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Running Loss Emissions from In-Use Vehicles

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ABSTRACT:

The E-35 "Running Loss" program was planned in the fall of 1996, and conducted in the summer of 1997, as the third part of a series of Coordinating Research Council (CRC) sponsored evaporative emission test programs.

One hundred and fifty vehicles (half cars – half light duty trucks) were recruited at a local I/M lane, and tested for running loss emissions at the ATL Facility in Mesa, AZ. The previous CRC programs had studied hot soak, and then diurnal emissions.

Running loss emissions were measured in a Running Loss SHED (RL-SHED) for a 23 minute, 7.5 mile trip on a hot summer day (95°F). Vehicles from model years 1971 through 1991 were tested. A wide range in emission levels was observed – from a low of 0.13 g/mile to 43 g/mile. The test results were not able to establish whether car emissions are different, or the same, as light duty trucks. The major causes of the high emissions were liquid leaks on carburetor equipped models. Speciation analysis of the end-of-test data indicated that approximately 50% of the emissions come from vapor sources and 50% come from liquid sources.

The program identified 30 vehicles as candidates for repair and retest. The result showed a very high (90+%) effectiveness for the repairs. Repeat tests were run on 10 vehicles to provide an estimate of test-to-test variability.