Attachment I

Production Line Testing

The staff proposes that the current production line testing requirements (referred to as "quality audit")be modified to allow manufacturers the option of following a procedure similar to the U.S. EPA's Cumulative Sum procedure.

The Cumulative Sum procedure replicates the statistical foundation of the federal Selective Enforcement Audit, while providing greater opportunity for a quick decision. Thus, the Cumulative Sum procedure would reduce the manufacturer's possible testing burden, particularly for those engine families that consistently meet the standards by a wide margin. The minimum number of tests required is only two, the maximum thirty.

The staff has modified the Cumulative Sum procedure to ensure year-round sampling, but otherwise the program remains much the same as the proposed federal program. Staff opted to retain year-round sampling because of its experience with the current quality-audit test program. Staff has noted that some engine families that have demonstrated good performance in the first or second quarters of production may then encounter serious difficulties complying in later quarters. Testing at least two engines per production quarter, should ensure compliance throughout the model year. Despite this modification, the total number of tests that manufacturers will be required to conduct will be less than the present program. As mentioned previously, the maximum number of tests per engine family per year under the proposal would be thirty, but the program offers the prospect of concluding testing earlier if the results are consistent and below the standard; this should be compared to the current quality-audit program which requires testing one percent of production. Overall, staff believes that the Cumulative Sum procedure will reduce the testing burden on manufacturers, and provide greater consistency with the U.S. EPA. The staff's proposed modifications include the following:

a. The engine manufacturer shall perform a minimum of two tests per engine family per quarter, regardless of whether the Cumulative Sum analysis indicates that the family has passed.

b. Analysis shall be cumulative, provided that the engine family has not failed (e.g., if three engines of a family were tested in the first quarter, the first test of the second quarter would be considered the fourth test for the purposes of Cumulative Sum analysis.

c. If a manufacturer performs corrective action on an engine family and then resumes, all previous tests will be void, and Cumulative Sum analysis will begin again with the next test.

The staff proposes that when the Cumulative Sum procedure indicates that a pass or fail decision has been made, or at the end of a quarter, the manufacturer shall provide all the data accumulated during the quarter. When a failure has occurred or when the emission tests or sampling were performed improperly, the engine manufacturer may be subject to revocation or suspension of the Executive Order authorizing distribution in California, or enjoined from distribution of the noncompliant engines. Prior to taking punitive action, the Executive Officer shall consider all information provided by the engine manufacturer, and other interested parties, including, but not limited to corrective actions applied to the noncompliant engine family, and the availability of production emissions reductions credits to remedy the failure.

The remainder of the requirements would mirror those of the existing (one percent of production tested) quality audit program, which staff proposes to retain as an option for those manufacturers who wish to use it. Staff expects that this option would be taken primarily by low-volume manufacturers for whom the number of tests would be much less than thirty, or by those manufacturers whose own quality control procedures coincide with the regulatory requirements.