State of California
AIR RESOURCES BOARD

Resolution No. 03-14

June 26, 2003

Agenda Item No. 03-5-2

WHEREAS, the Legislature in Health and Safety Code section 39602 has designated the State Air Resources Board (ARB or Board) as the air pollution control agency for all purposes set forth in federal law;

WHEREAS, the ARB is responsible for the preparation of the State Implementation Plan (SIP) for attaining and maintaining the national ambient air quality standards (NAAQS) as required by the federal Clean Air Act (the "Act"; 42 U.S.C. section 7401 et seq.), and to this end is directed by Health and Safety Code section 39602 to coordinate the activities of all local and regional air pollution control and air quality management districts necessary to comply with the Act;

WHEREAS, section 39602 of the Health and Safety Code also provides that the SIP shall include only those provisions necessary to meet the requirements of the Act;

WHEREAS, the ARB has primary responsibility for the control of air pollution from vehicular sources, including motor vehicle fuels, as specified in sections 39002, 39500, and part 5 (commencing with section 43000) of the Health and Safety Code, and for ensuring that the Districts meet their responsibilities under the Act pursuant to sections 39002, 39500, 39602, 40469, and 41650 of the Health and Safety Code;

WHEREAS, section 41712 of the Health and Safety Code section authorizes the ARB to control volatile organic compound emissions from consumer products, and Health and Safety Code section 39650 et seq. authorizes the ARB to control toxic air contaminants;

WHEREAS, the ARB is authorized by Health and Safety Code section 39600 to do such acts as may be necessary for the proper execution of its powers and duties;

WHEREAS, sections 39515 and 39516 of the Health and Safety Code provide that any duty may be delegated to the Board's Executive Officer as the Board deems appropriate;

WHEREAS, the Bureau of Automotive Repair (BAR) is authorized to adopt, implement, and enforce an enhanced vehicle inspection and maintenance (I/M) program pursuant to Health and Safety Code section 44000 et seq.;

WHEREAS, the Act requires the State of California to submit to the United States Environmental Protection Agency (U.S. EPA) a revision to the SIP for the San Joaquin Valley that achieves expeditious attainment of the NAAQS for particulate matter ten microns or less (PM10) and reduces PM10 or PM10 precursors by five percent per year until attainment;

WHEREAS, on June 19, 2003, the San Joaquin Valley Unified Air Pollution Control District (District) adopted the 2003 San Joaquin Valley PM10 Plan (2003 PM10 Plan) to fulfill the Act's requirement for an attainment demonstration plan for PM10 nonattainment areas classified as serious;

WHEREAS, the District 2003 PM10 Plan relies on the adopted State control program and proposed new State commitments to achieve the majority of the emission reductions needed for attainment;

WHEREAS, on May 12, 2003, ARB staff released for public review the Proposed 2003 State and Federal Strategy for the California State Implementation Plan (Statewide Strategy), which includes a proposed State commitment in Section I.D.2 for new measures and emission reductions to help attain the PM10 NAAQS in the San Joaquin Valley by 2010;

WHEREAS, in response to public comment, ARB staff proposed a change at the June 26, 2003 hearing to the Statewide Strategy for the San Joaquin Valley PM10 SIP to consolidate the two off-road measures for large spark-ignited equipment, OFF-RD LSI-2 and OFF-RD LSI-3, into a single measure titled OFF-RD LSI-2 Clean Up Off-Road Gas Equipment Fleet Through Retrofit Controls and New Emission Standards (Spark Ignition Engines 25 hp and Greater);

WHEREAS, Attachment A to this Resolution summarizes the revised proposal for new State measures and emission reductions, including a description of the consolidated OFF-RD LSI-2 measure, which was made available to the public at the June 26, 2003 hearing prior to public testimony and Board action;

WHEREAS, the Statewide Strategy would include a commitment by Bureau of Automotive Repair (BAR) to improve the existing Enhanced I/M program; this commitment would replace prior State SIP commitments for an Enhanced I/M program in the San Joaquin Valley with the combined benefits of the existing program, plus BAR's commitment to improve the existing program by achieving additional reductions;

WHEREAS, Appendix I-1 of the Statewide Strategy includes evidence of BAR's commitment to implement the Enhanced I/M improvements described in measure LT/MED-DUTY-2;

WHEREAS, the Statewide Strategy as revised in Attachment A proposes that ARB staff would commit to submit to the Board and propose for adoption the four statewide ARB control measures set forth in Attachment A, except that for measure LT/MED-DUTY-1, the ARB staff would commit to complete the pilot program and propose a control measure if the approach described proves to be feasible and effective;

WHEREAS, the Statewide Strategy proposes that the Board shall take action on the proposed statewide measures on or before the dates set forth in Attachment A, and such action by the Board may include any action within its discretion;

WHEREAS, the Statewide Strategy proposes that the State would achieve additional emission reductions of 0.5 tons per day (tpd) of directly emitted PM10 and 10 tpd of the PM10 precursor nitrogen oxides (NOx) in the San Joaquin Valley by 2010;

WHEREAS, the Statewide Strategy proposes that the State may meet the emission reduction commitment by adopting one or more of the defined control measures, by adopting one or more alternative measures, or by implementing incentive program(s), so long as the total new reductions in NOx and PM10 are achieved;

WHEREAS, federal law as set forth in section 110(l) of the Act and title 40, C.F.R., section 51.102 requires that one or more public hearings, preceded by at least 30 days notice and opportunity for public review, must be conducted prior to the adoption and submittal to U.S. EPA of any SIP revision;

WHEREAS, the Statewide Strategy, which includes the contents of the proposed SIP revision, the requirements applicable to the SIP revision, and the environmental impacts of the defined statewide measures, along with alternatives and mitigation to reduce such impacts, has been available for public review 45 days prior to the June 26, 2003 hearing;

WHEREAS, the California Environmental Quality Act (CEQA) requires that no project which may have significant adverse environmental impacts may be adopted as originally proposed if feasible alternatives or mitigation measures are available to reduce or eliminate such impacts, unless specific overriding considerations are identified which outweigh the potential adverse consequences of any unmitigated impacts;

WHEREAS, Board regulations provide that prior to taking final action on any proposal for which significant environmental issues have been raised, the decision maker shall approve a written response to each such issue;

WHEREAS, in consideration of the Statewide Strategy, the proposed changes reflected in Attachment A to consolidate the off-road gas equipment measures, the written and

oral testimony presented by the public, industry, and government agencies, and the environmental documentation prepared by Board staff, the Board finds that:

1. The motor vehicles and equipment under State and federal jurisdiction are responsible for the majority of Valley air pollution, but are also contributing the majority of the emission reductions needed for attainment of the PM10 NAAQS. Adopted State and federal regulations for cleaner engines and fuels are reducing Valley NOx emissions by over 140 tpd or nearly 40 percent between 1999 and 2010. Emissions of direct PM10 from these sources will drop by over ten percent and reactive organic gases (ROG) by well over 40 percent in the same timeframe. These benefits of these regulations and adopted ARB programs to control emissions from other sources are reflected in the emissions baseline of the San Joaquin Valley PM10 SIP.

2. Additional emission reductions from State measures are needed to protect public health and attain the PM10 NAAQS in the San Joaquin Valley by 2010. The District has relied on these reductions to demonstrate attainment in the 2003 PM10 Plan, and has requested their inclusion as part of the SIP.

3. The consolidation of the measures OFF-RD LSI-2 and OFF-RD LSI-3 into a single measure titled OFF-RD LSI-2 Clean Up Off-Road Gas Equipment Fleet Through Retrofit Controls and New Emission Standards (Spark Ignition Engines 25 hp and Greater) does not alter the emission reduction commitments, the range of possible control approaches, or the analysis of potential environmental impacts identified in the May 12, 2003 Statewide Strategy.

4. The ARB is the lead agency for the State measures element of the San Joaquin Valley PM10 SIP revision, has considered the environmental analysis set forth in Section V of the Statewide Strategy, and concurs in the analysis of potential environmental impacts.

5. The ARB's environmental analysis indicates that there may be potential adverse environmental impacts from the proposed State measures in the areas of air quality, water quality, energy demand, hazardous waste, and solid waste; however, these impacts are speculative and cannot be quantified until the scope of the measures is defined by actual proposed regulations.

6. The Board has considered alternatives to the State measures and has identified no feasible alternatives at this time which would reduce or eliminate any potential adverse environmental impacts, while at the same time ensuring that necessary emission reductions will be achieved.

7. At this time there are no feasible mitigation measures that ARB can impose to lessen the potential adverse impacts of the proposed State measures on the

environment, and no less stringent alternatives which will accomplish the goals imposed by federal law with fewer potential environmental impacts.

8. The potential adverse environmental impacts of the proposed State measures are outweighed by the substantial air quality benefits, including the reduction in particulate matter from diesel engines, which will result from their adoption and implementation.

9. The considerations identified above override any adverse environmental impacts that may occur from adoption and implementation of the State measures.

10. As regulations implementing the new ARB measures are developed, detailed environmental impact analyses, including a discussion of regulatory alternatives and mitigation measures, will be performed in conjunction with the rulemaking process.

11. As regulations implementing the new ARB measures are developed, specific economic impact analyses will be performed in conjunction with the rulemaking process and considered by the Board in acting on those regulations.

12. ARB regulations which have been adopted and are reflected in the baseline emission projections in the SIP have undergone environmental review by the Board at the time of their adoption and no further analysis is required at this time.

NOW, THEREFORE, BE IT RESOLVED, that subject to the Executive Officer's approval of written responses to environmental issues that have been raised, the Board is initiating steps toward the final adoption of the SIP commitments set forth in section I.D.2 of the Statewide Strategy as revised in Attachment A of this Resolution.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to prepare and approve written responses to all significant environmental issues that have been raised, and to then to either: (1) return the proposed SIP revision to the Board for further consideration if she determines that this is warranted, or (2) take final action to approve the SIP revision with such modifications as may be appropriate in light of the issues raised, including appropriate modifications to assure that all feasible mitigation measures or feasible alternatives that would substantially reduce any significant adverse environmental impacts have been incorporated into the final action.

BE IT FURTHER RESOLVED, that once final action has been taken to approve the SIP revision, the Board directs the Executive Officer to forward these ARB and BAR commitments to the U.S. EPA for inclusion in the SIP to be effective, for purposes of federal law, upon approval by the U.S. EPA.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to work with the U.S. EPA and take appropriate action to resolve any completeness or approvability issues that may arise regarding the SIP submission.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to continue to review the technological feasibility, cost effectiveness, and economic impacts of the defined ARB measures and to include any necessary and appropriate modifications to the individual control strategies when they are proposed for Board consideration, and to ensure that the consideration of all state measures when finally adopted meets or exceeds the State's emission reduction commitments in the SIP.

BE IT FURTHER RESOLVED, that the Board directs the Executive Officer to perform the environmental analysis required by CEQA in conjunction with the rulemaking process for the new ARB measures that may be developed into regulations, and to ensure that the environmental impacts identified in the Statewide Strategy, and any others which are subsequently identified, are avoided or mitigated to the extent feasible.

BE IT FURTHER RESOLVED, that the Board certifies pursuant to 40 C.F.R. section 51.102 that the State elements being considered as a SIP revision were adopted after notice and public hearing as required by 40 C.F.R. section 51.102, and directs the Executive Officer to submit the appropriate supporting documentation to U.S. EPA along with any SIP submittal that is approved.

I hereby certify that the above is a true and correct copy of Resolution 03-14, as adopted by the Air Resources Board.

Alexa Malik, Clerk of the Board

Resolution 04-14

March 25, 2003

Identification of Attachments to the Resolution

Attachment A: The Proposed Regulation Order, as set forth in Attachment B to the Staff Report (released February 6, 2004).

Attachment B: Staff's Proposed Voluntary Software Upgrade Program Discussion Paper (released March 16, 2004)

Attachment A

New State Commitments for the 2003 San Joaquin Valley PM10 SIP Including Changes from the May 12, 2003 Statewide Strategy

Summary Table
(tons per day in 2010)

Strategy (Agency)	Name	Expected Reductions*, tpd			Action Dates
		ROG	PM10	NOx	
DEFINED STATE MEASURES TO BE DEVELOPED AND PROPOSED FOR BOARD ADOPTION					
LT/MED-DUTY-1 (ARB)	Replace or Upgrade Emission Control Systems on Existing Passenger Vehicles – Pilot Program	0-2.4	--	0-2.7	2005
LT/MED-DUTY-2 (BAR)	Smog Check Improvements	1.5	--	3	2002-2005
ON-RD HVY-DUTY-3 (ARB)	Pursue Approaches to Clean Up the Existing and New Truck/Bus Fleet – PM In-Use Emission Control, Engine Software Upgrade, On-Board Diagnostics, Manufacturers' In-Use Compliance, Reduced Idling	1.5	0.1	4	2003-2006
OFF-RD CI-1 (ARB)	Pursue Approaches to Clean Up the Existing Heavy-Duty Off-Road Equipment Fleet (Compression Ignition Engines) – Retrofit Controls	1.0	0.4	0	2004-2008
~~OFF-RD LSI-2 (ARB)~~	~~Clean Up Existing Off-Road Gas Equipment Through Retrofit Controls (Spark-Ignition Engines 25 hp and Greater)~~	~~0.1~~	~~--~~	~~0.1~~	~~2004~~
~~OFF-RD LSI-3 (ARB)~~	~~Require Zero Emission Forklifts (Rentals and New Purchases) Where Feasible – Lift Capacity ≤8,000 Pounds~~	~~0.1~~	~~--~~	~~0.2~~	~~2004~~
OFF-RD LSI-2 (ARB) *(consolidated)*	Clean Up Off-Road Gas Equipment Fleet Through Retrofit Controls and New Emission Standards (Spark Ignition Engines 25 hp and Greater)**	0.2	--	0.3	2004
TOTAL EMISSION REDUCTION COMMITMENT FROM NEW STATE MEASURES		0	**0.5**	**10**	**2002-2008**

* Expected reductions from individual defined measures are shown for information only. The State commitment is for total new reductions in NOx and direct PM10 emissions only, consistent with the San Joaquin Valley PM10 attainment demonstration.

** Text describing the consolidated measure follows.

Attachment A

New State Commitments for the 2003 San Joaquin Valley PM10 SIP Including Changes from the May 12, 2003 Statewide Strategy

Revised Text for the Consolidated Measure OFF-RD LSI-2

OFF-RD LSI-2: Clean Up Off-Road Gas Equipment Fleet Through Retrofit Controls and New Emission Standards (Spark Ignition Engines 25 hp and Greater)

Time Frame: Adopt 2004; Implement 2006-2012

Responsible Agency: ARB

Proposed Strategy:

This measure would reduce emissions from both existing and new LSI engine fleets, beyond the benefits of OFF-RD LSI-1. Staff will consider a multi-faceted approach that includes retrofit of existing engines and new emission standards at zero and near-zero levels.

The first approach to be evaluated is retrofit technology for existing engines. Recent data have shown that existing LSI engines retrofitted with catalyst-based emission systems could achieve emission reductions similar to those achieved from new engines designed with catalysts. Based on this data, it may be feasible to significantly reduce emissions from pre-2004 in-use LSI engines over 25 hp that have not been subject to new engine emission requirements. This includes some 2001 to 2003 models, and all pre-2001 models. The retrofit of existing equipment utilizing LSI engines could achieve an 80 percent reduction in exhaust emissions or meet emission levels equivalent to 3.0 g/bhp-hr HC+NOx. The retrofit technology would include a three-way catalyst and, on some engines, closed loop control of the fuel system.

The second approach to be evaluated would involve more stringent new engine emission standards, beyond the alignment with federal standards discussed in OFF-RD-LSI-1, to increase use of near-zero and zero-emission forklifts. Currently, the only commercially-available zero-emission forklifts are electric.

Electric forklifts are a technically feasible alternative to internal combustion engine forklifts in many applications, constituting about 25 percent of the total 8000 pound and under lift capacity counterbalanced forklift market (classes 1, 4, and 5) in the U.S. This percentage is significantly higher in some categories and weight classes. The Carl Moyer program has provided over $2 million in funding to incentivize the introduction of

over 200 electric forklifts, demonstrating the potential of electric forklifts in applications where internal combustion engine forklifts had previously been used. The advent of more powerful and efficient motors and batteries, and fast-charging technology, should broaden the range of electric forklift applications and hasten the growth of the electric forklift market. However, electric forklifts will likely not be suitable for all applications due to operation requirements such as outdoor terrain challenges or high hours of use. In such cases, staff will evaluate the feasibility of near-zero emission standards instead

Forklifts with a lift capacity of 8,000 pounds or less in applications where charging infrastructure can be conveniently available will be the focus of the evaluation. Operational feasibility and economic impacts will be considered. Forklift owners may be able to recoup much of the incremental cost of some zero-emission forklifts due to their lower life cycle costs.

Projected benefits are based on implementation beginning in 2006 and phased in over six years. For the South Coast, we provided a range of expected reductions for each of the prior OFF-RD LSI-2 and OFF-RD LSI-3 measures. The table below shows the combined mid-range of expected emission reductions for this consolidated measure in the San Joaquin Valley.

OFF-RD LSI-2 (*revised*): Clean Up Off-Road Gas Equipment Fleet Through Retrofit Controls and New Emission Standards [Spark-Ignition Engines 25 hp and Greater] Estimated Emission Reductions (San Joaquin Valley, Winter Planning, tpd)

Pollutant	2010
ROG	0.2
Nox	0.3
PM10	--

SIP Commitment for Measure OFF-RD LSI-2

San Joaquin 2003 PM10 SIP Commitment:

ARB staff proposes to commit to bring this measure to the Board in 2004. Emission reductions from this measure would be used toward meeting ARB staff's proposed commitment to adopt new measures between 2003 and 2008 that reduce emissions by an additional 10 tpd NOx and 0.5 tpd direct PM10 in the San Joaquin Valley by 2010.