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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

UNITED STATES OF AMERICA,

Plaintiff,

v.

GENERAL MOTORS CORPORATION,

Defendant.

Civil Action No.

CONSENT DECREE

DEC 6 1995

US EPA Headquarters Library
Room 2904, Mailcode 3404

Introduction¹

The United States asserts that GM equipped approximately 470,000 model year 1991 through model year 1995 4.9 liter Cadillacs with a fueling strategy that reduces the effectiveness of the vehicles' emission controls in normal urban driving, and that GM did not adequately disclose to the U.S. Environmental Protection Agency its use of emissions-related fueling strategies on model year 1989 through 1992 heavy duty truck engines and on certain additional model year 1991 through 1995 passenger cars. GM denies this, but has agreed to modify the fueling strategy for these 4.9L Cadillac vehicles in a way that reduces the emissions of air pollutants from the vehicles without compromising driveability. GM has also agreed to pay a civil penalty and to implement programs to reduce the emission of certain air pollutants to the environment.

¹ This introduction is a general description of this settlement and not a substantive part of this Consent Decree. To the extent that any inconsistency exists between this introduction and the specific provisions of the Consent Decree, the specific provisions control.

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WHEREAS, plaintiff, the United States of America, at the request of the Administrator of the United States Environmental Protection Agency and by authority of the Attorney General, filed the Complaint herein against defendant General Motors Corporation ("GM") alleging violations of the Clean Air Act, as amended, 42 U.S.C. §§ 7401 et seq. in connection with certain light duty vehicles, and heavy duty gasoline engines manufactured and sold by GM;

WHEREAS, GM has denied and continues to deny the violations alleged in the Complaint;

WHEREAS, GM has developed a recalibration of the programmable read-only memory chips used in the approximately 470,000 4.9 liter Cadillacs that are a focus of the United States' Complaint; the recalibrated memory chip would result in significant emission reductions from such vehicles if installed on the 4.9 liter vehicles; and GM has completed warm-weather validation of the recalibrated chips; and will continue and complete cold-weather validation of the recalibrated chips;

WHEREAS, the United States and GM have consented to entry of this Consent Decree without trial of any issues;

WHEREAS, the United States and GM assert, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the United States and GM in good faith and implementation of this Consent Decree will avoid prolonged and complicated litigation between the United States and GM, and that

this Consent Decree is fair, reasonable, and in the public interest;

NOW, THEREFORE, it is hereby ORDERED AND DECREED as follows:

I. JURISDICTION AND VENUE

1. This Court has jurisdiction of the subject matter of this action and the parties pursuant to 28 U.S.C. §§ 1331, 1345, 1355, and Title II of the Clean Air Act, 42 U.S.C. §§ 7521-7590. Venue in this District is proper.

II. DEFINITIONS

2. Unless specifically defined in this section or elsewhere in this Consent Decree, terms used herein shall have the meanings currently set forth in Sections 216 and 302 of the Act, 42 U.S.C. §§ 7550 and 7602, and any regulations promulgated under Title II of the Act, 42 U.S.C. §§ 7521-7590.

3. "Act" means the Clean Air Act, as amended, 42 U.S.C. §§ 7401 et seq.

4. "California" means the State of California.

5. "CARB" means the California Air Resources Board.

6. "California 4.9L vehicles" means those 4.9 liter vehicles certified to California emissions standards and registered in the State of California.

7. "Certificate of Conformity" means a certificate issued by the U.S. Environmental Protection Agency pursuant to Section 206 of the Act, 42 U.S.C. § 7525.

8. "Consent Decree" or "Decree" means this Consent Decree, including the Appendices identified herein.

9. "Day" means a calendar day. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or Federal Holiday, the period shall run until the close of business of the next working day.

10. "EPA" means the United States Environmental Protection Agency.

11. "4.9L vehicles" means 1) vehicles in engine families P1G4.9V8X6A0, P1G4.9W8XTAX, R1G4.9V8GAEB, R1G4.9V8G1EA, S1G4.9V8GAEB, and S1G4.9V8G1EA; 2) vehicles with engine codes 1D-1F, 2C-2E, 3C-3E, 4C-4E, 5C-5E, and 6C-6E of engine family N2G4.9V8X6A8; 3) vehicles with engine codes 1C-1E, 2D-2F, 3C-3E, 4C-4E, and 5C-5E of engine family N2G4.9W8XTA7; and 4) those vehicles in engine families M2G4.9V8X6A7, M2G4.9W8XTA6, N2G4.9V8X6A8, and N2G4.9W8XTA7 that received a service PROM incorporating the accessory-based transient enrichment calibration pursuant to running change N2-070 (August 9, 1991) and Technical Service Bulletins T-91-81B (October 1991), T-92-87 (April 1992), and T-93-44 (January 1993).

12. "GM" means General Motors Corporation.

13. "HDGEs" means GM heavy-duty gasoline engines.

14. "Interest" means interest at the rate specified for debts owed to departments or agencies of the United States pursuant to 31 U.S.C. § 3717.

15. "Jumper TPS" means the inoperative or partially inoperative throttle position sensor employed by GM when conducting engine mapping on model-year 1989 through 1996 HDGEs in connection with applications for certificates of conformity.

16. "LDVs" means light duty vehicles.

17. "MY" means model year as defined in 40 C.F.R. § 86.082-2.

18. "Other LDVs" means vehicles in engine families M2G4.5V8X2W2, N2G4.5V8X2W3, P4G1.9W8JPD9, P4G1.9V9JPD4, P4G1.9W5J817, P4G1.9V5J8H9, P1G4.6V8X8V1, P1G4.6W8XEB8, P1G4.6V8X8B9, R4G1.9VHG1EA, R4G1.9VHGBEA, R4G1.9V5G1EA, R4G1.9V5GEEA, R1G3.4V8G0EA, R1G3.4V8GAEA, R1G4.6VJG1EA, R1G4.6VJGAEA, S4G1.9VHGFEA, S4G1.9V7G2EA, S4G1.9V7GFEA, S1G3.4V8GAEA, and S1G4.6VJGFEA.

19. "Paragraph" means a portion of this Consent Decree identified by an arabic numeral.

20. "Remedy PROMs" means the programmable read-only memory chips incorporating the software and calibration changes described in Appendices A and/or B hereto.

21. "Section" shall mean a portion of this Consent Decree identified by a roman numeral.

22. "Subject HDGEs" means vehicles or engines in engine families KGM05.7BLA4, LGM4.3BLA3, LGM05.7BLA3, LGM06.0AGA8, LGM07.4BLA3, MGM04.3BLA2, MGM05.7BLA2, MGM07.0BLA8, MGM07.4BNA6, NGM04.3BLA1, NGM05.7BLA1, NGM07.0BLA7, NGM07.4BNA5,

PGM04.3BLAX, PGM05.7BLAX, PGM07.0BLA5, PGM07.4BNA3, RGM4.3C5GAAA, RGM5.7C5GAAA, RGM7.0C5GAAA, RGM7.4C5GAEA, SGM4.3C5GAAA, SGM5.7C5GAAA, SGM7.0C5GAAA, SGM7.4C5GAEA, TGM5.7C5GAAA, TGM7.0C5GAAA, and TGM7.4C5GAEA.

23. "Subject Vehicles/Engines" means, collectively, 4.9L vehicles, the Other LDVs, and the Subject HDGEs.

24. "US06" means the "high speed and/or high acceleration" driving cycle proposed in 60 Fed. Reg. 7404 (Feb. 7, 1995), or as such may be finally adopted.

25. "United States" means the United States of America, acting on behalf of EPA.

III. APPLICABILITY

26. This Consent Decree applies to and is binding upon the United States, its employees and contractors, and upon GM and its agents, successors and assigns. Any change in GM's ownership or corporate status shall in no way alter GM's responsibilities under this Consent Decree. In any action to enforce this Consent Decree, GM shall not raise as a defense the failure of its officers, directors, agents, servants, contractors, or employees to take actions necessary to comply with the provisions hereof.

IV. FACTUAL BACKGROUND

27. GM has manufactured and sold, offered for sale, or introduced or delivered for introduction into commerce in the United States new motor vehicles and new motor vehicle engines, including 4.9L Cadillacs, Other LDVs and Subject HDGEs.

28. Each certificate of conformity issued to GM by EPA during the time period relevant to the claims alleged in the Complaint provides that the certificate covers only those new motor vehicles or new motor vehicle engines which conform in all material respects to the vehicle or engine design specifications provided to EPA in the certificate application for such vehicle or engine; except that each certificate of conformity issued by EPA for vehicles or engines that GM proposed or proposes to sell only in California, or other states that have adopted the California emission standards, provides that the certificate covers only those new motor vehicles or new motor vehicle engines which conform, in all material respects, to the vehicle or engine design specifications described in the application submitted to the California Air Resources Board.

29. In August 1991, GM implemented a change in its production MY 1992 4.9L Cadillac vehicles that introduced an enrichment calibration to the fueling strategy. This calibration was subsequently included in production MY 1993-1995 4.9L Cadillacs and in service parts received by certain MY 1991-1992 4.9L Cadillacs. The United States alleges in its Complaint that this calibration has a detrimental effect on a vehicle's emission control system and that this calibration was not adequately reported to EPA.

30. GM also equipped the Other LDVs with enrichment calibrations relating to the operation of certain accessories

(the "accessory calibrations"). The United States alleges in its Complaint that GM's applications for certificates of conformity for the Other LDVs did not fully describe the accessory calibrations installed on the Other LDVs.

31. GM equipped its MY 1989 through 1996 Subject HDGEs with timer-based enrichment calibrations (the "timer calibrations"). The United States alleges in its Complaint that GM's applications for certificates of conformity for the MY 1989 through 1992 Subject HDGEs did not adequately describe the timer-based enrichment calibration installed on the engines.

32. As required by EPA's regulations, GM conducted emission tests of its MY 1989 through 1992 Subject HDGEs prior to submitting applications to EPA for certificates of conformity for those engines. In connection with such testing, GM used an engine mapping procedure that differed from the engine mapping procedure found in 40 C.F.R. §§ 86.1332-84(a)-(e) and 86.1332-90(a)-(e). The United States alleges in its Complaint that GM did not disclose to EPA its use of an alternate mapping procedure for the Subject HDGEs.

33. GM also used the alternate mapping procedure on two Subject HDGEs audited by EPA in July and August 1991 pursuant to Section 206(b) of the Act. The United States alleges in its Complaint that GM did not adequately disclose the use of the alternate mapping procedure during such tests.

34. GM denies the material allegations of the Complaint and denies that it has violated the Act or failed to comply with EPA's regulations as alleged in the Complaint.

V. OBJECTIVES

35. The objectives of this Consent Decree are (a) to implement an emission remedial campaign to reduce emissions associated with the enrichment strategy on the 4.9L Cadillac vehicles without creating unreasonable safety risks; (b) to implement one or more emission remedial projects and an emission test program to remedy and/or assess the past and future emission of air pollutants from the vehicles and engines covered by this Consent Decree; and (c) to resolve the United States' claims for civil penalties and injunctive relief described in Paragraph 96 below.

VI. REMEDIAL PROGRAM

A. Remedial Campaign

36. For those vehicles that are not California 4.9L vehicles, GM shall submit to EPA for review and approval a plan or plans for the conduct of a remedial campaign with respect to each class (as determined by the specific Remedy PROM a group of vehicles will receive) of the 4.9L vehicles. Such plan shall be submitted within 30 days of either the entry of this Consent Decree or the completion of validation of a particular package of calibration and software changes, whichever is later. The remedial campaign plan shall include:

a. A description of the vehicles to receive the Remedy PROM, including the method or methods by which GM identified the vehicles serviced pursuant to Technical Service Bulletin T-91-81B and its updates;

b. A description of the method by which GM will determine the names and addresses of vehicle owners;

c. A description of the procedure to be followed by vehicle owners to have the Remedy PROMs installed. This shall include designation of the date on or after which the owner can have the Remedy PROMs installed, the time reasonably necessary to perform the labor required to install the Remedy PROMs, and the designation of facilities at which the Remedy PROMs can be installed;

d. If any vehicles are to be remedied by persons other than dealers or authorized warranty agents of the manufacturer, a description of the class of persons other than dealers and authorized warranty agents of the manufacturer who will remedy the vehicles, and a statement indicating that the participating members of the class will be properly qualified and equipped to perform such remedial action;

e. Copies of the letters of notification to be sent to vehicle owners;

f. A description of the system by which GM will assure that an adequate supply of parts will be available to perform the remedy under the remedial campaign plan including the

date by which an adequate supply of parts will be available to initiate the remedial campaign, the percentage of the total number of parts required by each repair facility performing the remedy that will be shipped to such facility to initiate the campaign, and the method to be used to assure the supply remains both adequate and responsive to owner demand;

g. A copy of all necessary instructions to be sent to those persons who are to perform the repair under the remedial campaign plan, including instructions for rendering the old PROMs inoperative and the means by which a service technician determines the correct PROM to be installed in each vehicle subject to this remedial campaign; and

h. A description of the impact of the proposed changes on fuel consumption, safety, and driveability of each class or category of vehicles to be recalled and a brief summary of the data, technical studies, or engineering evaluations which support these conclusions.

37. Notification to vehicle owners shall be made by first class mail.

38. The notification of vehicle owners shall contain the following:

a. The statement: "The Administrator of the U.S. Environmental Protection Agency has determined that MY 199X GM Cadillacs equipped with 4.9L engines may require modifications in order to comply with requirements of the Clean Air Act designed

to protect public health and welfare. GM has determined that the modifications required by EPA will help reduce emissions of carbon monoxide and hydrocarbons, which are regulated by EPA under the Clean Air Act. Because GM has achieved this improved emissions performance without compromising driveability, EPA and GM strongly encourage you to bring your car to a dealer to perform the modification."

b. A statement that the vehicles will be remedied at GM's expense;

c. A clear description of the components that will be affected by the remedy and a general statement of the measures to be taken to implement the remedy;

d. A description of the procedure which the vehicle owner should follow to obtain installation of the Remedy PROMs. This shall include designation of the date on or after which the owner can have the Remedy PROMs installed, the time reasonably necessary to perform the labor required to install the Remedy PROMs, and the designation of facilities at which the Remedy PROMs can be obtained;

e. A card to be used by a vehicle owner in the event the vehicle to be recalled has been sold, retired, or otherwise removed from service. Such card should be addressed to the manufacturer and shall provide a space in which the owner may indicate the name and address of the person to whom the vehicle was sold.

39. GM shall take appropriate steps to locate vehicle owners, including obtaining motor vehicle registration lists as available from State or commercial sources, as necessary to obtain the names and addresses of vehicle owners to ensure an effective notification.

40. EPA may require GM to send a subsequent notification to vehicle owners by first class mail.

41. The remedial campaign plan shall provide that those who perform the repair shall be required to affix a label to each vehicle repaired under the remedial campaign plan. The label shall be placed in such location as approved by EPA consistent with State law and shall be fabricated of a material suitable for the location in which it is installed and which is not readily removable intact. The label shall contain:

- a. The recall campaign number; and
- b. A code designating the campaign facility at which the repair was performed.

42. GM shall arrange under its existing agreements with repair facilities to ensure that vehicles brought to such facilities in response to the remedial campaign are equipped with Remedy PROMs and that old PROMs are rendered inoperative. The Remedy PROMs for MY 1991-1993 vehicles shall include the calibration and software changes described in both Appendices A and B. The Remedy PROMs for MY 1994-1995 vehicles shall include only the calibration and software changes described in

Appendix A. GM shall direct repair facilities to render inoperative each old PROM removed from a 4.9L vehicle. GM shall give notice to such repair facilities that any reuse of an old PROM in any vehicle would be regarded by EPA as tampering under the Clean Air Act that could subject the repair facility to penalties of up to \$2500 per violation.

43. EPA shall provide GM with notice of approval or disapproval of the remedial campaign plan(s) within 30 days of its submittal to the Agency. If the plan is disapproved, EPA shall provide the reasons for disapproval, and GM shall have 30 days to submit a revised remedial campaign plan for approval. Any disagreements between GM and EPA regarding the remedial campaign plan shall be resolved through the dispute resolution provisions in Section X of this Consent Decree.

44. Within 30 days of signing this Consent Decree, GM shall submit to the United States documents or a complete narrative description reflecting the validation testing conducted with respect to the Remedy PROMs through the date of such submission and its plan for further testing. GM shall complete cold-weather validation testing by March 1, 1996. The United States recognizes, however, that a need for additional testing may be identified during such testing. For this reason GM will report on the progress of its cold weather validation testing on February 1, 1996 and advise the United States and the Court of any additional testing that it has identified and the reasons for

such additional testing. If a need for such additional testing arises after February 1, 1996, GM will notify the United States and the Court within 5 days of its determination to conduct additional testing. In either event, GM shall be afforded such time as is reasonably necessary to complete such testing.

45. If GM determines, based on its customary cold-weather validation testing for vehicles of the same kind, that an element of any set of the software and/or calibration changes described in Appendices A and/or B causes a vehicle to perform unsatisfactorily during validation, GM will provide the United States with all records relating to the validation of the software and calibration changes for the relevant class of vehicles. GM may, subject to the review and approval of the United States, revise or delete that element to achieve satisfactory performance of the recalibration during validation. In such circumstances, GM shall employ best efforts to identify alternate software or calibration changes that would provide emission reductions that EPA agrees are equivalent to those projected to result from the Remedy PROMs and that would not pose unacceptable safety or driveability risks.

46. If GM, despite its best efforts, concludes that it cannot identify software or calibration changes providing the emission reductions that EPA agrees are equivalent to those projected to result from the Remedy PROMs, GM shall notify EPA and shall propose software or calibration changes for the

affected vehicles which would provide the greatest achievable level of emission reductions while avoiding unreasonable safety or driveability risks. GM will provide emissions data on the proposed revised calibration within 30 days of proposing any revision. If EPA approves GM's proposal, GM shall implement the remedial program using the alternate software or calibration changes for the affected vehicles in lieu of those set out in Appendices A and/or B.

47. In the event that GM and the United States cannot agree on the revision or deletion of an element to achieve satisfactory performance of a particular recalibration during validation and GM considers the United States' recalibration remedy to pose unacceptable risks for vehicle safety and/or driveability, the affected vehicles shall be withdrawn from the remedial emissions campaign. If vehicles are withdrawn, GM shall contribute to the emission remedial project the amount of money saved by withdrawing these vehicles from the campaign, based on the assumption, for this purpose, that 100 percent of the vehicles withdrawn from the remedial emissions campaign (rather than some lower percentage based on historical campaign capture rate) would have responded to the campaign. Such amount will be calculated as \$78 times the total number of vehicles withdrawn from the remedial campaign and provides a financial disincentive to GM for withdrawal of vehicles from the campaign.

48. Subject to Paragraph 49 of this Consent Decree with respect to California 4.9L vehicles, GM shall commence the remedial program by sending notifications to 4.9L vehicle owners pursuant to the remedial campaign plan(s) and shall implement the plan(s) based on the schedule set out therein.

49. At the same time as GM submits to EPA remedial campaign plans for 4.9L vehicles other than California 4.9L vehicles, GM shall submit to EPA the remedial campaign plan(s) for California 4.9L vehicles of the same model and model year. The remedial campaign plan for the California 4.9L vehicles shall conform to the applicable requirements of Paragraph 36 of this Decree and Article 2.1 of Title 13, California Code of Regulations, which requires, inter alia, that any manufacturer proposing to initiate an emission remedial campaign shall submit a plan for approval to CARB. If any delay occurs in obtaining CARB approval of one or more remedial campaign plans for California 4.9L vehicles, GM will be entitled to relief under the Force Majeure provisions of Section IX of this Consent Decree from the requirement to implement the remedial campaign with respect to the affected class or classes of California 4.9L vehicles, for so long as GM is undertaking diligent efforts to secure approval of such remedial campaign plan(s). Such efforts to avoid delay include:

(a) the prompt initiation of discussions with CARB regarding the installation of the Remedy PROMs on California 4.9L vehicles pursuant to the remedial campaign plan; and

(b) timely compliance with reasonable information requests from California regarding the remedial campaign plan.

In the event that, notwithstanding diligent efforts by GM to secure CARB's approval of the Remedy PROMs on California 4.9L vehicles, GM and CARB have failed to reach and reduce to writing substantial agreement within six months of lodging of this Consent Decree concerning the appropriate remedy for California 4.9L vehicles GM shall file, within 15 days after the close of such six-month period, an emission remedial campaign plan with CARB pursuant to 13 C.C.R. § 2113 and shall use best efforts to obtain approval of such plan. Such plan shall provide for implementation of the remedial calibration and software changes described in Appendices A and B to this Consent Decree.

50. In the event that CARB approves the implementation of the remedial calibration and software changes described in Appendices A and B, GM will implement those changes in a remedial emissions campaign for California 4.9L vehicles. If GM's plan as filed with CARB pursuant to 13 C.C.R. § 2113 is ultimately determined to conform to applicable requirements of California law, GM shall implement the final, validated federal calibration and software changes on California 4.9L vehicles. If CARB determines that the current calibration is more appropriate for

California 4.9L vehicles than an alternate calibration in some or all California 4.9L vehicles owing to environmental conditions existing in California, no remedial campaign will be required by this Decree for those California 4.9L vehicles, and those vehicles will not be counted in the calculation of the Campaign Capture Rate used to determine the level of the Emission Remedial Project funding pursuant to Section VI.B of this Consent Decree.

51. GM's implementation of any remedy agreed to, approved by, or ordered by CARB under its authority pursuant to Article 2.1, California Code of Regulations for a class of California 4.9L vehicles, will serve as full satisfaction of its remedial campaign obligations under this Decree regarding such class of California 4.9L vehicles. The United States agrees that any agreement or order regarding the scope of a remedy applied to California 4.9L vehicles will not affect the remedy for other 4.9L vehicles, the amount of the civil penalty, or the level of funding of the emission remedial projects. Nothing herein, however, shall be construed to allow GM to delay commencement of the remedial campaign plan with respect to other 4.9L vehicles.

52. If, through validation, GM determines that an element of any set of the software and/or calibration changes described in Appendices A or B would cause unreasonable driveability and/or safety risks for all or some class of California 4.9L vehicles, the provisions of Paragraphs 45-47 shall apply with respect to those California 4.9L vehicles,

except that changes to CARB-approved Remedy PROMs shall be subject to the review and approval of CARB instead of EPA.

53. GM shall send to EPA a copy of all communications which relate to the remedial campaign plan directed to dealers and other persons who are to perform the repair under the remedial campaign plan. Such copies shall be mailed to EPA contemporaneously with their transmission to dealers and other persons who are to perform the repair under the remedial campaign plan.

54. GM shall provide for the establishment and maintenance of records to enable the parties to monitor the implementation of the remedial campaign. The records shall include the following:

- a. the remedial campaign number as designated by GM;
- b. the date owner notification was begun, and date completed;
- c. the number of 4.9L vehicles referenced in Paragraph 11 of this Consent Decree;
- d. the number of vehicles determined to be unavailable for repair under the remedial campaign plan due to exportation, theft, scrapping, or other reasons specifically described and supported by GM; and
- e. the number of vehicles in each class of 4.9L vehicles actually receiving repair under the remedial campaign plan.

If GM determines that information provided to EPA pursuant to subparagraph c and d of this Paragraph is incorrect, GM shall maintain revised figures together with an explanation of the discrepancy. Figures maintained pursuant to subparagraph e of this Paragraph shall be cumulative totals.

55. GM shall maintain in a form suitable for inspection, such as computer information storage devices or card files, lists of the names and addresses of vehicle owners to whom notification was given and who received the Remedy PROM under the remedial campaign plan. The records described in this Paragraph shall be made available to EPA upon request.

56. The records required by this section shall be retained until termination of this Consent Decree pursuant to Paragraph 112 of this Consent Decree.

57. Within 30 days of the signing of this Consent Decree, GM shall provide to EPA three PROMs incorporating the remedial calibration and software changes described in Appendices A and B to this Consent Decree, one each for 1992 Seville, 1992 DeVille and 1993 DeVille configurations. Upon request of EPA, GM shall provide to EPA a PROM representing each nonidentical recalibration employed for purposes of the remedial campaign within 30 days of commencement of production of each such PROM.

58. Not later than 180 days after the close of the six-quarter period for the last emission remedial campaign, GM

shall conduct an audit to verify the extent to which vehicles that have been brought in for service under the emissions remedial campaign have had the correct Remedy PROMs installed. The audit will consist of an appropriate representative sampling of 50 vehicles selected from the general public that have the repair label required by Paragraph 41 of this Consent Decree. The audit report shall be maintained by GM until termination of this Decree pursuant to Paragraph 112 and shall be made available to EPA for its review upon request.

59. GM shall submit the proposed remedial campaign plan and reports required by this Consent Decree and the approved remedial campaign plan to:

Director, Air Enforcement Division (2242A)
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611 Ben Franklin Station
Washington, D.C. 20044-7611

by first class mail.

B. Emission Remedial Projects

60. GM shall establish an emission remedial project fund of at least \$7.05 million and (except as may be required pursuant to Paragraph 47 of this Consent Decree) not more than \$8.75 million for the implementation of projects to reduce emissions of regulated air pollutants. GM shall propose at least

two of the projects identified in Appendix C to this Consent Decree. Either party may suggest additional projects for inclusion in Appendix C.

61. The amount to be spent on the emission remedial projects shall be as follows: if GM achieves a campaign capture rate of 70 percent or less, then the fund shall be \$8.75 million; if GM achieves a campaign capture rate of 75 percent or greater, then the fund shall be \$7.05 million; and if GM achieves a campaign capture rate of 70 percent or greater, but less than 75 percent, then the fund shall be \$7.05 million plus \$34,000 for each tenth of a percentage point in the campaign capture rate below 75 percent, up to a maximum of \$8.75 million.

62. For purposes of the preceding Paragraph, the campaign capture rate shall be determined at the end of six quarters from the mailing of owner notification letters. The campaign capture rate shall be determined by dividing the number of subject 4.9L vehicles that receive Remedy PROMs during the six quarter period from the mailing of the initial owner notification by the simple average of the number of vehicles subject to the remedial campaign at the time of owner notification and at the close of the six quarter period, as evidenced by data obtained by GM from R.L. Polk & Co. (or a comparably reliable third party source if R.L. Polk data is not available). Any California 4.9L vehicles required to be excluded from the remedial campaign in California, as described in Paragraph 50 of this Consent Decree,

shall be wholly excluded from such computation. The campaign capture rate shall be calculated to two decimal points and rounded to one decimal point, using the rounding procedures set forth in ASTM E 29-67 (Reapproved in 1980) (cited in 40 C.F.R. § 86.088-28(a)(4)(i)(B)) and shall be reported to EPA in a campaign capture rate determination report within 180 days of the close of the six-quarter period for the last emission remedial campaign.

63. GM shall commence implementation of emission remedial projects consistent with the schedules contained in the plans approved pursuant to Paragraph 65 at the \$7.05 million level and shall supplement the funding of the projects, if required by Paragraph 61 of this Consent Decree, promptly after the campaign capture rate has been determined.

64. Within 30 days of entry of this Consent Decree, GM shall submit to the United States an emission remedial project plan describing in detail the steps to be taken to implement the emission remedial projects. The emission remedial project plan shall contain a detailed description of the program, including the expected reductions in the emission of air pollutants, the amount of money to be spent on administrative and other costs not directly related to reducing the emission of air pollutants, and the expected time frames for commencing and completing projects. Each date for commencement of a remedial project included in the remedial project plan shall be the earliest practicable date,

given the nature of the project, for commencement of the project after EPA approval of the emission remedial project plan.

65. The United States shall review and approve or disapprove the proposed emission remedial project plan within 30 days of receiving it. If the emission remedial project plan is disapproved, the United States shall provide an explanation as to why it is being disapproved along with suggestions for modifications to the plan. GM shall have 30 days to revise its emission remedial project plan to incorporate those suggestions or to request that the matter be resolved through the dispute resolution provisions in Section X of this Consent Decree.

66. Any modification to the emission remedial project plan after it has been approved by the United States must receive the written consent of both parties.

67. The emission remedial projects shall be completed consistent with the schedule set out in the emission remedial project plans approved pursuant to Paragraph 65 of this Consent Decree, but in no event shall completion of any program be scheduled to occur after November 30, 1999.

68. GM shall not use or rely on the emission reductions generated as a result of projects undertaken pursuant to the emission remedial project plan in any Federal or State emission averaging, banking, trading or other emission compliance program.

69. GM shall: (1) allow EPA access, at reasonable times and with reasonable advance notice, to any GM facilities where emission remedial projects are being implemented pursuant to this Consent Decree; and (2) respond to reasonable requests by EPA for information on the implementation of such emission remedial projects.

70. GM shall maintain legible copies of documentation underlying research and data for all documents submitted to the United States pursuant to the approved emission remedial project plan until termination of this Consent Decree pursuant to Paragraph 112, and GM shall provide the documentation of any such underlying research and data to the United States within fifteen days of a request for such information.

71. GM shall submit to EPA an emission remedial project completion report with respect to each project in an approved plan within 120 days of completion of the project. Each completion report shall identify the completed project, describe the results achieved in implementing the approved emission remedial project plan, estimate the reductions in the emission of air pollutants achieved by the project, and describe funding of the project, including a break-out of administrative and other costs not directly related to reducing the emission of air pollutants.

72. In any pre-prepared written materials intended for public dissemination and any pre-prepared broadcast announcements

made by GM in reference to any emission remedial project undertaken pursuant to this Consent Decree, GM shall include the following language "[t]his program is required by an agreement with the United States Environmental Protection Agency." In addition, GM shall make best efforts to include this statement in other public announcements regarding any emission remedial project.

73. GM shall submit the proposed plan and all notices and reports required by this Consent Decree related to the emission remedial projects to:

Director, Air Enforcement Division (2242A)
Office of Enforcement and Compliance Assurance
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
1425 New York Avenue, N.W.
Washington, D.C. 20005

by first class mail.

C. Emission Testing Program

74. GM shall implement the emission testing program set forth in Appendix D to this Consent Decree. The program will apply to future configurations of the Subject Vehicle/Engines for model years 1997, 1998, and 1999, as the term "model year" is defined in 40 C.F.R. § 86.082-2. After the initial testing of model year 1997 engine families, further testing (to be conducted only once a year, if necessary) under this Paragraph of a

particular engine family will be required only in the following circumstances: (1) addition of an accessory or timer-based enrichment strategy; (2) changes to accessory or timer-based enrichment strategies, as applicable, present in the vehicles or engines involved in the initial testing that would increase the degree, extent or likelihood of enrichment; or (3) other changes to engine fueling strategy or emissions control systems employed on vehicles involved in the initial testing that would, pursuant to best engineering judgment, increase the impact on exhaust emissions of carbon monoxide or hydrocarbons of a previously-tested enrichment strategy. Further testing under this Paragraph required by such other changes to engine fueling strategies or emission control systems employed by engine families that were initially tested under this Paragraph shall be limited to the applicable engine and chassis dynamometer testing procedures required for a specific enrichment timer- and/or accessory-based strategy pursuant to Appendix D, including any custom dynamometer schedules prepared in connection with the on-road testing described in Appendix D, unless the other changes referred to above increase emissions of carbon monoxide or hydrocarbons over the prior vehicle configuration by more than 30 percent.

In determining whether such other changes increase emissions from light-duty vehicles or heavy-duty vehicles subject to chassis dynamometer testing under Appendix D, GM shall compare the average results of US06 tests conducted for the vehicles or

engines in the two relevant configurations. In determining whether such other changes increase emissions by more than 30 per cent from heavy-duty engines subject to engine dynamometer testing under Appendix D, GM shall compare the average results of FTP transient tests conducted for the vehicle or engines in the two relevant configurations.

Any further annual testing required under any portion of this Paragraph shall be commenced at a time consistent with the requirements of Appendix D relating to on-road vehicle or engine testing in the month of July or August.

D. Alternate Mapping

75. GM shall not make any unauthorized modification to any HDGE used for mapping when testing the engine for the purpose of seeking a certificate of conformity. GM shall report to EPA the information regarding alternate mapping used in certification or selective enforcement audit testing that is required to be maintained pursuant to EPA regulations. GM shall not use the jumper TPS when mapping engines during certification or auditing of HDGEs after model year 1996.

76. Nothing in these provisions shall alter, in any way, GM's obligations to comply with all applicable reporting requirements found in the EPA regulations under Title II of the Act, 42 U.S.C. §§ 7521-7590.

VII. CIVIL PENALTY

77. GM shall pay to the United States \$11 million (\$11,000,000) in civil penalties within 15 days of entry of this Consent Decree. Late payment of the civil penalty is subject to interest and fees as specified in 31 U.S.C. §3717.

78. Payment shall be made by Electronic Funds Transfers by 4:00 p.m. Eastern Time on the due date to the Department of Justice lockbox bank in accordance with specific instructions to be provided to GM upon entry of this Consent Decree and shall reference Department of Justice Case No. 90-5-2-1-2011 and the civil action number of this matter. GM shall transmit notice of such payments to the United States and EPA.

79. Penalty payments made pursuant Paragraph 77 of this Consent Decree are civil penalties within the meaning of Section 162(f) of the Internal Revenue Code, 26 U.S.C. § 162(f) and are not tax deductible for the purposes of Federal Law.

VIII. STIPULATED PENALTIES

80. GM will pay stipulated penalties to the United States for failure by GM to comply with the terms of this Consent Decree as follows:

a. for failure to certify commencement of the remedial campaign plan by the date specified in the approved remedial campaign plan, \$2,500 per day.

b. for failure to certify substantial completion of the remedial campaign (including submission of a campaign capture rate determination report) to the United States by the date within the time specified in Paragraph 62 of this Consent Decree, \$2,500 per day.

c. for failure to submit an emission remedial project plan proposal to the United States within the time required by Paragraph 64 of this Consent Decree, \$2,500 per day.

d. for failure to certify substantial completion of emission remedial project plans (including submission of an emission remedial project completion report) within the time required by Paragraph 71 of this Consent Decree, \$2,500 per day.

e. for failure to submit a quarterly report within the time required by Paragraph 103, \$500 per day;

f. for failure to supplement a quarterly report within 30 days after receiving notice from EPA that information required to be included in any quarterly report by Paragraph 103 of this Consent Decree was omitted from such report, \$500 per day.

81. Stipulated penalties are not the United States' exclusive remedy for GM's violation of this Consent Decree. The United States reserves the right to pursue any other remedies to which it is entitled, including, but not limited to, additional injunctive relief for GM's violations of the Consent Decree or the Act.

82. GM will pay stipulated penalties upon written demand by the United States Department of Justice within 30 days after GM receives such demand, or if the dispute resolution provisions of Section X are invoked and GM is determined to be liable at the conclusion of that process, GM will pay stipulated penalties within 31 days after completion of the Section X dispute resolution process. Stipulated penalties shall be paid by cashier's or certified check, payable to the "Treasurer, United States of America," and sent to the United States Attorney for the District of Columbia, Judiciary Center Building, 555 Fourth Street, N.W., Washington, D.C. 20001, referencing the civil action number of this matter. A copy of the transmittal letter and check shall be sent to the United States and EPA.

83. Stipulated penalties shall continue to accrue during any dispute resolution process. Should GM dispute its obligation to pay part or all of a stipulated penalty, it may place the disputed amount demanded by the United States in a commercial escrow account pending resolution of the matter and request that the matter be resolved through the dispute resolution provisions in Section X of this Consent Decree. In the event that the Court resolves the dispute in GM's favor, the escrowed amount plus accrued interest shall be returned to GM.

IX. FORCE MAJEURE

84. A Force Majeure event is an event resulting from circumstances beyond the control of GM or any entity controlled

by GM that causes or may cause a delay in compliance with any provision of this Consent Decree. For purposes of Paragraphs 48-52, inclusive, of this Consent Decree, with respect to GM's obligation to implement the remedial campaign for California 4.9L vehicles, CARB's failure to approve, or delay in approving, the remedial campaign plan for California 4.9L vehicles shall be deemed a Force Majeure event for so long as GM is complying with the requirements of those Paragraphs of this Consent Decree. If a Force Majeure event occurs, GM shall notify the United States in writing as soon as practicable, but in any event within 30 days of when GM first knew of the event or should have known of the event by the exercise of due diligence. In this notice GM shall specifically invoke the Force Majeure provisions of this Consent Decree and describe the anticipated length of time the delay may persist, the cause or causes of the delay, and the measures taken or to be taken by GM to prevent or minimize the delay and the schedule by which those measures will be implemented. GM shall adopt all reasonable measures to avoid and minimize such delays.

85. The United States may render GM's force majeure rights voidable as to the specific event for which GM has failed to comply with such notice requirement, and, if voided, such rights shall be of no effect as to the particular event involved. All issues between the parties respecting the timeliness or

adequacy of the notice required by this Section are subject to the Dispute Resolution provisions in Section X of this Decree.

86. The United States shall notify GM in writing of its agreement or disagreement with GM's claim of a delay or impediment to performance within 30 days of receipt of the force majeure notice required by this Section. If the United States agrees, the parties shall stipulate to an extension of the particular compliance requirement(s) affected by the delay. Such stipulation shall be submitted as a modification to this Consent Decree pursuant to the modification procedures established in this Consent Decree. GM shall not be liable for stipulated penalties for the period of any such delay.

87. If the United States does not agree with GM's claim of a delay or impediment to performance, either party may submit the matter to the Court for resolution through the dispute resolution provisions in Section X of this Decree. If the Court determines that the violation has been or will be caused by circumstances beyond the control of GM or any entity controlled by GM, including its contractors, GM shall be excused as to that violation and delay (including stipulated penalties for that period).

88. In any dispute before the Court pursuant to the Dispute Resolution provisions of Section X of this Decree, GM shall bear the burden of proving the existence and duration of the claimed force majeure. An extension of the compliance date

based on a particular event shall result in extension of subsequent compliance dates to the extent that the delay in subsequent compliance is caused by the delay resulting from the Force Majeure event.

89. Unanticipated or increased costs or expenses associated with the performance of GM's obligations under this Decree, in and of themselves, do not constitute Force Majeure events.

X. DISPUTE RESOLUTION

90. The dispute resolution procedures provided by this section shall be available to resolve all disputes arising under this Consent Decree, provided that the party making such application has made a good faith attempt to resolve the matter with the other party.

91. The dispute resolution procedure required herein is invoked upon written notice by one of the parties to this Decree to the other advising of a dispute pursuant to this Section. The notice shall describe the nature of the dispute, and shall state the noticing party's position with regard to such dispute. The party receiving such a notice shall acknowledge receipt of the notice and the parties shall expeditiously schedule a meeting, to occur not later than seven days from the receipt of such notice, to discuss the dispute informally in accordance with this Section.

92. Disputes submitted to dispute resolution shall, in the first instance, be the subject of informal negotiations between the parties. Such period of informal negotiations shall not extend beyond 30 calendar days from the date of the first meeting between representatives of the United States and GM, unless the parties' representatives agree to extend this period.

93. In the event that the parties are unable to reach agreement during the informal negotiation period, either party may file with the Court a petition which describes the nature of the dispute. The other party shall respond to the petition within 30 calendar days of filing. Where the nature of the dispute is such that a more timely resolution of the issue is required, the time periods set out in this section may be shortened upon mutual agreement by the parties to the dispute. Additionally, if mutual agreement cannot be achieved, the notice and informal negotiation periods set out in this section may be shortened upon notice of one of the parties. In such event the response date shall be as provided by Federal Rules of Civil Procedure or as provided by the Court.

94. As part of the resolution of any dispute submitted to dispute resolution, the parties may ask the Court to extend or modify the schedule for meeting any deadlines under this Consent Decree, the approved remedial campaign plan, or the approved emission remedial project to account for the delay that occurred as a result of dispute resolution.

XI. GENERAL PROVISIONS

A. Effect of Settlement

95. Compliance with the terms of this Consent Decree does not guarantee compliance or excuse noncompliance with any applicable Federal, State or local law or regulation, except as set forth below.

96. Satisfaction of all of the requirements of this Consent Decree constitutes full settlement of and shall resolve all civil liability of GM to the United States for (1) the claims alleged in the Complaint and (2) all claims under Title II of the Act, 42 U.S.C. §§ 7521-7590, and regulations promulgated thereunder based on alleged violations occurring prior to lodging of this Consent Decree (i) that the heavy-duty engines covered by this Decree are equipped with timer-based fuel strategies that are prohibited parts or components under Section 203(a)(3) of the Act, 42 U.S.C. § 7522 or defeat devices as defined in 40 C.F.R. §§ 86.082-2 or 86.094-2; (ii) that the LDVs covered by this Decree are equipped with climate control or air conditioning-based fueling strategies that are prohibited parts or components under Section 203(a)(3) of the Act, 42 U.S.C. § 7522 or defeat devices as defined in 40 C.F.R. §§ 86.082-2 or 86.094-2; and (iii) that arise from the certification and/or auditing of, responses to information requests regarding, or the incorporation in, and/or reporting of, alleged accessory or timer-based AECDs and/or defeat devices in, GM's MY 1993-1995

1.9L vehicles, MY 1994-1995 3.4L vehicles, MY 1993-1995 4.0/4.6L vehicles, MY 1991-1992 4.5L vehicles, MY 1991-1995 4.9L vehicles and MY 1989-1996 Subject HDGEs.

97. EPA shall not base a determination under Section 207(c)(1) of the Act, 42 U.S.C. § 7541, that any class or category of the Subject Vehicles/Engines does not conform to the regulations prescribed under Section 202 of the Act, 42 U.S.C. § 7521, or a determination under Section 206 of the Act, 42 U.S.C. § 7525, to suspend or revoke a certificate of conformity, on the observed or projected emission performance of the 4.9L vehicles or the Other LDVs with air conditioning or climate control accessories engaged, or on the observed or projected emission performance of the MY 1989 through 1996 Subject HDGEs except by using the mapping procedure used by GM during certification of those engines.

98. GM has indicated its intention to proceed expeditiously to satisfy the requirements of the Act and of this Consent Decree and may have taken certain measures, such as completing validation testing, submitting a remedial campaign plan, and submitting an emission remedial project plan, prior to the date of entry of this Consent Decree. Nothing herein is intended to require that such actions be repeated after entry of the Consent Decree, provided that such measures fully comply with the requirements of this Consent Decree.

B. Third Parties

99. This Consent Decree does not limit, enlarge or affect the rights of any party to the Consent Decree as against any third parties.

C. Costs

100. Each party to this action shall bear its own costs and attorneys' fees.

D. Public Documents

101. All information and documents submitted by GM to the United States pursuant to this Consent Decree shall be subject to public inspection, unless identified and supported as confidential business information by GM in accordance with 40 C.F.R. Part 2.

E. Public Comments; Protection of Public Interest

102. The parties agree and acknowledge that final approval by the United States and entry of this Consent Decree is subject to the requirements of 28 C.F.R. § 50.7. The United States also may withdraw or withhold its consent if the United States receives information during the public comment period that leads it to believe that GM has not acted in good faith in performing or evaluating validation testing of the Remedy PROMs or in proposing any modification of the Remedy PROMs pursuant to Paragraphs 44-47 and 52 of this Consent Decree. GM consents to the entry of this Consent Decree without further notice.

F. Reports, Submissions, Notices, Communications

103. In addition to any other requirement of this Consent Decree, GM shall submit to EPA written quarterly progress reports that: (a) describe the actions which have been taken toward achieving compliance with this Consent Decree during the previous quarter; (b) include a summary of any validation testing conducted by GM; (c) include the information required by Paragraphs 53 and 54 of this Consent Decree; (d) include a summary of any tests conducted pursuant to the emissions test program and the results thereof; (e) describe all actions, including, but not limited to, actions relating to implementation of the remedial campaign plan, the emission remedial project plan, and the emissions test program, which are scheduled for the next six weeks; and (f) include the current remedial campaign capture rate. GM shall submit an initial progress report to EPA within 45 days of the close of the quarter during which this Consent Decree is entered and within 15 days of the close of each quarter thereafter, through and including the quarter in which this Consent Decree is terminated pursuant to Section XII of this Consent Decree. If requested by EPA, GM shall provide briefings for EPA to discuss the progress of implementation of this Consent Decree.

104. Each submission, report, and plan required by this Consent Decree shall be accompanied by a transmittal letter referencing the appropriate Paragraph of this Consent Decree or

the appropriate portion of an applicable plan. GM shall, through a duly authorized representative having knowledge of the report's or submission's contents, sign and certify under 28 U.S.C. § 1746 that the information contained in the report or submission is to the best of the representative's knowledge and belief true, accurate, and complete. GM shall not object to the admissibility in evidence of any such reports in any proceeding to enforce this Consent Decree.

105. Compliance with the reporting and notification requirements of this Consent Decree shall not relieve GM of its obligation to comply with any other reporting and notification requirements imposed by any applicable federal, state, or local laws, regulations, or permits.

106. Unless otherwise provided herein, reports, submissions, notifications to, or communications with the United States, EPA, or GM shall be deemed submitted on the date they are postmarked and sent by first class mail, overnight receipt mail service or by certified or registered mail, return receipt requested. Except as otherwise provided herein, when written notification to or communication with the United States, EPA, or GM is required by the terms of this Consent Decree, it shall be addressed as follows:

As to the United States:

Chief
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611, Ben Franklin Station
Washington, D.C. 20044

As to the U.S. EPA:

Director, Air Enforcement Division (2242A)
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

As to General Motors Corporation:

Practice Area Manager
Environmental and Energy Section
Legal Staff
General Motors Corporation
Room 12-149 (Mail Code: 482-112-149)
3044 West Grand Boulevard
Detroit, Michigan 48202

Director
Vehicle Emissions and Fuel Efficiency
Environmental and Energy Staff
General Motors Corporation
Room 12-268 (Mail Code 482-112-267)
3044 West Grand Boulevard
Detroit, Michigan 48202

107. Any party may change the address for providing notices to it by serving all other addressees identified above with a notice setting forth such new address.

G. Modification

108. There shall be no modification of this Consent Decree without written approval by both parties to this Consent Decree and Order of the Court.

H. Continuing Jurisdiction

109. The Court retains jurisdiction of this case after entry of this Consent Decree to enforce compliance with the terms and conditions of this Consent Decree and to take any action necessary or appropriate for its interpretation, construction, execution, or modification. Any party may apply to the Court for any relief necessary to construe or effectuate this Consent Decree.

I. Confidential Business Information

110. The United States agrees to lodge Appendices A and B (each reflecting the software and calibration changes to be included in the Remedy PROMs) under seal to protect GM's claim to protection of the information contained therein as confidential business information pending the Court's determination that sealing these documents is appropriate. The United States agrees that these documents contain confidential business information under applicable law and will not object to GM's motion for filing of Appendices A and B under seal upon entry of this Consent Decree by the Court. The parties agree that general descriptions of the contents of documents lodged or filed under seal shall be included in publicly filed or available materials

as necessary to fully describe the settlement set forth in this Consent Decree.

J. Other Laws

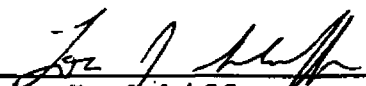
111. Except as provided in Paragraph 96 of this Decree, (1) nothing in this Consent Decree shall relieve GM of its obligation to comply with applicable Federal, State and local laws and regulations and (2) this Consent Decree is not intended to release the liability, if any, of any person under criminal law or under any Federal, State, or local law or regulation.

XII. TERMINATION


112. This Consent Decree may terminate upon further order of this Court six months after GM certifies that it has (a) paid in full the civil penalties and any accrued interest imposed by this Consent Decree; (b) paid in full any stipulated penalties imposed by this Consent Decree; and (c) completed all other requirements of this Consent Decree. If the United States does not dispute GM's certification, then the parties shall, within 90 days, jointly petition the Court for termination of this Consent Decree. If the United States disputes GM's certification, then the parties shall, within 30 days of certification, enter dispute resolution under Section X.

United States v. General Motors Corporation Consent Decree --
Signature Page


FOR PLAINTIFF, UNITED STATES OF AMERICA


Lois J. Schiffer
Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice
10th & Pennsylvania Avenue, N.W.
Washington, D.C. 20530

Dated: 11/30/95


Bruce C. Buckheit
Senior Counsel
Environment and Natural Resources Division
U.S. Department of Justice
1425 New York Avenue, N.W.
Washington, D.C. 20005

Dated: 11-30-95


Thomas P. Carroll (Bar No. 388593)
Trial Attorney, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
1425 New York Avenue, N.W.
Washington, D.C. 20005

Dated: 11-30-95

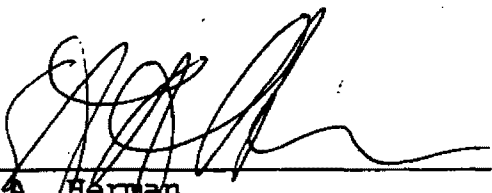
**United States v. General Motors Corporation Consent Decree --
Signature Page**

ERIC H. HOLDER, JR.
United States Attorney
District of Columbia

Dated: _____

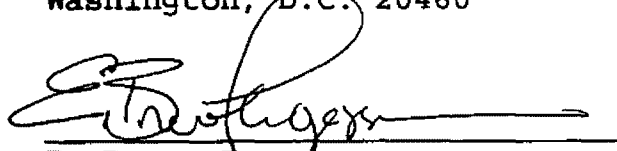
Mark Nagle (Bar No. 416364)
Dan Van Horn (Bar No. 924092)
Assistant United States Attorneys
Judiciary Center Building
555 Fourth Street, N.W.
Washington, D.C. 20001
(202) 514-7700

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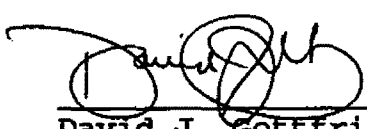
Steven A. Herman
Assistant Administrator
Office of Enforcement
and Compliance Assurance
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Dated: Nov 30/95



E. Bruce Fergusson
Attorney-Advisor
Air Enforcement Division
Office of Regulatory Enforcement
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Dated: Nov. 30, 1995

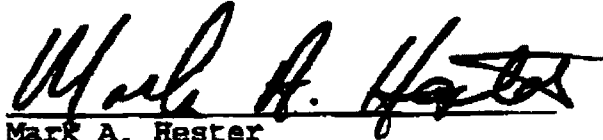


David J. Gottfried (Bar No. 420801)
Attorney-Advisor
Air Enforcement Division
Office of Regulatory Enforcement
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Dated: 11/30/95

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Signature Page

FOR DEFENDANT, GENERAL MOTORS CORPORATION



Mark A. Hester
Legal Staff
General Motors Corporation
3044 W. Grand Blvd.
Detroit, Michigan 48202

Dated: 11/30/95



David W. Schrupf
Legal Staff
General Motors Corporation
3044 W. Grand Blvd.
Detroit, Michigan 48202

Dated: 11-30-95

So entered in accordance with the foregoing this ____ day of
____, 1996.

United States District Judge

Description of Appendix A and Appendix B to Consent Decree

The Appendices describe in excess of two dozen specific changes to the software and calibration in different sets of 4.9L Cadillacs. These changes include:

(a) elimination of the previously employed enrichment based on whether the climate control button has been engaged. To prevent the possibility of low speed stalls, some enrichment is retained when the air conditioning is actually engaged and the vehicle is operating at low speeds;

(b) reducing the amount of enrichment added when the air conditioning is operating and the vehicle speed is low, but under conditions of temperature and load where the full enrichment is not needed; and

(c) reducing the amount and duration of a fuel enrichment that had been added just prior to engagement of the air conditioner compressor.

Appendix C -- Emissions Remedial Projects

Following is the list of possible emissions remedial projects developed by General Motors and the United States during preparation of the Consent Decree. Pursuant to paragraph 60 of the Decree, either party may suggest additional projects for inclusion in this Appendix.

1. Accelerated vehicle retirement projects. Accelerated vehicle retirement projects would involve the purchase and scrappage of older model-year vehicles. Eligibility for participation in the program would not be limited to GM vehicles. Criteria for purchasing the vehicles would ensure that the vehicles retired were from the current in-use vehicle population.

2. Off-highway alternative-fuel propulsion systems. Under this project, off-highway alternative-fuel technologies would be developed and produced for use on vehicles that are currently not regulated in the same manner as other mobile sources, such as airport service vehicles.

3. High-mileage emissions control system repairs. This project would provide free replacement of certain emissions control components on high-mileage vehicles at dealerships. The free replacements would be performed at the same time the vehicles were brought in for service for other reasons. The replacements would be made at the vehicles owners' option. The costs of the replacement would be paid by GM.

4. Noble-metal catalytic coatings for vehicle radiators. Under this project, vehicles would be equipped with radiators that had been treated with noble-metal formulations designed to promote ozone reduction. The vehicles that would be included in the program would be vehicles registered or normally operating in ozone nonattainment areas.

5. Accelerated off-road engine retirement projects. Under this project, older model-year equipment powered by small gasoline engines (such as lawnmowers and generator sets) would be purchased for scrappage. Equipment owners would receive cash payments for old equipment or credit towards new equipment meeting the emissions standards for such equipment that begin to take effect in 1997.

6. Alternative-fuel school buses or vehicles. Under this project, funds would be provided to local governments to obtain alternative-fuel school buses or other vehicles. The program would be focussed on ozone or carbon monoxide nonattainment areas.

7. Advanced vehicle battery technology project. Under this project, vehicles equipped with battery technologies that meet or exceed the U.S. Advanced Battery Consortium criteria for electric vehicle powerplant systems would be deployed in ozone nonattainment areas. The batteries would employ technologies other than lead-acid battery technology.

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Appendix D

Overview

This document outlines the test program to be utilized to evaluate the emissions impact of any accessory- or timer-based fuel enrichment calibration strategies that are used in the following GM light duty vehicle engine families from the 1997 to 1999 model years:

VGM1.9V8GKEK (1997 MY Engine Family Name)
VGM1.9VJGKEK (1997 MY Engine Family Name)
VGM4.6VJGFKEK (1997 MY Engine Family Name)

The general form of this proposal is a process for:

1. Defining the timer- based fuel enrichment strategies used in each of the engine families which are subject to this agreement.
2. Selecting the test vehicles and test process to be used to determine the emissions impact of each of the accessory- and timer- based enrichment strategies.
3. Conducting the vehicle tests and analyzing and reporting the results to the EPA.

The detailed requirements for each of the above deliverables are defined in the following sections of the document.

Defining Timer-Based Fuel Enrichment Strategies

For the purpose of distinguishing the relevant timer-based fuel enrichment strategies which are included in this test plan from the wide range of time-based or time-correlated features and algorithms necessarily existent in a real-time computer based control system, GM will use the following definition of timer based fuel enrichment strategies:

1. The strategy has the effect of shifting the control of fuel delivery from a stoichiometric or closed loop mode to a mode of commanded enrichment from the otherwise applicable A/F ratio, where additional fuel will be delivered, but does not include periodic closed loop variations in commanded A/F ratio that are a part of normal closed loop operation.
2. The strategy uses as an integral component of its design the monitoring and accumulation of time intervals or counts during which one or more other sensed parameters, including throttle position, manifold pressure, engine speed, vehicle speed, transmission ratio, engine airflow

Light Duty Vehicle Evaluation Program

rate, and coolant temperature, transition to or remain within calibrated operating ranges.

3. The strategy links the enablement or disablement of the commanded enrichment mode to a timer counting up to or down from a calibrated threshold value for the timer or counter being monitored or accumulated.

GM will meet with designated EPA representatives to review the pertinent timer-based fuel enrichment calibration strategies included in each of the engine families which are subject to this agreement. At least one month prior to this meeting, GM will provide to EPA the Fuel Control Definition section of the Software Functional Definition (if such exists) or the nearest equivalent thereto and the corresponding software code and calibrations for each of the subject engine families. The rules pertaining to confidential business information found at 40 CFR Part 2, Subpart B shall be applicable to such information provided by GM. GM will provide a copy of all material presented to EPA at the meeting.

To the extent that GM implements new accessory or timer-based fuel enrichment calibration strategies on 1997, 1998 or 1999 model year engine families covered by this agreement, GM will provide the above information to EPA at the time of certification or running change application.

Selecting the Test Vehicles and Test Processes

For each of the subject engine families, at the completion of the EPA review of GM's material defining the accessory- and timer-based fuel enrichment strategies, GM will procure one (1) production vehicle to conduct the testing required under this agreement. The vehicle will be selected on the basis of the configuration expected to have the largest increase in emissions from accessory- and timer-based fuel enrichment strategies based on an engineering evaluation of each individual enrichment strategy. Where there is no anticipated difference in emissions impact within an engine family, or where a family has multiple enrichment strategies that lead to different vehicle selections based on the criterion outlined above, the configuration employed will be one that represents the expected worst case emissions configuration based on certification protocols.

GM will select the particular test vehicle which satisfies these requirements on a random basis from regular production to the extent that the vehicle configuration selected is available from

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regular production, as is done for Selective Enforcement Audit test orders. GM will then transport the selected vehicle to the GM Milford Proving Grounds and conduct a minimum of 4,000 miles (and no more than 4,500 miles) of AMA mileage accumulation on the test vehicle for break-in purposes.

Prior to any mileage accumulation, GM will provide EPA with a copy of the vehicle build manifest which describes the vehicle, engine, emission-control system and drive train. EPA will be allowed ten (10) working days to review this document.

No maintenance or adjustment to any engine or vehicle component and no emission or other parameter interrogation/evaluation will be permitted without the advanced approval of EPA.

Evaluation of the accessory- and timer-based fuel enrichment calibration strategies shall be based on chassis dynamometer and on-road emissions testing, using the same vehicle for each engine family. GM will commence LDV dynamometer testing under this agreement within 28 days of the completion of all on-road testing.

On-Road Testing

The following on-road test process will be used for each vehicle in the test program:

- Testing will be conducted during the months of July or August at daytime periods of peak temperature and relatively unimpeded traffic flow (nominally 10:30 am to 3:30 pm) with no visible moisture on pavement.
- A video of the test run will be recorded which shows the prevailing traffic conditions ahead of the test vehicle.
- The test vehicle will be driven over the road route described in Attachment I.
- Prior to conducting the road test, the vehicle will be driven over the road route (preconditioned) and soaked for 12 to 36 hours to incorporate a cold start in the emission test. The onboard measurement system may be operated during the preconditioning drive to verify proper operation of the system and the onboard system should not be altered after preconditioning. A copy of any data recorded during preconditioning must be provided to EPA.

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- For vehicles with accessory-based enrichment calibrations, one run over the test route will be made with accessories off and one run will be made with the relevant accessory engaged. Vehicles without accessory-related enrichment strategies will make one run through the test route.
- The vehicle will be driven to match prevailing traffic flow at the time of the test, and will be operated in compliance with all applicable motor vehicle codes and regulations. Traffic permitting, the vehicle will maintain the posted speed limits or be operated at wide-open throttle in an attempt to maintain the posted speed limits.
- The driver is not to have access to any displays or other feedback of vehicle operating parameters during the road testing except those normally provided to the purchaser of the vehicle.
- Driving of test vehicles may be conducted by GM employees or GM contractors, at GM's option.
- On-road emissions will be measured using a system comparable to the EPA portable emissions testing system, as defined in Attachment II. The system assembled by GM, or its contractors, will be subject to review and approval by EPA.
- The engine data and emission measurements will be simultaneously recorded at 1 second intervals in an electronic format (e.g., floppy disk) and made available to EPA on the internet by midnight of the same day (may be accomplished by posting information on a GM web accessible to EPA) or by providing it to a designated EPA representative if present on the test site.
- For all on-road testing, GM or its contractor will document the date, start time, GVW, humidity and starting ambient temperature (humidity and temperature as measured at the nearest airport); and record at 1 Hz or a multiple integral of 1 Hz the throttle position, engine speed, vehicle speed, MAP, MAT, measured A/F ratio, the block learn cell, timer counts, and standard data format from the EPA portable emissions testing system, and catalyst front bed temperature.

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- An EPA representative will be available to approve variances from the test plan (in writing) and to verify that the times and ambient conditions are acceptable.

GM may, at its option, hire a contractor to perform any of its on-road testing requirements under this agreement. In such a case, GM will incorporate this test plan into the scope of work and provide a copy of this Consent Decree and this appendix to the contractor. GM will provide EPA with a scope of work document setting out in detail all test procedures, equipment to be used, and other information necessary to assure compliance with this agreement. EPA shall have 15 days to review and approve the scope of work document. If EPA disagrees, it will notify GM within 15 days and submit proposed modifications. If GM accepts these modifications it may contract the on-road testing out to a third-party contractor. Any further disagreement regarding this issue may be submitted by either party to dispute resolution under Section IX of the Consent Decree.

Substantial completion of the EPA-approved work plan by GM or its contractors or both shall satisfy GM's obligations with respect to the on-road testing under this portion of the Decree.

Dynamometer Testing of Accessory-Based Enrichment

The following evaluation process will be used to evaluate accessory based fuel enrichment calibration strategies:

- For all accessory-based fuel enrichment strategies, conduct one (1) standard FTP baseline test pursuant to 40 C.F.R. Part 86 and one (1) cold US06 at 76°F +/- 2 degrees.
- For air conditioning accessory-based fuel enrichment strategies, conduct a standard FTP and one (1) cold US06 at 76°F +/- 2 degrees, except that the air conditioning system controls will be set as follows: vehicles equipped with climate control systems, mode setting to "MAX" cooling, temperature setting to lowest temperature, and fan speed to "AUTO"; vehicles equipped with manual air conditioning systems, mode setting to "MAX" cooling, temperature set to lowest temperature, and fan speed set to second-lowest speed setting on fan switch or higher.
- For accessory-based fuel enrichment strategies other than air conditioning, an engine family subject to this agreement equipped with one or more driver selectable

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accessories that have been defined as an enabling component in the accessory-based fuel enrichment strategies for the engine family will be evaluated. An additional standard FTP will be conducted for each of the accessories meeting the above condition, except that the accessory will be operated in a representative fashion during the emissions test.

- At least two replicates of each of the baseline and "A/C-on" or other "accessory-on" tests will be conducted. During all emissions tests, second by second measurements of HC, CO, NOx, measured A/F ratio, MAP and MAT and monitoring of throttle position and engine speed shall be recorded in addition to bag samples taken. All tests conducted will simultaneously use the portable data acquisition system.

Dynamometer Testing of Timer-Based Enrichment

For those vehicles with timer-related enrichment strategies, GM will conduct testing over the US06 cycle. Where US06 data on the relevant engine families exists through the FTP revision process, that data will be substituted for this testing requirement and provided to EPA at the same time the review outlined above is provided.

The following general chassis dynamometer test sequence will be used to conduct the timer-related based fuel enrichment calibration strategy testing:

- Conduct an FTP in accordance with 40 CFR Part 86 (baseline test).
- Drain the vehicle fuel tank.
- Fill to 40% capacity with 9 psi RVP Federal certification fuel.
- Soak vehicle for 12 to 36 hours at 68°F to 86°F.
- Drive one LA4 warmup cycle.
- Drive one US06 preconditioning cycle.
- Drive two US06 emissions test cycles.

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- During all emission tests, second by second measurements of HC, CO, NOx, A:F ratio, MAP, and MAT and monitoring of throttle position and engine speed shall be recorded in addition to bag samples taken.

Dynamometer Simulation of On-Road Testing

GM will prepare one custom test cycle representing the speed, normal road loading, acceleration and grade conditions encountered during the I-75 on-road testing for the 4.0/4.6L vehicle and one 1.9L vehicle tested on-road. For those vehicles with accessory-related enrichment calibrations, the custom test cycle will be based on the test route run made with the relevant accessory engaged. GM will provide EPA with a copy of its test cycles seven days prior to conducting tests over such a cycle.

GM will conduct three tests for each vehicle over the custom "I-75" test cycle designed for each vehicle, except that an additional test of the 1.9L shall also be done with the A/C off. GM will follow the following guidelines for such testing:

- For those vehicles with accessory-related calibrations, the relevant accessory or accessories will be operated over the cycle.
- During the chassis dynamometer testing over the custom cycles representing the I-75 road route, GM will simultaneously measure modal emissions using its standard modal bench equipment and EPA's portable testing system outlined in Attachment II.
- GM will document the date, start time, test weight, humidity and starting ambient temperature; and record at 1 Hz or an integral multiple of 1 Hz the throttle position, engine speed, vehicle speed, MAP, MAT, measured A/F ratio, the block learn cell, timer counts, and standard data format from the EPA portable emissions testing system, and catalyst front bed temperature, in addition to bag samples taken.

For future accessory- or timer-based fuel enrichment strategies where the above test processes would be inappropriate, GM will develop and conduct an analogous test process to determine the emissions impact of these strategies.

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Conducting the Tests and Analyzing and Reporting the Results

Review of GM's material defining the accessory- and timer-based fuel enrichment calibration strategies and vehicle procurement shall occur in time to allow on-road testing during the first Summer after the start of production of all covered vehicle families. Dynamometer testing shall be completed within 60 days of the end of road testing, but may be done anytime prior to the end of 60 days. Vehicle procurement will proceed within one month of the completion of the EPA review of GM's material defining the accessory based and fuel enrichment calibration strategies. At the time of vehicle selection at the assembly plant, GM will provide EPA representatives with a proposed schedule for the mileage accumulation and testing phases of the process.

EPA representatives may make arrangements to observe any portion of the mileage accumulation, any maintenance conducted or testing process, scheduling such observations one week in advance of the observation date.

All testing shall be done using good engineering practice to ensure the accuracy of test results. All on-road and dynamometer testing shall be conducted using Federal certification fuel. If state or local regulations prohibit or substantially interfere with the dispensing of Federal certification fuel into the test vehicles, GM shall promptly advise the United States, and the parties shall meet to discuss how to resolve the issue.

All data shall be made available to EPA by midnight of the same day on the internet (may be accomplished by posting information on a GM web accessible to EPA) or by providing it to a designated EPA representative if present on the test site.

Except as described in paragraph 74 of the Consent Decree, this will complete GM's obligations under the terms of this test plan. After all testing is completed, if requested by EPA within ten working days of GM's submittal of test data, GM shall loan any test vehicles to EPA for up to four weeks. Otherwise, GM will be free to reconfigure or dispose of the test vehicles.

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Overview

This document outlines the test program to be utilized to evaluate the emissions impact of any time based fuel enrichment calibration strategies that are used in the following GM heavy duty vehicle engine families for model years 1997, 1998 and 1999:

VGM4.3CPGEAE (1997 MY Engine Family Name)
VGM5.7CPGEAE (1997 MY Engine Family Name)
VGM7.0CC5GAA (1997 MY Engine Family Name)
VGM7.4C5GAEA (1997 MY Engine Family Name)
VGM7.4C8GAEA (1997 MY Engine Family Name)

GM will certify that none of the HDGE families covered by the Consent Decree has accessory based fuel enrichment strategies.

GM's future product plans may result in some of these engine families being dropped from production or combined prior to the end of this agreement.

The general form of this program is a process for:

1. Defining the timer-based fuel enrichment strategies used in each of the engine families which are subject to this agreement.
2. Selecting the test engines and test processes to be used to determine the emissions impact of each of the counter or timer-based enrichment strategies.
3. Conducting the tests and analyzing and reporting the results to the EPA.

The detailed requirements of each of the above deliverables are defined in the following sections of this document.

Defining the Timer Based Fuel Enrichment Strategies

For the purpose of distinguishing the relevant timer-based fuel enrichment strategies which are included in this test plan from the wide range of time-based or time-correlated features and algorithms necessarily existent in a real-time computer based control system, GM will use the following definition of timer based fuel enrichment strategies:

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1. The strategy has the effect of shifting the control of fuel delivery from a stoichiometric or closed loop mode to a mode of commanded enrichment from the otherwise applicable A/F ratio, where additional fuel will be delivered, but does not include periodic closed loop variations in commanded A/F ratio that are a part of normal closed loop operation.
2. The strategy uses as an integral component of its design the monitoring and accumulation of time intervals or counts during which one or more other sensed parameters, including throttle position, manifold pressure, engine speed, vehicle speed, transmission ratio, engine airflow rate, and coolant temperature, transition to or remain within calibrated operating ranges.
3. The strategy links the enablement or disablement of the commanded enrichment mode to a timer counting up to or down from a calibrated threshold value for the timer or counter being monitored or accumulated.

GM will meet with designated EPA representatives to review the pertinent timer-based fuel enrichment calibration strategies included in each of the engine families which are subject to this agreement. At least one month prior to this meeting, GM will provide to EPA the Fuel Control Definition section of the Software Functional Definition (if such exists) or the nearest equivalent thereto and the corresponding software code and calibrations for each of the subject engine families. The rules pertaining to confidential business information found at 40 CFR Part 2, Subpart B will be applicable to any information provided by GM. GM will provide a copy of all material presented to EPA at the meeting.

To the extent that GM implements new timer-based fuel enrichment strategies on future model year engines covered by this agreement, GM will provide the above information to EPA at the time of certification or running change application.

Selecting the Test Vehicles and Test Processes

For each of the subject engine families, GM will procure one (1) production vehicle to conduct the testing required under this agreement. For the VGM5.7CPGEAE engine family, GM will provide two (2) production vehicles, one equipped with an automatic transmissions and one equipped with a manual transmission. For

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those engine families which are sold by GM in complete vehicles, GM will select a complete vehicle to represent the engine family. For those engine families which are only sold by GM in incomplete chassis or cab-chassis configurations for completion by a body builder, GM will procure a complete vehicle incorporating the selected engine family. The complete vehicle selected will be a configuration suitable for the on-road testing required under this agreement. Selection will be subject to review and approval by EPA.

The vehicle for each family to be tested will be selected on the basis of the configuration expected to have the largest increase in emissions from timer-based enrichments based on an engineering evaluation of each individual enrichment strategy, including an assessment of the impact of transmission type (except for the VGM5.7CPGEAE engine family). Where there is no anticipated difference in emissions impact within an engine family, or where a family has multiple enrichment strategies that lead to different vehicle selections based on the criterion outlined above, the configuration employed will be one that represents the expected worst case emissions configuration based on vehicle and engine certification protocols.

GM will transport to or take delivery of the selected vehicle at the GM Milford Proving Grounds and conduct a minimum of 4,000 miles of AMA mileage accumulation for break-in purposes. Prior to any mileage accumulation, GM will provide EPA with the build manifests for the vehicle or incomplete chassis, which describes the vehicle, engine, emission control system, and drive train, and all engine and emission-control performance data acquired by GM for the test engine. EPA will be allowed ten (10) working days to review this document.

Evaluation of the timer-based fuel enrichment strategies in the vehicles shall be done on the basis of on-road and, where applicable, chassis dynamometer testing of the selected vehicle.

On-Road Vehicle Testing

The following on-road test process will be used for each vehicle in the test program:

- Testing will be conducted during the months of July or August at daytime periods of peak temperature and relatively unimpeded traffic flow (nominally 10:30 am to 3:30 pm) with no visible moisture on pavement.

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- The vehicle will be loaded to at least 95% GVWR. If the worst case vehicle selected is available with air conditioning, the vehicle shall be tested with the air conditioner in operation.
- A video of the test run will be recorded which shows the prevailing traffic conditions ahead of the test vehicle.
- The test vehicle will be driven over the road route described in Attachment I.
- Prior to conducting the road test, the vehicle will be driven over the road route (preconditioned) and soaked for 12 to 36 hours to incorporate a cold start in the emission test. The onboard measurement system may be operated during the preconditioning drive to verify proper operation of the system and the onboard system should not be altered after preconditioning. A copy of any data recorded during preconditioning must be provided to EPA.
- Four tests will be run over the road route per vehicle, with at least one from a cold start.
- The vehicle will be driven to match prevailing traffic flow at the time of the test, and will be operated in compliance with all applicable motor vehicle codes and regulations. Traffic permitting, the vehicle will maintain the posted speed limits or be operated at wide-open throttle in an attempt to maintain the posted speed limits.
- The driver is not to have access to any displays or other feedback of vehicle operating parameters during the road testing except those normally provided to the purchaser of the vehicle.
- Driving of test vehicles may be conducted by GM employees or GM contractors, at GM's option.
- On-road emissions will be measured using a system comparable to the EPA portable emissions testing system, as defined in Attachment II. The system assembled by GM, or its contractors, will be subject to review and approval by EPA.

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- The engine data and emission measurements will be recorded at 1 second intervals in an electronic format (e.g., floppy disk) and made available to EPA by midnight of the same day on the internet (may be accomplished by posting information on a GM web accessible to EPA) or by providing it to a designated EPA representative if present on the test site.
- For all on-road testing, GM or its contractor will document the date, start time, GVW, humidity and starting ambient temperature (humidity and temperature as measured at the nearest airport); and record at 1 Hz or a multiple integral of 1 Hz the throttle position, engine speed, vehicle speed, MAP, MAT, measured A/F ratio, the block learn cell, timer counts, and standard data format from the EPA portable emissions testing system, and catalyst front bed temperature.
- An EPA representative will be available to approve variances from the test plan (in writing) and to verify that the times and ambient conditions are acceptable.

GM may, at its option, hire a contractor to perform any of its on-road testing requirements under this agreement. In such a case, GM will incorporate this test plan into the scope of work and provide a copy of the Consent Decree and this appendix to the contractor. GM will provide EPA with a scope of work document setting out in detail all test procedures, equipment to be used, and other information necessary to assure compliance with this agreement. EPA shall have 15 days to review and approve the scope of work document. If EPA disagrees, it will notify GM within 15 days and submit proposed modifications. If GM accepts these modifications it may contract the on-road testing out to a third-party contractor. Any further disagreement regarding this issue may be submitted by either party to dispute resolution under Section IX of the Consent Decree.

Substantial completion of the EPA approved work plan by GM or its contractors or both shall satisfy GM's testing obligations with respect to the on-road testing under this portion of the Decree.

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Chassis Dynamometer Testing

For the 4.3L, the one of the two 5.7L engines which will not be engine dynamometer tested, and the one of the two 7.4L vehicles which the parties have agreed to be chassis tested, GM will conduct three tests over the US06 cycle. The dynamometer will be set to a loading equivalent to 95% of GVWR, and the vehicle will be tested at that condition, with brief exceptions where the loading exceeds the capability of the dynamometer for either of the test cycles. During those periods, the dynamometer load will be at the maximum capability. In that case, the vehicles will be loaded to the point of the dynamometer's road-force capability. In addition, for each chassis-testable engine family, GM will prepare one custom test cycle representing the speed, normal road loading, acceleration and grade conditions encountered on the highest CO run on the I-75 on-road testing. GM will provide EPA with a copy of its test cycles seven days prior to conducting tests over such a cycle. GM will conduct three tests for each chassis-testable vehicle over the custom "I-75" test cycle designed for each engine family. GM will simultaneously measure modal emissions using its standard modal bench equipment and EPA's portable testing system outlined in Attachment II. GM will document the date, start time, test weight, humidity and starting ambient temperature (humidity and temperature as measured at the nearest local airport); and record at 1 Hz or a multiple integral of 1Hz the throttle position, engine speed, vehicle speed, MAP, MAT, measured A/F ratio, the block learn cell, timer counts, and standard data format from the EPA portable emissions testing system, and catalyst front bed temperature, in addition to bag samples taken.

Engine Dynamometer Testing

For the 7.0L engine, the 7.4L engine which is not chassis testable, as well as for one engine from the VGM5.7CPGAE family, which EPA will choose, GM will conduct engine dynamometer testing on one (1) engine from each family. GM will conduct one run of the FTP transient HDGE test cycle for each engine family as a baseline. GM will document the date, start time, humidity and starting ambient temperature; and record at 1 Hz or a multiple integral of 1Hz the throttle position, engine speed, MAP, MAT, measured A/F ratio, the block learn cell, timer counts, and catalyst front bed temperature, in addition to bag samples taken.

Immediately following the FTP transient test, GM will conduct a series of steady state tests that will, for each timer-based enrichment strategy identified by GM during its review with EPA,

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trigger the timer-based enrichment and hold this state until the timer has timed-out and for 30 seconds after the time has elapsed. If multiple time-down rates exist, the above-procedure is to be replicated for each time down rate. GM will provide a plan of the test cycle necessary to achieve the steady state conditions that will trigger these enrichments at the time of the enrichment strategy review. EPA will have 15 days in which to review this cycle and either approve GM's plan or deny the plan with suggested modifications. During the engine dynamometer testing, GM will simultaneously measure modal emissions using its standard modal bench equipment and EPA's portable testing system outlined in Attachment II. GM may test certification or FETS engines for the purposes of this dynamometer testing, but shall choose the "worst" case engine of all such engines available at the time of testing. GM will document the date, start time, test weight, humidity and starting ambient temperature (humidity and temperature as measured at the nearest local airport); and record at 1 Hz or a multiple integral of 1Hz the throttle position, engine speed, vehicle speed, MAP, MAT, measured A/F ratio, the block learn cell, timer counts, and catalyst front bed temperature, in addition to bag samples taken.

For future timer-based fuel enrichment strategies where the above test processes would be inappropriate, GM will develop and conduct an analogous test process to determine the emissions impact of these strategies.

Conducting the Tests and Analyzing and Reporting the Results

Review of GM's material defining timer-based fuel enrichment strategies and vehicle procurement shall occur in time to allow on-road testing during the first Summer after the start of production of all subject engine families. Chassis and engine dynamometer testing shall be completed within 60 days of the end of road testing. For each of the subject engine families at the completion of the EPA review of GM's material defining the timer-based fuel enrichment calibration strategies, GM will order one (1) production vehicle to conduct the testing required under this agreement within a month of that review, except for the 5.7 engine family where GM will order two (2) engines as specified earlier.

At the time the vehicle is delivered to the Milford Proving Ground, GM will provide EPA representatives with a proposed schedule for the mileage accumulation and testing phases of the process. EPA representatives may make arrangements to observe any portion of the

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mileage accumulation or testing process, scheduling such observations one week in advance of the observation date.

All testing shall be done using good engineering practice to ensure the accuracy of test results. All on-road and dynamometer testing shall be conducted using Federal certification fuel. If local regulations prohibit or substantially interfere with the dispensing of Federal certification fuel into the test vehicles, GM shall promptly advise the United States, and the parties shall meet to discuss how to resolve the issue.

All data shall be made available to EPA by midnight of the same day testing is completed on the internet (may be accomplished by posting information on a GM web accessible to EPA) or by providing it to a designated EPA representative if present on the test site.

Except as described in paragraph 74 of the Consent Decree, this will complete GM's obligations under the terms of this test plan. After all testing is completed, if requested by EPA within ten working days of GM's submittal of test data, GM shall loan any test vehicles to EPA for up to two weeks. Otherwise, GM will be free to reconfigure or dispose of the test vehicles.

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Attachment I: Cincinnati to Kentucky Welcome Center Rest Stop Road Route

- Begin Route in an available indoor facility near Riverfront Stadium Parking Lot
- Exit parking lot onto Pete Rose Way Westbound
- Follow Pete Rose Way bearing right onto Control to STOP
- Left onto Third Street and over suspension bridge
- Turn right onto Fourth Street and bear left into entrance to I-75 Southbound north of milepost 190
- Follow I-75 Southbound to first Kentucky rest stop just past milepost 178
- Exit I-75 at rest stop -- end of route

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Attachment II: EPA's Portable Emissions Testing System

For the purposes of this agreement, the test equipment for conducting the on-road emissions sampling of the vehicles consists of the following equipment:

- 1) A "Snap-On" Five-Gas Analyzer-- Part Number MT3505;
- 2) An OTC scan tool with domestic software cartridge;
- 3) A flow transducer mounted at the tailpipe exit with analog output;
- 4) An exhaust gas thermocouple - "K" type;
- 5) A flow dampener;
- 6) An analog to digital converter with a parallel port interface;
- 7) A NTK or Horiba wide-range air/fuel sensor with analog output;
- 8) A notebook computer for data collection;
- 9) Software from EPA;
- 10) PCMCIA serial port card; and,
- 11) Hardware to connect all of the above.

EPA On-Road Emission's Measurement System

