic contaminants and criteria pollutants through the use of cleaner vehicles.

Utilizing assumptions developed by the San Joaquin Valley APCD staff published in their Final Draft Staff Report for the Proposed Rule 9310 (School Bus Fleets), ARB staff estimated a range of \$235 million to \$323 million for the capital cost to replace, repower, or retrofit the estimated number of pre-2002 buses in the San Joaquin Valley school bus fleet (see Table 1 below). This estimated capital cost exceeds the anticipated School Bus Program funding for the entire State over the next two years. The costs will vary depending on the mix of buses replaced, repowered, or retrofitted. Costs decrease with fewer bus replacements and with more repowers or retrofits on school buses. With the addition of two verified retrofit options, the Cleaire Horizon and the HUSS Umwelttechnik FS-MK, school buses older than 1994 model year can also be retrofitted to reduce their emission of diesel particulate matter.

Model Year	Percent of Population			
	New Diesel Bus	New CNG Bus	Repower	Retrofit
1983 & older	70	30		
1984 – 1986	65	30	5	
1987 – 1990	60	30	10	
1991 – 1993	55	30	15	
1994 – 1998	35	15		50
1999 – 2002				100
2003 – 2006				100

B. Audit Procedure

The ARB audited the San Joaquin Valley APCD's implementation of the School Bus Program as part of its general oversight responsibilities (Health and Safety Code section 39500). This section describes in more detail the audit procedures used by the ARB to evaluate the San Joaquin Valley APCD's implementation of the School Bus Program. Although the audit process for the School Bus Program differed somewhat from the Carl Moyer Program process, the two audit components followed the same general procedures.

The focus of the School Bus Program audit was on the San Joaquin Valley APCD's status in obligating its State allocation of 2005/2006 fiscal year new bus purchase funds and Assembly Bill 923 funds dedicated to new school bus purchases. The audit did not include prior fiscal years because the San Joaquin Valley APCD did not administer the new bus portion of the School Bus Program prior to the 2005/2006 fiscal year.

The retrofit aspect of the School Bus Program is not being audited at this time. Retrofit funds available to the San Joaquin Valley APCD from the 2005/2006 fiscal year are not

required to be fully expended until June 30, 2008. Further, at the time of the audit no intermediate deadlines had yet been reached with which to evaluate the San Joaquin Valley APCD's implementation progress. Consequently, this audit report does not include any formal findings regarding the San Joaquin Valley APCD's use of State School Bus Program retrofit funds.

Desk review

The ARB's audit of the San Joaquin Valley APCD's School Bus Program began on February 7, 2007 with the ARB's first site visit and entrance interview at the San Joaquin Valley APCD's headquarters. Similar to the Carl Moyer Program audit procedure, ARB staff photocopied individual project files and general program files, including the same types of key documents described in Section II, but specific to the School Bus Program. Because the School Bus Program is structured differently than the Carl Moyer Program and has less diversity in project types, the ARB staff used a more streamlined project selection and review process for the School Bus Program audit.

Prior to the entrance interview, the ARB staff selected projects using criteria designed to ensure a sample that reflected the diversity of project types and funding sources used in the San Joaquin Valley APCD's School Bus Program. The projects selected represent the following: a project with new diesel-fueled buses purchased, a project with compressed natural gas (CNG)-fueled buses purchased, a project with infrastructure requested, a project funded by Assembly Bill 923 fees (new school buses funded by these fees must meet the criteria in the School Bus Program Guidelines), and a completed project. Attachment 2 presents the list of the five new bus purchase projects selected for audit by the ARB staff. The ARB staff did not inform San Joaquin Valley APCD staff of the selected projects prior to the site visit.

For projects receiving 2005/2006 fiscal year funding, the 2006 School Bus Guidelines recommend replacing the oldest bus first. Forty-five buses eligible for replacement were located in the San Joaquin Valley APCD and the District was awarded \$4,340,000 in State funds for the replacement of up to 31 of those buses. The ARB's Grant Awards for the 2005/2006 fiscal year funds do not require the funds to be fully expended until June 30, 2008; however, there is a new bus delivery deadline of August 1, 2007. The 2005/2006 fiscal year projects were reviewed for consistency with the 2006 School Bus Guidelines to the extent possible, since these projects are not yet complete. The ARB staff's observations during the 2007 audit cycle will be used to update a School Bus Program Guideline revision scheduled for fall 2007.

On-site review

Based on the relative homogeneity in project types and applicants and the need to minimize impacts on staff resources for both the ARB and the San Joaquin Valley APCD, the School Bus Program audit did not include field inspections of audited projects as was done for the Carl Moyer Program audit.

ARB School Bus Program staff participated in several meetings with the San Joaquin Valley APCD staff (via teleconferencing) on April 30, 2007 and May 3, 2007 to discuss potential discrepancies in the project files. Additional phone calls were made to the San Joaquin Valley APCD staff on an as-needed basis throughout the audit process. ARB School Bus Program staff participated (in person) in the May 4, 2007 exit interview with the San Joaquin Valley APCD's Air Pollution Control Officer and management to present our potential findings and program recommendations.

C. Commendable Efforts

The commendable efforts included in this section are noteworthy accomplishments by the San Joaquin Valley APCD. These exceptional practices could serve as a model for other California air district's School Bus Programs.

1. Allocating Staff to Administer the School Bus Program

The San Joaquin Valley APCD's School Bus Program is another component of its broader Emission Reduction Incentive Program that administers incentive funds from a number of sources. Currently this broader program is staffed by 18 people. Over the last year, the San Joaquin Valley APCD devoted approximately three personnel years to administering the School Bus Program. Such staff included a Program Manager, a Supervising Air Quality Specialist, a Senior Air Quality Specialist, and three Air Quality Specialists. The considerable staff resources devoted by the San Joaquin Valley APCD to implementing the School Bus Program have contributed to a strong and robust program.

2. Detailed Documentation

The San Joaquin Valley APCD staff maintains an electronic database documenting each project's progress from application to completion, as well as the funding sources that finance the project. This documentation, along with the tailored application packets and Project Guidance document specific to the School Bus Replacement Program, are effective in keeping the San Joaquin Valley APCD's School Bus Program consistent with the School Bus Program Guidelines.

3. Using Local Funding to Replace School Buses

In addition to the State funded School Bus Program, the San Joaquin Valley APCD utilizes local programs to fund new school bus purchases. Local funding includes the San Joaquin Valley APCD Heavy-Duty Engine Incentive Program, the San Joaquin Valley Emergency Clean Air Attainment Program (VECAP), the Indirect Source Review Program (ISR), and DMV surcharge fees. So far, the San Joaquin Valley APCD has obligated or spent \$4.1 million in State funding to purchase 30 buses and another \$9.8 million of local District funding to purchase 71 buses for a total of 101 replaced school buses.

D. Recommendations for Future School Bus Program Improvement

The San Joaquin APCD shall consider the following recommendations for future School Bus Program improvement. These recommendations do not require a response from the San Joaquin APCD, although it may choose to comment in its written response to this audit report.

1. Funding Expenditures

The ARB is under increasing legislative pressure to quickly move School Bus Program funds into the hands of the end-users (public school districts and eligible private transportation providers) to provide students with immediate benefits - safer transportation and reduced pollution exposure. In addition, the Department of Finance evaluates both the ARB's and the air districts' efficiency in disbursing program funds. In response to legislative pressure, the ARB staff has expedited its own procedures for updating program Guidelines and allocating funds to the administering agencies while taking special care to ensure that the ARB's public process is not short-changed.

With program funding increasing over the next two years, the ARB expects all participating air districts to respond to the Legislature's desire that funds be disbursed and spent as quickly as possible in order to benefit California's school children.

2. Retrofit Funding

As stated previously, this audit did not include a review of the San Joaquin APCD's implementation of State retrofit funds because the San Joaquin APCD had not missed any deliverable deadlines for the 2005/2006 fiscal year funds at the time the audit was conducted. The ARB is aware, however, that the San Joaquin APCD has not spent (but has obligated) retrofit funds from the first year of the program (the 2000/2001 fiscal year). These funds were previously obligated and have now been re-obligated under a contract that gives the school districts up to one year to file a claim form for the expended funds. The ARB will continue to monitor the San Joaquin APCD's practices in administering the retrofit funds to ensure it adheres to sound implementation and fiscal practices, and expects the San Joaquin APCD to expand and strengthen its efforts to achieve the retrofit program's objectives.

As we move forward with future School Bus Program funding, what we observe and learn through the audit process will be used in designing updated School Bus Program Guidelines (scheduled for fall 2007) to better assist the San Joaquin APCD and other participating air districts with School Bus Program implementation. The ARB staff will be evaluating mechanisms to strengthen expenditure requirements and to provide clarity and specificity to other program requirements.

IV. Findings, Conditions, and Required Actions

The following sections describe the audit findings and conditions, and sets forth required actions that the San Joaquin Valley APCD must undertake in implementing the Carl Moyer Program and School Bus Program. "Findings" are brief descriptions of practices that are inconsistent with one or more of the following:

- State requirements under Health and Safety Code sections 44275 through 44299.2,
- Carl Moyer Program Guidelines (<http://www.arb.ca.gov/msprog/moyer/guidelines/current.htm>),
- School Bus Program Guidelines (<http://www.arb.ca.gov/msprog/schoolbus/schoolbus.htm>),
- Program advisories,
- Grant Award and Authorization requirements, and
- San Joaquin Valley APCD's written policies and procedures, including its contracts with the engine owners/grant recipients.

"Conditions" are more detailed descriptions of the practices the ARB audit team observed during the audit period. "Required Actions" are the minimum actions the San Joaquin Valley APCD must take to remedy the findings.

The San Joaquin Valley APCD must provide the ARB with a written response to the required actions by submitting a plan or method to remedy the respective findings listed below. The San Joaquin Valley APCD's written response must be submitted to the ARB within 30 days of notification of the findings. Finally, it is important to note that many of the following findings have been fully or partially mitigated. That is, the San Joaquin Valley APCD has already corrected the error, omission, or practice that was the cause of concern. This will be discussed in more detail below where applicable.

A. Carl Moyer Program

This section specifies findings, conditions and required actions as a result of the ARB's review of the San Joaquin Valley APCD's Carl Moyer Program.

Finding 1: Inaccurate Reporting to the ARB

Condition: This issue comprises two parts. First, the San Joaquin Valley APCD utilized and reported to ARB engine usage requirements that are not

enforceable. Second, the District used incorrect emission factors in certain project categories. Inaccurate reporting leads to misrepresentation of the emission benefits claimed in the Carl Moyer Program. Ascertaining that these benefits are surplus, real, quantifiable and enforceable is of the utmost importance to the success of the program. ARB includes the emission reduction benefits achieved through the Carl Moyer Program to help satisfy the federal Clean Air Act requirements pertaining to attainment of the National Ambient Air Quality Standards, as indicated in the San Joaquin Valley's 2007 Ozone Plan.

Reporting of required engine usage: The San Joaquin Valley APCD's contracts for Carl Moyer Program-funded projects contain conflicting requirements regarding the percent of time the funded engine or vehicle is required to operate in the San Joaquin Valley APCD or the State. This operational requirement directly impacts the emission reductions that can be claimed for a project. The San Joaquin Valley APCD has based its emissions benefits, as reported to ARB, on the higher of two conflicting usage rates listed in the contracts (typically 100 percent usage in the region). As a practical matter, a majority of the projects funded by the District are agricultural pumps, which typically do not move locations. Consequently, in most cases it is likely the engine would operate 100 percent of the time within the region and thus the actual emission reductions achieved by the District's program would be close to those reported to the ARB. However, the conflicting contractual requirements hinder the enforceability of the more stringent (i.e. higher usage rate) operational requirement, or in some cases could lead to over reporting of benefits.

While the San Joaquin Valley APCD has indicated its opinion that the higher usage requirement is enforceable, ARB counsel has reviewed the contract language and has concluded that, because the engine usage requirements in several contracts are contradictory and unclear, the District would have difficulty enforcing the higher usage requirement.

Incorrect emission factors: The ARB determined that in some cases incorrect emission factors and fuel correction factors were used. This problem was limited to a subset of one source category (agricultural pumps) funded under the Carl Moyer Program and one category (new on-road vehicle purchases) funded with match funds. This error impacts approximately 10 percent of the agricultural pump projects funded by the San Joaquin Valley APCD and less than 10 percent of the District's match projects.

Required
Actions:

Reporting of required engine usage: The San Joaquin Valley APCD must develop a strategy to ensure that the anticipated emission reductions

are secure. ARB has recognized several potential mitigation strategies which if used individually or in combination can address this issue. First, the San Joaquin Valley APCD may amend all of its contracts to enforce the percent operation (the higher usage rate) as reported to the ARB in its annual report spreadsheets. As previously discussed, the higher usage rate is likely accurate in most cases. However, it may not be correct in all cases. As an alternative, the District may reduce the percent operation reported to ARB to be consistent with the contract's lowest usage requirement. However, in most cases this would result in a reduction of 25 percent in emission reductions creditable in emission reduction plans. Additionally, this may result in some projects exceeding the maximum allowable cost-effectiveness level and thus becoming ineligible for the total amount of funding as originally granted. Lastly, the San Joaquin Valley APCD may work with the U.S. Environmental Protection Agency to determine a set of conditions that would allow the District to use of the higher percent operation when calculating emission reductions creditable in federally required emission reduction plans.

The San Joaquin Valley APCD may choose to implement one or more of these mitigation strategies, or may develop a wholly separate mitigation strategy. The District's written response must include a description of the strategy it will implement to mitigate this issue and a timeline for completing the required actions. The San Joaquin Valley APCD shall provide the ARB with written notification of completion.

The San Joaquin Valley APCD maintains a number of contract templates, approved by District legal staff, that are tailored to different project types. To write a contract for a particular project, District staff use a database to add project-specific information to the template. As a result of this audit, the San Joaquin Valley APCD has modified its contract and associated exhibit templates to address any ambiguity with regard to the usage requirement for future projects, and has provided the updated contract templates to ARB.

Incorrect emission factors: To ensure that all projects previously awarded funding were in fact cost-effective, the San Joaquin Valley APCD shall review all cost-effectiveness calculations in the categories affected, and where necessary, update all reports and resubmit them to the ARB. We note that the District has already begun the mitigation process. The San Joaquin Valley APCD has completed an analysis to determine which other projects funded in fiscal years 2002/2003 through 2005/2006 were also affected. The District has provided the ARB with corrected calculation sheets for projects impacted. The calculations show that the projects are still cost-effective and thus eligible to receive the amount of funding specified in each project's contract.

The San Joaquin Valley APCD must also update the annual reports to include the correct factors and resubmit them to ARB. The San Joaquin Valley APCD's written response should include a timeline for completing this required action.

In addition, the San Joaquin Valley APCD has stated it has begun to implement strategies geared towards minimizing errors in reporting to the ARB in the future, such as modifying its calculation spreadsheets to automatically contain the appropriate emission factors for all possible project categories and funding scenarios.

Finding 2: Complete, but Late Expenditures

Condition: Health and Safety Code section 44287(k) requires that Carl Moyer Program funds be expended within two years of June 30 of the year in which funds were reserved. Therefore, June 30, 2005 and June 30, 2006 were the deadlines for expending all fiscal year 2002/2003 and fiscal year 2003/2004 funds, respectively.

For fiscal year 2002/2003, \$1.2 million of the \$3.1 million awarded was expended late. However, San Joaquin Valley APCD did expend those funds by mid-October 2005 (i.e., four months after the deadline) and met the fiscal year 2003/2004 expenditure deadline. San Joaquin Valley APCD met the expenditure deadline for fiscal year 2004/2005 well ahead of schedule. It also appears that the District is on schedule for fiscal year 2005/2006 and fiscal year 2006/2007, having already expended 40 percent of fiscal year 2005/2006 funds and obligated 24 percent of fiscal year 2006/2007 funds. This is especially noteworthy given that the San Joaquin Valley APCD's Carl Moyer Program funding level more than tripled starting in 2005/2006 - from an average annual allocation of about \$3.8 million for the seven previous years to about \$12 million in fiscal year 2005/2006. Moreover, funding for the 2006/2007 fiscal year is at a similarly high level - approximately \$11 million. Thus, while there was a minor issue with late expenditures, ARB believes that this issue has been satisfactorily addressed by the San Joaquin Valley APCD.

Additionally, the San Joaquin Valley APCD has committed to enact several procedures to expedite the expenditure process even further. These procedures include: reducing the contractually required time for a project to be completed from one year to six months, limiting the amount of contract extensions a grantee can be awarded, and modifying District procedures to include additional grantee contact. These additional steps will help monitor the progress of a project and determine earlier in the process if project completion is in jeopardy.

The Department of Finance is also reviewing the San Joaquin Valley APCD's expenditures for the years covered by this audit. The Department of Finance will analyze the expenditures on a year-by-year basis. This complements the ARB's analysis, which examined expenditures cumulatively. A cumulative analysis allows the ARB to ensure that anticipated emission reductions are achieved by the deadlines, regardless of the fiscal year in which the funding originated. Therefore, it is reasonable to expect that the Department of Finance's analysis will result in a slightly greater amount of funds that were unexpended by the statutory deadline.

Required

Actions:

The ARB recognizes the importance of ensuring that anticipated emission reductions are achieved in order to provide healthful air to those in the region. This requires expediting projects to obtain reductions at the earliest, most practicable date. It is important to note that by October 2005 the San Joaquin Valley APCD had expended fiscal year 2002/2003 funds, thereby mitigating the finding. No further action is required.

Finding 3: Required Specifications Missing or Inaccurate in Project Documentation

Condition:

During the file review ARB found that two project contracts (N-855 and C-1721) contained errors in which portions of the contract referenced the project implementation phase incorrectly. Additionally, one project contract (C-1853) funded out of fiscal year 2005/2006 funds did not include all of the language required by the 2005 Carl Moyer Program Guidelines. Specifically, the contract did not include:

- San Joaquin Valley APCD monitoring authority (Pt. I, Ch. 2, Sec. VIII.B.2. of the 2005 Carl Moyer Program Guidelines)
- ARB's monitoring and enforcement authority (Pt. I, Ch. 2, Sec. VIII.B.2. of the 2005 Carl Moyer Program Guidelines)
- Three year minimum record retention (Pt. I, Ch. 2, Sec. VIII.J. of the 2005 Carl Moyer Program Guidelines)

During the file review ARB also found one project (C-1802) funded out of fiscal year 2005/2006 funds for which the San Joaquin Valley APCD did not request a compliance check. The 2005 Carl Moyer Program Guidelines state that prior to funding an on-road repower or retrofit project, a district must submit vehicle information regarding the project to the ARB so that ARB can check its database for outstanding violations (Pt II, Ch. 1, Sec. V.B).

Required

Actions: The San Joaquin Valley APCD has already mitigated this issue. For each of the three projects affected by contractual issues, the District amended the contract to correct them. The executed amended contracts have been provided to the ARB. Additionally, the District has already requested that ARB perform a compliance check for project C-1802. ARB has performed the check and found no violation. No further action is required.

B. School Bus Program

This section specifies findings, conditions, and required actions as a result of the ARB's audit of the San Joaquin Valley APCD's School Bus Program.

Finding 1: Lack of Language in the Funding Agreement Specifying the ARB's Right to Audit

Condition: Minimum requirements of a contract of funding agreement are outlined in the School Bus Program Guidelines (March 2, 2006, Section II. F.) These minimum requirements include stating that "...ARB, as an intended third party beneficiary, reserves the right to audit and enforce the terms of the contract at any time during the contract term." The funding agreements that were reviewed do not include this statement.

In response to this finding, the San Joaquin Valley APCD staff revised the funding agreement template to include the statement recognizing the ARB's right to audit and enforce.

Required

Actions: For future program implementation, the San Joaquin Valley APCD staff must include all minimum requirements for funding agreements outlined in the School Bus Program Guidelines.

Finding 2: Lack of Language on the Purchase Order Specifying Delivery Deadline and the Performance Penalty Statement

Condition: The School Bus Program Guidelines require a delivery deadline and a performance penalty statement to be included in both the funding agreement (between the San Joaquin Valley APCD and the school district) and the purchase order (between the school district and the vendor). While the funding agreements include the delivery deadline and the performance penalty statement, the purchase orders do not.

Without the delivery deadline in the purchase orders, school districts could be held liable for any resulting penalty fees levied for buses delivered after the required delivery deadlines. At this time, no school buses have missed the August 1, 2007, delivery deadline. In response to this finding,

the San Joaquin Valley APCD staff revised the funding agreement to include a paragraph instructing the school district that the delivery deadline and the performance penalty statement must be included in the purchase order between them and the school bus vendor.

Required

Actions: The San Joaquin Valley APCD staff must ensure that school districts include the delivery deadline and the performance penalty statement in their purchase orders with vendors as required by the School Bus Program Guidelines.

Finding 3: Lack of documentation that the school district notified the San Joaquin Valley APCD that school buses have been ordered and delivered (project number C-1797)

Condition: The School Bus Program Guidelines (March 2, 2006) require that the school districts notify the administering air district when buses are ordered and delivered. One method of making this notification would be for the school district to submit a purchase order to the air district. However, the San Joaquin Valley APCD's instructions to the school districts do not require submittal of the purchase order.

The purchase order is the mechanism by which certain School Bus Program requirements are imposed on the school bus vendor, such as the bus delivery deadline, notification that a performance penalty will be levied if a bus is delivered after the required deadline, and emission standard criteria. The San Joaquin Valley APCD staff acknowledged the need for the delivery deadline and the performance penalty statement to be contained in the purchase order between the school district and the school bus vendor. They have revised their Project Guidance Document to include instructions to the school districts to submit purchase orders as part of the project file.

Required

Actions: The San Joaquin Valley APCD staff must require the purchase order to be submitted to the air district by the school district, along with the delivery deadline for the school bus and the performance penalty language, as part of their participation in the School Bus Program.

C. Fiscal Evaluation

As previously discussed, the ARB contracted with the Department of Finance to perform an in-depth review of the fiscal elements of the San Joaquin Valley APCD's Carl Moyer and School Bus Programs during the same audit years reviewed by ARB staff. ARB staff worked closely with Department of Finance staff throughout this process. However, the Department of Finance focused on fiscal issues and followed their own

departmental procedures for their portion of the audit. The methods and results of the fiscal portion of the audit are covered in a separate report and are not represented in this report. Therefore, both reports should be viewed together for a complete perspective of San Joaquin Valley APCD operations.

Attachment 1

List of Projects Reviewed

2007 Carl Moyer Program Audit of the
San Joaquin Valley Air Pollution Control District

**San Joaquin Valley Air Pollution Control District
2007 Carl Moyer Program Audit
List of Projects Reviewed**

San Joaquin Valley APCD Project Name	District Number	Source Category	Eligibility Review	In-Depth File Review	Site Visit
2002/2003 Fiscal Year					
Zuckerman-Heritage	N-707	Agricultural pump	X		
Llamanuzzi & Pantaleo	C-1487	Off-road	X	X	
City of Fresno	C-1247	On-road	X		
C.L. Bryant (2002/2003 and 2003/2004 funds)	N-809	On-road	X		
Triangle T Ranch	C-1558	Agricultural pump	X	X	X
Lodi Unified School District (match)	A-026	Infrastructure	X	X	X
2003/2004 Fiscal Year					
Dick Anderson & Sons Farming	C-1328	Agricultural pump	X		
K&T Ranch	N-778	Agricultural pump	X		
George Porter Farms	C-1477	Off-road	X		
Silva Trucking	N-770	On-road	X		
Southwest Transportation	C-1513	On-road	X		
2004/2005 Fiscal Year					
Campos Land Company	C-1567	Agricultural pump	X		
Milky Way Dairy	C-1596	Agricultural pump	X		
Guinn Construction	S-941	Off-road	X		X
Robert Bandy	C-1555	On-road	X		X
Lodi Unified School District	N-805	On-road	X		
2005/2006 Fiscal Year					
Andrew Farms	C-1585	Agricultural pump	X		
Vaquero Farms	C-1800	Agricultural pump	X		
Wood Bros.	C-1721	Off-road	X		
Brite Transportation Systems	N-855	On-road	X	X	X
M&M Trucking	C-1802	On-road	X		
Electronic Recyclers	C-1853	Forklift	X	X	X
Other					
Stockton Unified School District (AB 923)	N-920	On-road	X		
Railpower Hybrid Technologies (earned interest)	C-1530	Locomotive	X	X	X

Attachment 2

List of Projects Reviewed

2007 School Bus Program Audit of the
San Joaquin Valley Air Pollution Control District

**San Joaquin Valley Air Pollution Control District
2007 Lower-Emission School Bus Program Audit
List of Projects Reviewed**

Project Number	Public School District	Project Type	Environmental Justice Community^a
C-1797	Corcoran Unified School District	New Bus	N/A
S-1038	Greenfield Union School District	New Bus	N/A
N-920	Stockton Unified School District	New Bus	N/A
S-1040	Wasco Union School District	New Bus	N/A
C-1788	Coalinga-Huron Unified School District	New Bus	N/A

^aThe Legislature directed that 2005/2006 fiscal year State funds must be used to replace pre-1977 model year buses in order of oldest bus first; this Legislative directive takes precedence over other environmental criteria.

