

DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Air Quality Control Commission

REGULATION NUMBER 11

MOTOR VEHICLE EMISSIONS INSPECTION PROGRAM

5 CCR 1001-13

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REFERENCES

Pursuant to Section 24-4-103 (12.5), C.R.S., material incorporated by reference is available during normal working hours, or copies may be obtained at a reasonable cost, from the Technical Secretary of the Air Quality Control Commission c/o the Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, Denver, Colorado 80246-1530 or material incorporated by reference within this regulation may be examined at any state publications depository library. References do not include later amendments to or additions of incorporated material.

PART A General Provisions, Area of Applicability, Schedules for Obtaining Certification of Emissions Control, Definitions, Exemptions, and Clean Screening/Remote Sensing

I. APPLICABILITY

Subject to the provisions described in Sections I.A and I.B of this Part A and pursuant to the schedule in Section I.C. and V.B. of this Part A, all non-diesel fueled motor vehicles which are registered in the AIR Program area or which motor vehicle is owned or operated by a non-resident who meets the requirements of Section, 42-4-310(1)(c)(I), C.R.S., will be subject to On-Board Diagnostics and/or an exhaust and evaporative emissions, smoke opacity and emissions control, equipment inspection as a prerequisite to initial or renewal of the vehicle registration. Any person owning or operating a business and any post-secondary educational institution located in the program area as defined in Subsection A of this section shall annually inform by written notice all persons employed by such business or attending classes that they are required to comply with the provisions of this regulation. The provisions of this regulation applicable to Larimer and Weld counties shall not be included in the state implementation plan.

I.A. Geographic Areas of Applicability

This regulation shall apply to the AIR Program area as defined in Section 42-4-304(20), C.R.S. as amended by Senate Bill 09-003.

I.B. Vehicles Eligible for AIR Program Inspection Procedures

This regulation shall apply to all motor vehicles as defined in Section 42-4-304(18), C.R.S.

Vehicles that are registered in a program area and are being operated outside such area but within another program area shall comply with the requirements of the area where such vehicles are being operated. Vehicles registered in a program area that is being temporarily operated outside the state at the time of registration or registration renewal may apply to the department of revenue for a temporary exemption from program requirements. Upon return to the program area, such vehicles must be in compliance with all requirements within fifteen days. A temporary exemption shall not be granted if the vehicle will be operated in an emissions testing area in another state unless proof of emissions from that area is submitted.

Pursuant to Section, 42-4-310(1)(c)(I), C.R.S. motorists operating vehicles in the enhanced program area shall comply with the provisions of the enhanced program.

The burden of proof in establishing an exemption from inclusion in all or any part of the AIR Program inspection requirements is on the vehicle owner.

I.C. Schedules for Obtaining Certifications of Emissions Control

I.C.1. REPEALED

I.C.2. Inspection schedules during calendar year 1995 and thereafter, vehicles are to be inspected according to the schedules established in Sections, 42-4-304(3)(b)(II), and, 42-4-310(1)(b)(II), C.R.S. as amended.

- I.C.3. No used vehicle which is required to be registered in the program area shall be registered, unless such vehicle has a Certification of Emissions Control, or of Emissions Exemption. The seller of a used vehicle is required to obtain a Certification of Emissions Control for the new owner at the time of sale. This paragraph (3) does not apply to the sale of a motor vehicle that is inoperable or otherwise cannot be tested in accordance with this regulation if the seller of the motor vehicle provides a written notice to the purchaser pursuant to Section 42-4-310(4), C.R.S. If a motor vehicle is being registered for the first time in the program area, the owner shall obtain the certification and submit it with the application for registration to the Department of Revenue or an authorized agent of the Department of Revenue.
- I.C.3.a. On or after October 1, 1989, no used vehicle which is required to be registered in the program area shall be registered, unless such vehicle has a Certification of Emissions Control, or of Emissions Exemption. The seller of a used vehicle is required to obtain a Certification of Emissions Control for the new owner at the time of sale. This paragraph (3) does not apply to the sale of a motor vehicle which is inoperable or otherwise cannot be tested in accordance with this regulation or that is being sold pursuant to Part 18 (Vehicles Abandoned on Public Property) or Part 21 (Vehicles Abandoned on Private Property) of Article 4 of Title 42, C.R.S. if the seller of the motor vehicle provides a written notice to the purchaser pursuant to Section 42-4-310(4), C.R.S. If a motor vehicle is being registered for the first time in the program area, the owner shall obtain the certification and submit it with the application for registration to the Department of Revenue or an authorized agent of the Department of Revenue.
- I.C.3.b. An inspection is not required prior to the sale of a motor vehicle with at least twelve months remaining before the vehicle's certification of emissions compliance expires if such certification was issued when the vehicle was new.
- I.C.3.c. Effective January 1, 2015, a motor vehicle being registered in the program area for the first time may be registered without an inspection or certification if the vehicle has not yet reached its seventh model year pursuant to Section 42-4-310(1)(a)(II)(C)C.R.S.
- I.C.4. Any motor vehicle may be voluntarily inspected and a Certification of Emissions Control obtained which shall be valid as specified in Section I.C.2. of this Part A.
- I.C.5. (Reserved)
- I.C.5.a. As it pertains specifically to federally owned or leased vehicles; tactical military vehicles are not required to be inspected.
- I.C.5.b. Federal installation managers are to declare all federal employee-owned vehicles operated on the installation and demonstrate that these vehicles have complied with periodic inspection requirements pursuant to 40 CFR Section 51.356(A)(4). Inspection results shall be reported to the Department of Revenue AIR Program section and up-dated based on inspection cycles.
- I.C.6. (Reserved)
- I.C.7. Fleets of twenty or more eligible vehicles shall be periodically inspected, comply with inspection provisions and obtain a Certification of Emissions Control.

- I.C.7.a. Fleets may pursue licensing as a fleet inspection station under Part D of this Regulation Number 11 pursuant to Section, 42-4-309, C.R.S. and comply with the provisions of that section.
- I.C.7.b. Fleets may elect to comply with periodic inspection requirements under the provisions of Section 42-4-309 (2)(a), C.R.S. to include the inspection schedules of Sections 42-4-304(3)(b)(II) and 42-4-310(1)(b)(II)(a), C.R.S.
- I.C.7.c. As it pertains to the fleet vehicles provisions pursuant to Section, 42-4-309, C.R.S. and this Section I.C.7., municipal fleets of twenty vehicles or more may comply with periodic inspection requirements as specified in Section 42-4-309(2)(a), C.R.S. to include inspection schedule of Sections 42-4-304(3)(b)(II) and 42-4-310 (1)(b)(II)(a), C.R.S.
- I.C.8. New motor vehicles being registered with a Manufacturer's Statement of Origin (MSO), Manufacturer's Certificate of Origin (MCO) or similar document shall be issued a registration without a Certificate of Emissions Control.

Such new motor vehicles are to be issued a Verification of Emissions Test exemption windshield sticker at the time of sale that shall be valid for a period of seven (7) years. The selling dealer is responsible for obtaining the Verification of Emissions Test.

New vehicles under this section shall also include those new vehicles leased under an MSO or MCO or similar document and seven years without an inspection. Such new leased vehicles are to be issued a Verification of Emissions Test exemption windshield sticker at the time of initiation of the lease that shall be valid for a period of seven (7) years.

After the seventh year, such vehicles shall be issued a registration only with a Certificate of Emissions Control. The inspection schedule for these vehicles shall then revert to a biennial inspection cycle.

A used motor vehicle may be registered in the program area without an inspection if, on the date of vehicle registration, at least twelve months remain before the expiration of the Verification of Emissions Test exemption if such certification was issued when the vehicle was new.

Effective January 1, 2015 vehicles that were originally issued a Verification of Emissions Test exemption windshield sticker at the time of new vehicle sale that was valid for a period of four years shall have that time period extended to seven years.

- I.C.9.a. Compliance with AIR Program inspection requirements will not be required for wholesale transactions between motor vehicle dealers licensed pursuant to Article 6 of Title 12, C.R.S.
- I.C.9.b. Motor vehicle dealers shall have motor vehicles inventoried or consigned for retail sale inspected annually. A further inspection is not required at the time of sale if:
 - i. For a 1982 or later motor vehicle, there are at least twelve months remaining before the vehicle's certification of emission compliance expires and the dealer has had the vehicle inspected since acquiring it.

- ii. For a 1981 or earlier motor vehicle, the vehicle has a valid certification of emission compliance and the dealer has had the vehicle inspected since acquiring it. Such a vehicle purchased from a licensed motor vehicle dealer may be registered in the program area without an inspection if, on the date of vehicle registration, at least nine months remain before the expiration of such certification.

I.C.10. Reserved

I.C.11. Eligible fleets as defined in Section 42-4-309, C.R.S. that declare not to self-inspect shall be inspected according to the same schedules, subject to the same emissions related repair requirements and waiver provisions as non-fleet vehicles.

I.C.12. For the purposes of 42-4-309(6)(B) if a vehicle fails the test or is untestable due to mechanical and/or electrical/electronic problem, the motorist shall have the same recourse as that of not passing an inspection. However, Section 42-4-309(6), C.R.S. and the regulations implementing such provision, shall not be federally enforceable, and shall not be incorporated into the State Implementation Plan.

II. DEFINITIONS

- 1. "Accreditation" means certification that the instrument and instrument manufacturer meet the operating criteria specifications and requirements of the Colorado Department of Health, Air Quality Control Commissions as specified in Part B of this regulation.
- 2. "Air Intake Systems" are those systems that allow for the induction of ambient air (to include preheated air) into the engine combustion chamber for the purpose of mixing with a fuel for combustion.
- 3. "AIR Program Station" is an Automobile Inspection and Readjustment (AIR) Station that qualifies and is licensed to operate as an emissions inspection and readjustment station.
- 4. "Air System" is a system for providing supplementary air into the vehicle's exhaust system to promote further oxidation of HC and CO gases and to assist catalytic reaction.
- 5. "BAR 90" refer to the California Bureau of Automotive Repair specifications for Exhaust Gas Test Analyzer Systems (TAS) that became effective in 1990. "BAR 97" refers to the California Bureau of Automotive Repair specifications for Exhaust Gas Test Analyzer Systems (TAS) that became effective in 1997.
- 6. "Basic Engine Systems" are those parts or assemblies which provide for the efficient conversion of a compressed air/fuel charge into useful power to include but not limited to valve train mechanisms, cylinder head to block integrity, piston-ring-cylinder sealing integrity and post-combustion emissions control device integrity.
- 7. "Calibration" is the process of establishing or verifying the total response curve of an exhaust gas analyzer. Calibration is a laboratory procedure using several different calibration gases having precisely known concentrations.
- 8. "Calibration Gases" are gases of precisely known concentration that are usually used in the laboratory as references for establishing or verifying the calibration curve of an exhaust gas analyzer.
- 9. "Catalytic Converter" is a post-combustion device that oxidizes HC and CO gases and/or reduces oxides of nitrogen.

10. "Certification" means assurance by the authorized source, whether it is a laboratory, the manufacturer, or the State, that a specific product or statement is in fact true and meets all required accreditation requirements.
11. "Certification of Emissions Control" shall have the same meaning as set forth in Section 42-4-304(3)(1), C.R.S.
12. "Chlorofluorocarbon" (CFC) is a class I stratospheric ozone depleting compound as listed in Appendix A, final rule vol.57.mp 147 Federal Register, 40 CFR Part 82.
13. "Clean Screen Inspection Site" is that location within the program area as defined in Section 42-4-304(20)(a), C.R.S., approved by the Division and the Department of Revenue.
14. "Clean Screen Inspector" is a person found qualified by the Division, and licensed by the Executive Director to operate Clean Screen Inspection equipment.
15. "Clean Screen Program" is that program as defined in Section 42-4-304(3.5), C.R.S.
16. "Clean Screened Vehicle" is a vehicle that is eligible for inspection, has at least two consecutive passing remote sensing emissions readings performed at approved Clean Screen Inspection Sites prior to its registration renewal date, or for vehicles identified as low emitters on the low emitting vehicle index, one passing remote sensing reading prior to its registration date, and has otherwise complied with the provisions of Section IV of this Part A, Section XII of Part C and Section VI of Part F.
17. "Clean Screen Data Manager" is that person or entity that contracts with the state to provide clean screen data management functions. This same person or entity may also act as general contractor in conducting and facilitating clean screen inspections.
18. "Colorado 94" refers to those test analyzer systems that are based on BAR 90 but modified as specified by the Division for use in the AIR Program for the period of time after January 1, 1994. "Colorado AIR Program BAR 97 Exhaust Gas Analyzer" or Colorado 97" refers to those test analyzer systems that are based on BAR 97, but modified as specified by the Division for all fleet inspection stations and inspection-only facilities that become licenses after May 1, 2010.
19. "Colorado Automobile Dealer Transient Mode Test Analyzer System" is a dynamometer based inspection system capable of performing an inspection grade (IG 240) emissions inspection procedure under simulated driving conditions. The procedure is intended for determining the compliance status for used vehicles prior to retail sale.
20. "Colorado On-Board Diagnostic (OBD) Test Analyzer System" or "OBD TAS" refers to the analytical and testing instrumentation used to verify automotive emissions and to prompt the emissions inspector through the elements of an official Colorado OBD emissions inspection.
21. "Compliance" means verification that certain submission data and hardware submitted by a manufacturer for accreditation consideration, meet all required accreditation requirements.
22. "Diagnostic Trouble Code (DTC)" is an alpha-numeric code representing a specific fault or problem identified by the OBD system on a vehicle. OBD diagnostic trouble codes are standardized across all vehicle manufacturers and are defined individually in the Society of Automotive Engineers Recommended Practice J2012.
23. "Division" is the Air Pollution Control Division of the Colorado Department of Public Health and Environment.

24. "Electrical, Electronic, or Electro-mechanical Span" is the adjustment of an exhaust gas analyzer using an electronic signal rather than a calibration or span gas as a reference source.
25. "Emissions Control Systems" are those parts, assemblies or systems originally installed by the manufacturer in or on a vehicle for the purpose of reducing emissions.
26. "Estes Park Area" means that part of the program area west of Range 71 West in Larimer County.
27. "Executive Director of the Department of Revenue" or "Executive Director" is the representative of the Department of Revenue or designee responsible for the field enforcement of the AIR Program, licensing of emissions mechanics, clean screen inspectors and inspection stations.
28. "Fuel Control Systems" are mechanical, electro-mechanical, galvanic or electronic parts or assemblies that regulate the air/fuel ratio in an engine for the purpose of providing a combustible charge.
29. "Fuel Filler Neck Restrictor system" is the orifice and obstruction ("Flapper Door") in the gas tank filler neck that prevents the insertion of a "leaded gasoline" nozzle and deters the introduction of "leaded fuel".
30. "Gas Span" is the adjustment of an exhaust gas analyzer to correspond with known concentrations of span gases.
31. "Gas Span Check" is a procedure using known concentrations of span gases to verify the gas span adjustment of an analyzer.
32. "Gross Vehicle Weight (GVW) Rating" is the maximum recommended combined weight of the motor vehicle and its load as prescribed by the manufacturer and expressed on a permanent identification label affixed to the motor vehicle.
33. "Heavy Duty Vehicles (HDV)" are those motor vehicles for model years 1978 and earlier having a GVW rating of greater than 6000 pounds and for model years 1979 and newer, having a GVW rating of greater than 8,500 pounds.
34. "Idle Mode" means a condition where the vehicle engine is warm and running at the rate specified by the manufacturer's curb idle, where the engine is not propelling the vehicle, and where the throttle is in the closed or idle stop position.
35. "Ignition Systems" are those parts or assemblies that are designed to cause and time the ignition of a compressed air/fuel charge.
36. "Inspection Area" is the area that is occupied by the analyzer, sample hose and the vehicle being inspected.
37. "Inspection-only station" is that licensed station within the basic program area as defined in Section 42-4-304(2), C.R.S., which meets the requirements of Section 42-4-308, C.R.S., which facility the operator is licensed to operate by the Executive Director as an inspection-only station.
38. "Instrument" is the complete system that samples and reads out the concentration of pollutant HC and CO gas plus CO₂ gas. The instrument includes the sample handling system, the exhaust gas analyzer and the enclosure cabinet.

39. "Light Duty Vehicles (LDV)" are those motor vehicles (to include trucks) for model years 1978 and earlier having a GVW rating of 6,000 pounds or less and for model years 1979 and newer having a GVW rating of 8,500 pounds or less.
40. "Low Emitting Vehicle Index" refers to a statistical table summarizing the probability of vehicles passing the IM 240 inspection. The statistical table will be updated annually by each July 1st. The low emitting vehicle index must meet the requirements of Part F, VI.B. based on a tabulation of the previous calendar year's IM 240 inspection program results.
41. "Malfunction Indicator Light (MIL)" is a warning light located on the dash of vehicles equipped with On-Board Diagnostic (OBD) systems that notifies the motorist that a malfunction to the vehicle's emissions control system has been detected.
42. "Motor Vehicle Emissions Compliance Inspectors (ECI)" are those persons employed and authorized by the Department of Revenue for licensing and enforcement of the AIR Program.
43. "North Front Range Area" is the portion of the Program Area located in Larimer and Weld Counties as set forth in Section 42-4-304(20) as amended by Senate Bill 09-003.
44. "On-Board Diagnostics II (OBD or OBDII) Test" means the electronic retrieval of stored readiness status, diagnostic trouble codes, malfunction indicator light (MIL) illumination status, and other information from a vehicle's OBD system to determine if any emission related trouble codes are present and if the MIL is commanded to be on, which would indicate the existence of an emission related malfunction with the vehicle.
45. "Original Condition" means the condition as installed by the manufacturer but not necessarily to the original level of effectiveness.
46. "Program Area" is that geographic area defined in Section 42-4-304(20), C.R.S. as amended by Senate Bill 09-003.
47. "Registration Renewal Date" is the last day of the month in which the vehicle registration expires as defined in Section 42-3-103, C.R.S.
48. "Span Gases" are gases of known concentration used as references to adjust or verify the adjustment of an exhaust gas analyzer's span settings.
49. "State Emissions Technical Center Personnel" are those persons employed by or authorized by the Department of Health for technical or administrative support of the AIR Program.
50. "Tampering" is the removal or rendering inoperative of any device or element of design installed on or in a motor vehicle engine, drivetrain, fuel system or exhaust system used to control emissions.
51. "Test Analyzer Systems" (TAS) in the context of this regulation is that analytical instrumentation used to measure automotive emissions and prompt the operator through other elements of an emissions inspection.
52. "True Concentration" is the concentration of the gases of interest as measured by a standardized instrument which has been calibrated with 1% precision gases traceable to the National Institute for Standards and Technology.
53. "Zero Gas" is a gas, usually air or nitrogen, which is used as a reference for establishing or verifying the zero point of an exhaust gas analyzer.

III. EXEMPTION FROM SECTION 42-4-314, C.R.S. FOR DEPARTMENT OF DEFENSE PERSONNEL PARTICIPATING IN THE PRIVATELY OWNED VEHICLE IMPORT CONTROL PROGRAM

III.A. U.S. Department of Defense (DOD) personnel participating in the DOD POV (privately owned vehicle) Import Control Program operating a 1975 or subsequent model year automobile, are exempt from the prohibition of C.R.S., 42-4-314(2), C.R.S. insofar as it pertains to filler neck restrictors, catalytic converter systems, and, if applicable, exhaust gas oxygen (O₂) sensor(s), if one of the following conditions are met:

III.A.1. The automobile will be driven to the port and surrendered for exportation under said program within ten (10) working days of disconnection, deactivation, or inoperability of the restrictor, catalytic converter systems, or exhaust gas oxygen (O₂) sensor(s); or

III.A.2. The reconnection, reactivation, or reoperability of the restrictor, catalytic converter systems, and, if applicable, exhaust gas oxygen (O₂) sensor(s), is made within ten (10) working days from the time the owner picked up the automobile at the port.

III.B. Persons disconnecting, deactivating, or rendering inoperable any filler neck restrictor, catalytic converter system, exhaust gas oxygen (O₂) sensor(s) on 1975 or subsequent model year automobile of DOD personnel participating in the DOD POV Import Control Program which will be driven to the port and surrendered for exportation under said program within ten (10) working days are exempt from the prohibition of 42-4-314, C.R.S.

III.C. Unless otherwise exempt under this Section III of Part A, vehicles shall be required to be configured as a vehicle certified by the EPA for sale and use within the United States pursuant to 40 CFR, Part 86, Subpart A.

IV. CLEAN SCREEN/REMOTE EMISSIONS SENSING

IV.A. Geographic Area of Applicability

IV.A.1. (Reserved)

IV.A.2. The Division shall implement an expanded clean screen program in the enhanced program area.

IV.A.3. (Reserved)

IV.B. Vehicles Eligible to participate in the Clean Screen/Remote Emissions Sensing Program

IV.B.1. The clean screen program established in this Section IV. of Part A shall apply to eligible motor vehicles as defined in 42-4-310(5)(a), C.R.S., for which registration will expire within twelve months, a certificate of emissions control is a prerequisite to renewal and which are registered in a clean screen program county.

IV.B.2. The counties of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, Larimer, and Weld are clean screen counties.

IV.C. REPEALED

IV.D. Schedule for collection of emissions inspection fees by county clerks and recorders.

The clerks and recorders for the counties of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, Larimer and Weld shall collect an emissions inspection fee in the amount specified pursuant to Section 42-3-304(19)(a)(I), C.R.S. at the time of registration of a motor vehicle that the Department of Revenue has determined to have been clean screened, unless a valid certification of emissions compliance has already been issued for the vehicle being registered indicating that the vehicle passed the applicable emissions test at an enhanced inspection center, motor vehicle dealer test facility or fleet inspection station.

V. EXPANSION OF THE ENHANCED EMISSIONS PROGRAM TO THE NORTH FRONT RANGE AREA

V.A. Program Commencement

Beginning November 1, 2010, unless the Division comes back to the Commission and the Commission agrees to a later date, motor vehicles registered in the North Front Range Area, and vehicles operating in the North Front Range Area that meet the requirements of Section 42-4-310(1)(c)(I), C.R.S. shall be subject to an Enhanced emissions inspection as defined in Section 42-4-304(8.5). Notwithstanding the above, the Estes Park Area, located west of Range Seventy-one (71) West, shall be excluded from the Enhanced Emissions Program. Such inspection shall be the same as the inspection required in the Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson county portions of the Program Area.

V.B. Requirement to Obtain Certification of Emission Control and Emissions Inspection Schedule

V.B.1. Except as otherwise provided in Title 42, Article 4, Part 3, C.R.S. and this Regulation Number 11, a motor vehicle that is subject to the North Front Range Area Inspection and Maintenance Program pursuant to Subsection V.A. above may not be registered or sold without a valid Certification of Emissions Control. In order to obtain a Certification of Emissions Control the vehicle must either pass the applicable emissions inspection or obtain a waiver from the Department of Revenue under this Regulation Number 11.

V.B.2. Subject to the phase-in provision in Subsection V.B.3. below, emissions inspections shall be conducted and Certification of Emissions Controls shall remain valid in accordance with the schedules set forth in Section 42-4-304(3), C.R.S., Section 42-4-310(1)(b)(II), C.R.S. and Part A, Section I.C. of this Regulation Number 11.

V.B.3. In order to better balance the number of inspections from year to year, odd number model year motor vehicles that require biennial inspections under Subsection V.B.2. above, shall be inspected commencing January 1, 2011. This phase-in shall not excuse a vehicle from an inspection in 2010 that is required due to the sale or transfer of the motor vehicle.

PART B Standards and Procedures for the Approval, Operation, Gas Span Adjustment, Calibration and Certification of the Division Approved Test Analyzer Systems for Use in the Basic and Enhanced Areas and Test Analyzer Systems for Licensed Dealers in the Enhanced Area

I. APPROVAL OF THE COLORADO 94 AND COLORADO 97 TEST ANALYZER SYSTEMS

- I.A. From January 1, 1995 and thereafter no emissions inspection required by the AIR Program in the enhanced program area shall be performed unless the instrument used for measuring exhaust gases from motor vehicles is identified as a Colorado AIR Program Colorado 94 exhaust gas analyzer. For any emissions inspection station licensed after May 1, 2010, a Colorado BAR 97 exhaust gas analyzer must be used. Sources of vendors for the approved analyzers may be obtained from the Program Administrator, Mobile Sources Section, Air Pollution Control Division, Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, Denver CO 80246-1530.
- I.B. As an element of accreditation, the Division will accept a Certification statement for the exhaust gas analytical and sampling system portion of the Colorado AIR Program Colorado 94 exhaust gas analyzer or a Colorado BAR 97 exhaust gas analyzer from the California Bureau of Automotive Repair (BAR) or a recognized laboratory. The Division or its designee will determine the manufacturers' compliance with the revisions and additions to the specifications necessary for use of the instrument within the AIR Program. Those testing procedures are to be included with the bid specifications.
- I.C. The following statement is a requirement of the AIR Program for approval of an exhaust gas analyzer and is included to make manufacturers and purchasers of exhaust gas analyzers aware of the warranty requirements of Section 207(b) of the federal Clean Air Act, as amended 1981.

207(b) Warranty Requirements:

Unless an exhaust gas analyzer has been certified by the manufacturer as having met the specifications of 40 CFR Part 85, Subpart W as published in Part IX of the May 22, 1980 Federal Register, an inspection performed using that analyzer may not qualify a 1982 or later model year vehicle for warranty repair coverage according to the provisions of the Emission Control System Performance Warranty (Section 207(b) of the federal Clean Air Act).

II. APPLICATIONS FOR APPROVAL OF COLORADO 94 OR COLORADO BAR 97 TEST ANALYZER SYSTEMS EQUIPMENT MANUFACTURERS

Those manufacturers wishing to participate in the open bid process shall make application with the Air Pollution Control Division, Mobile Sources Section, of the Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, Denver, CO 80246-1530 on forms provided thereby. All manufacturers making application shall meet the requirements as specified by the Department of Administration and the Procurement Code, Articles 101-112 of Title 24, C.R.S.

A manufacturer requesting the approval of an instrument for the measurement of exhaust gases for use in the AIR Program station shall make application therefore with the Air Pollution Control Division, 4300 Cherry Creek Drive South, Denver, CO 80246-1530 on forms provided thereby. All manufacturers making application shall meet the technical specifications and administrative requirements specified by the Air Pollution Control Division.

III. PERFORMANCE AND DESIGN SPECIFICATIONS FOR THE COLORADO 94 AND COLORADO BAR 97 EXHAUST GAS ANALYZERS

Pursuant to Section 42-4-306(3)(a), C.R.S the specifications for the exhaust gas analyzer required for inspections conducted July 1, 1987 and thereafter are attached to this regulation as Appendix A. These specifications include but are not limited to the provisions of California BAR 90, data collection, service/maintenance, requirements for replacement or loan instruments and warranty for the period of the agreement. These specifications are described in a separate document entitled "Colorado Department of Public Health and Environment Specifications for Colorado 94 Analyzer - Hardware Specifications" March 17, 1994 as adopted by the Commission. This information is available from the Air Pollution Control Division, Mobile Sources Section, 4300 Cherry Creek Drive South, Denver, CO 80246-1530. Those manufacturers making application should refer to Section II of this Part B.

The Division in its discretion may accept substitute specifications for Test Analyzer Systems provisions that such substitute specifications are equivalent to those contained in Appendix A.

IV. SPAN GASES FOR USE WITH COLORADO 94 AND COLORADO BAR 97 TEST ANALYZER SYSTEMS

IV.A. General

The instrument manufacturer and his designated marketing vendors shall, supply span gases approved by the Division to any ultimate purchaser of his unit. The instrument manufacturer shall also provide the analyzer purchaser with a comprehensive, up-to-date list (with addresses and phone numbers) of gas blenders approved by the Division. Each new or used instrument sold by the instrument manufacturer or marketing vendor shall have full span gas containers installed and operational at time of delivery.

IV.B. Span Gas Blends

The span gas concentrations supplied to the AIR Program stations shall conform to the specifications contained in Section VI. of this Part B.

Only gas blends supplied by Division approved blenders selected pursuant to Section 42-4-306(3)(a) and labeled in conformance with samples in Attachment VI of Appendix A, shall be offered for sale in Colorado. Suppliers of span and calibration gases to the Colorado AIR Program must be approved by the Division's Colorado AIR Program Standards Lab (CAPSL), located at 11609 Teller Street, Broomfield, CO 80020.

Pursuant to Section 42-4-306(3)(a), the Division shall select blenders authorized to provide span gases that comply with the standards and specifications set out in Appendix B. The requirement to use gases procured pursuant to the standards and specification in Appendix B shall not be federally enforceable, and shall not be part of the State Implementation Plan.

IV.C. Optical Correction Factor [also referred to as "C" factor, propane to hexane conversion factor" (P.E.F.)].

Each instrument shall be permanently labeled with its correction factor visible from the outside of its cabinet. The correction factor shall be carried to at least two decimal places e.g., (0.52). Factor confirmation shall be made on each assembled analyzer by measuring both N-hexane and propane on assembly line quality checks. P.E.F. limitations are described in the specifications document attached to this regulation as Appendix A.

IV.D. Running Changes and Equipment Updates

The Commission must approve any changes to design or performance characteristics of component specifications that may affect instrument performance. It will be the instrument manufacturer's responsibility to confirm that such changes have no detrimental effect on analyzer performance. All Colorado 94 exhaust gas analyzers will be updated as needed and as specified in the specifications document.

V. DOCUMENTATION, LOGISTICS, AND WARRANTY REQUIREMENTS

V.A. Instruction Manual

The instruction manual accompanying each analyzer shall contain at least the following:

- V.A.1. Complete technical description.
- V.A.2. If available, functional schematics (mechanical and electrical).
- V.A.3. Accessories and options (included and/or available).
- V.A.4. Model number, identification markings and location.
- V.A.5. Operating maintenance to include periodic recommendations, i.e., daily, weekly, monthly, and procedure for maintaining sample system integrity (leaks, hang-up, calibration, filters, etc.).
- V.A.6. Required service schedule identifying the items needing maintenance and the procedures to be followed by the purchaser. The services to be performed only by the manufacturer shall be clearly identified.
- V.A.7. Warranty provisions to include listing of warranty repair stations by name, address, and phone number.
- V.A.8. The name, address, and phone number of the permanent Colorado representative offering training, service, warranties, etc.
- V.A.9. Information and terms of manufacturers service contract clearly stating the coverage including but not limited to each party's obligation, period of coverage, cost, service response times, availability of loaner units. Manufacturer or designee performed service/maintenance provisions and costs shall be so stated for the duration of the program and annually up-dateable costs.

VI. CALIBRATION OF COLORADO 94 AND COLORADO BAR 97 TEST ANALYZER SYSTEMS

The Division shall use and require for use in the calibration and spanning of exhaust gas analyzers span gases and containers supplied by authorized blenders meeting the following parameters, blends, and specifications:

VI.A. Standardizing Instruments

The calibration gases for standardizing instruments shall conform to the provisions outlined in 40 CFR, Section 86.114 (July 1, 1992) (EPA) for automotive exhaust emissions testing. Those gases shall be of "precision" quality, certified to be within $\pm 1\%$ of the labeled concentration, and traceable to the National Institute for Standards and Technology (NIST).

VI.B. AIR Program Station Instruments

The span gases supplied to AIR Program stations shall conform to the following:

VI.B.1. Tri-blends of HC, CO, CO₂ in a carrier gas of nitrogen (N₂). The hydrocarbon (HC) gas will be propane.

VI.B.2. The concentrations) of the span gas blends (two) shall be within limits established by the Division to provide for uniform exhaust gas analyzer spanning. The Division may establish such limits to ensure gasses are measurable based upon the ranges or scales of the equipment.

VI.B.3. The accuracy of the AIR Program station span gas blend shall be certified by the blender to be $\pm 2\%$ of labeled concentration and traceable to the NIST.

VI.C. AIR Program stations will calibrate the exhaust gas instrument once every 72 hours as determined by the instrument or as needed in order to maintain accuracy.

VI.D. All AIR Program exhaust gas analyzers will be calibrated only with span gases bearing a Colorado approval label.

VI.E. Additional specifications related to calibration requirements are described in the specifications document attached to this document as Appendix A.

VII. APPROVAL OF THE COLORADO AUTOMOBILE DEALERS TRANSIENT MODE TEST ANALYZER SYSTEM

Any applicable emissions inspection required by the AIR Program performed by a licensed Motor Vehicle Dealers Test Facility pursuant to Section 42-4-304 (19), C.R.S., in the enhanced program area, shall be performed utilizing a Colorado Automobile Dealer Transient Mode (IG 240) test analyzer system approved by the state open bid process. Sources of vendors for the approved test system may be obtained from the Program Administrator, Mobile Sources Section, Air Pollution Control Division, Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, Denver Colorado 80246-1530.

This Section VII, and the associated design and performance specifications set out in Appendix A, Attachment III, shall not be federally enforceable and shall not be part of the State Implementation Plan.

VIII. APPLICATIONS FOR APPROVAL OF THE COLORADO AUTOMOBILE DEALERS TRANSIENT MODE TEST ANALYZER SYSTEM

Those manufacturers wishing to participate in the open bid process shall make application with the Air Pollution Control Division, Mobile Sources Section, of the Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, Denver Colorado 80246-1530 on forms provided thereby. All manufactures making application shall meet the requirements as specified by the Department of Administration and Procurement Code, Articles 101-112 of Title 24, C.R.S.

The design and performance specifications for the Colorado Automobile Dealers Transient Mode Test Analyzer System Technical and Hardware Specification Document of January 27, 1997 attached as Appendix A, Attachment III. Pursuant to 42-4-306(3)(a)(I)(C), the Division shall let bids for the procurement of instruments that comply with such specifications. In addition to the specifications set out in Appendix A, attachment III, qualifying bids shall:

Include a bid for the procurement of any working/support and span gases necessary for the operation of such Colorado Automobile Dealers Transient Mode Test Analyzer System, unless all such gases are already subject to a contract issued pursuant to 42-4-306(3)(a)(I)(C). Any bid for the procurement of such gases shall comply with the relevant requirements of Part B, IV of the Regulation Number 11 and relevant requirements of Standards and Specifications for Calibration and Span Gas Suppliers, attached as Appendix B, including the "Gas Requirements for the Basic and Enhanced Inspection Test Programs, 1997" as set out in Section 5 of Appendix B.

Include a comprehensive and up-to-date list of working/support and span gas suppliers subject to a contract issued pursuant to 42-4-306(3)(a)(I)(C). A copy of such list shall be provided to each purchaser.

Provide for the Division-approved calibration gases for calibration of the Colorado Automobile Dealers Transient Mode Test Analyzer System.

A service and maintenance plan, including a description of services, service response times, periodic maintenance schedules and annual service agreement costs inclusive of all services necessary to comply with the Colorado Automobile Dealers Transient Mode Test Analyzer System Technical and Hardware Specification Document of January 27, 1997. Service agreement costs are to be listed annually and shall be for the remaining period of the AIR Program.

IX. APPROVAL OF THE COLORADO ON-BOARD DIAGNOSTIC (OBD) TEST ANALYZER SYSTEM

Any applicable on-board diagnostic emissions inspection required by the Air Program performed shall be performed utilizing an on-board diagnostic (OBD) test analyzer system approved by the state. Sources of vendors for the approved Colorado On-Board Diagnostic Test Analyzer System may be obtained from the Program Administrator, Mobile Sources Section, Air Pollution Control Division, Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, Denver, Colorado 80246-1530.

X. THE COLORADO ON-BOARD DIAGNOSTIC (OBD) TEST ANALYZER SYSTEM

The design and performance specifications for the Colorado On-Board Diagnostic Test Analyzer System are outlined in the Society of Automotive Engineers J1979 Standard.

In addition to the specifications set out in J1979 Standard, additions and/or modifications to the operational, data collection, data recording and quality assurance auditing functions shall be outlined in a Colorado On-Board Diagnostic (OBD) Test Analyzer System Requirements Specification, to be submitted by the Division for Air Quality Control Commission approval no later than December 31, 2013.

XI. REQUESTS FOR APPROVAL OF CLEAN SCREEN TEST ANALYZER SYSTEMS

XI.A. REPEALED

- XI.B. Calibration gas blends intended for Clean Screen Test Analyzer Systems shall be verified and approved subject to the requirements of Standards and Specifications for Calibration and Span Gas Suppliers including Gas Requirements for the Basic and Enhanced Inspection Test Programs, 1997, (Appendix B).

Concentrations of calibration gases noted above are to be determined pending system configuration, operating ranges and expected emissions readings.

State audit blends for Clean Screen Test Analyzer Systems shall be of varying concentrations of and shall conform to the above gas blending standards.

PART C Inspection Procedures and Requirements for Exhaust Emissions, Fuel Evaporation Control, Visible Smoke Emissions, Emissions Control Systems, On-Board Diagnostics (OBD); and Practices to Ensure Proper Emissions Related Adjustments and Repairs

I. PRE-INSPECTION REQUIREMENTS

- I.A. A licensed emissions mechanic, licensed emissions inspector or authorized emissions inspector must perform all aspects of the inspection. It is the responsibility of emissions mechanics and emissions inspectors to notify the Department of Revenue of their current place of employment and any subsequent transfer, and place of residence. The Contractor shall be responsible for its personnel and notifying the Department of all personnel assignments and adjustments in those assignments.

The emissions mechanic not employed by an "Inspection-Only Station" shall notify the customer prior to initiating an emissions inspection if he/she is unable to perform the required adjustments and/or repairs for that particular vehicle should that vehicle fail the inspection. Otherwise the emissions mechanic shall not conduct an inspection on a motor vehicle unless that emissions mechanic so notifies the customer or is able to perform the adjustment and/or repair procedures for that particular vehicle as prescribed by the manufacturer and specified by Section IV. of this Part C.

- I.B. Inspections may only be performed on the premises of the licensed address as prescribed in Part D, Section I. A. 2. The entire inspection shall take place within the reach of the analyzer hose.

- I.C. In consideration of maintaining inspection integrity:

I.C.1. The temperature of the inspection area when utilizing one or more test analyzer systems as specified in Part B of this regulation shall be between 41°F and 110°F (5°C and 43°C) during the inspection. Inspection area temperatures must be accurately recorded, and monitored in a well-ventilated location away from vehicle engine and exhaust heat sources and out of direct sunlight. The inspection area includes the vehicle being inspected.

I.C.2. The test analyzer system and other inspection equipment shall be kept in an area within the facility that affords adequate protection from the weather.

I.C.3. A permanent location that meets all applicable requirements of this rule to provide for the inspection of vehicles is required. Electrical supply must be public utility designated for that area and meeting the analyzer manufacturer's requirements for to the test analyzer system is to be dedicated to this purpose. Full-time connectivity to a dedicated data transmission media meeting the analyzer manufacturer's requirements for the test analyzer system.

- I.D. Upon a physical verification of the vehicle identification number (VIN) and license plate number, the emissions mechanic or emissions inspector will enter this information into the program database in order to match this information with the state registration record. In the case of a match, the emissions mechanic or emissions inspector shall proceed. If no match is found, a new inspection record will be created. All non-Colorado registered vehicles and first time registrations with the State of Colorado will require the creation of a new inspection record by the emissions mechanic or emissions inspector.

- I.E. The emissions mechanic or emissions inspector shall ascertain from the inspection record data base if an initial inspection or an after-repairs inspection is to be conducted. If an after-repairs inspection is to be conducted, previous inspection data is required for comparison. Specific emissions related repair information as specified in Section VII (B) of this Part C shall be entered to the database. Inspections conducted within 60 days of the initial inspection date are to be considered an after-repairs inspection. Inspections conducted greater than 60 days from the initial inspection date are to be considered initial inspections. The emissions mechanic or emissions inspector shall accurately enter vehicle, and last inspection information as required for vehicle emissions inspection records.
- I.F. The emissions mechanic or emissions inspector shall perform a cursory safety assessment of the motor vehicle prior to inspection. If in the opinion of the emissions mechanic or emissions inspector the vehicle is unsafe to inspect due to engine/drive-line metallic noises, or leaking fluids, the request for inspection may be refused.

II. EXHAUST EMISSIONS INSPECTION PROCEDURES

- II.A. All heavy-duty vehicles and all 1981 and older model year vehicles to be inspected at licensed inspection-only facilities or licensed enhanced inspection centers in the enhanced program area shall be administered an EPA approved idle short test as specified in 40 CFR, Part 51, Subpart S, Appendix B.
- II.A.1. The emissions mechanic or emissions inspector will use a certified TAS to select the appropriate idle short test cycle based upon the make, model year engine family and vehicle classification. These idle short tests include, but may not be limited to, a standard single speed idle test; the pre-idle 30-second pre-conditioning idle test with the high speed (2500 ± 300 RPM) pre-conditioning cycle before the idle mode; a standard two speed (3 - mode) idle test with the raised idle segment at 2500 ± 300 RPM; second chance raised idle pre-conditioning for 30 seconds just prior to the idle mode after an initial failure, and second chance restart in which the ignition is turned off for ten (10) seconds and then restarted to complete the emissions inspection procedure. All sampling modes shall (each) be thirty seconds in duration and raised engine speed modes be it for pre-conditioning or sampling, shall be $2500 \text{ RPM} \pm 300 \text{ RPM}$. As a pass/fail determination, the vehicle's emissions levels must be the same as or less than applicable limits at the designated engine speed(s) in order to pass.
- II.A.2. The entire vehicle shall be in normal operating condition and at normal operating temperature, which shall be determined by carefully feeling the top radiator hose while the engine is not operating, by checking the temperature gauge, and/or operating the vehicle prior to performing the idle emissions inspection. Vehicles are not to be idled for extended periods of time but rather inspected in an expeditious manner as soon as normal operating temperature is achieved. The vehicle shall be inspected in an as-received condition.
- II.A.3. The inspection shall be performed with the transmission in park or neutral and with all accessories off.
- II.A.4. The analyzer probe shall be inserted at least twelve (12) inches or as recommended by the analyzer manufacturer for a quality sample whichever is greater.
- II.A.5. For all vehicles equipped with a multiple exhaust system, the analyzer's dual exhaust procedure must be used.
- II.A.6. If a baffle or screen prevents probe insertion to an adequate depth, a suitable probe adapter or snug fitting hose that effectively lengthens the exhaust pipe may be used.

- II.A.7. The appropriate emissions limits specified in Part F of this regulation would be utilized by the certified test analyzer system. In selecting appropriate emissions limits, for motor vehicles of model years 1978 and earlier having a gross vehicle weight (GVW) rating of greater than 6000 lbs., or of model years 1979 and newer having a gross vehicle weight rating of greater than 8500 lbs., the emissions mechanic or emissions inspector shall identify that particular vehicle's GVW rating by examining the vehicle information (metal) plate or sticker. These motor vehicles will be subject to the applicable emissions limits as listed in Part F of this regulation. If the vehicle information plate or sticker is missing, illegible or the GVW rating information is not otherwise available, the emissions mechanic or emissions inspector shall examine the engine exhaust emissions control information label which is permanently affixed to the engine and determine heavy-duty engine/vehicle federal certification status. Vehicle engines not labeled as having complied with applicable U.S. EPA heavy-duty regulations by the manufacturer are assumed to be light-duty vehicles and subject to the emissions limits listed in Part F of this regulation. Emissions limits for vehicles in which the engine has been changed shall be based upon whichever is newest, the vehicle or the replacement engine, as specified on a vehicle evaluation form (DR2365) or bar coded label generated by emissions technical center staff or designee.
- II.A.8. In the event the tachometer over-ride mode must be utilized to inspect a vehicle, an accurate auxiliary tachometer must be used to verify engine speeds mandated in Part C, Section II.A.1.
- II.A.9. The vehicle will be evaluated for the presence of visible smoke emissions. The evaluation is to be performed during all (engine) operating conditions of the inspection procedures prescribed in Part C, Sections II.A.1 through II.A.11.
- II.A.10. A Certification of Emissions Compliance shall be issued if the vehicle passes the emissions control systems inspection (for 1975 and newer model year vehicles only), the exhaust and evaporative emissions inspection, and there is no evidence of visible smoke emissions.
- II.A.11. If the vehicle fails the initial emissions inspection the owner is to have appropriate emissions related repairs or adjustments made and may return the vehicle to an AIR Program station, facility or center, as appropriate, for reinspection. Within ten (10) calendar days of the initial test, one free reinspection shall be provided to the motorist if the vehicle is returned to the same station or facility at which the initial test was performed. A motorist shall be entitled to one free after-repairs test at any contractor operated center within ten (10) calendar days of the initial test performed at a contractor operated center. If during repairs, it is determined the necessary parts are not available, the motorist may be issued a temporary Certificate of Emissions Control by Department of Revenue personnel. Proof of part(s) non-availability as described in Part C, Section III.D. of this part is required. Motorists pursuing a temporary Certificate of Emissions Control must facilitate final vehicle inspection and compliance with adopted regulation.
- II.B. All model year 1982 and newer light-duty vehicles, except vehicles required to be OBD tested pursuant to Part C, Section II.C. to be inspected at licensed enhanced inspection centers within the enhanced program area shall be administered an EPA approved transient loaded mode inspection procedure as specified in 40 CFR, Part 51 Subpart S Federal Register as amended to incorporate OBD testing August 6, 1996.
 - II.B.1. Vehicles shall be inspected in an as-received condition.
 - II.B.2. The inspection shall be performed with all accessories off.

- II.B.3. The appropriate emissions limits as specified in Part F of this regulation shall be selected by the TAS based upon the model year and vehicle classification.
- II.B.4. Light-duty vehicles of model year 1995 and older found to be safe but unable to be dynamometer tested shall be administered an idle short test as specified in 40 CFR, Part 51, Subpart S, Appendix B. OBD equipped light-duty vehicles that are unable to be tested on the dynamometer shall be tested using the OBD test procedures in Part C, Section II.C. to include meeting passing criteria in Part F, Section VII. Eligibility for an alternative test procedure shall be determined by the Division. The current eligibility list for an alternative test to the I/M 240 is maintained in the Air Pollution Control Division's Emissions Technical Center Procedures Manual:
- II.B.5. Heavy-duty vehicles to be inspected at licensed enhanced inspection centers within the enhanced program area shall be administered an appropriate EPA approved idle short test as specified in Section II (A) of this Part C.
- II.B.6. The inspector may refuse to conduct the transient driving cycle dynamometer inspection procedure if the tires on the drive wheels are worn such that the cords are visible or sidewalls are peeling or blistered.
- II.C. Effective January 1, 2015, light-duty vehicles, to include light-duty trucks in their eighth through eleventh model year, and all light-duty vehicles, to include light-duty trucks of model year 1996 and newer that are unable to be tested on an IM 240 test, are to be inspected at licensed enhanced inspection centers and shall be administered an EPA approved on-board diagnostic test as specified in 40 CFR, 85.2222. Effective July 1, 2015, 1996 and newer light-duty vehicles, to include light duty trucks, that are owned by a fleet that operates a Fleet Inspection Station shall be administered an EPA approved on-board diagnostic test as specified in 40 CFR. 85.2222.
- II.C.1. Vehicles shall be inspected in an as-received condition.
- II.C.2. The on-board diagnostic inspection shall be conducted with the key-on/engine running.
- II.C.3. The on-board diagnostic test analyzer system shall determine what monitors are supported by the diagnostic system and the readiness status for applicable monitors.
- II.C.3.a. A readiness evaluation will ensure that:
- The oxygen sensor and/or heated oxygen sensor monitor(s) shall be ready if supported;
 - The catalyst monitor shall be ready if supported, and;
 - A 2001 or newer model year shall have no more than one (1) supported readiness monitor not ready; or
 - A 2000 or older model year shall have no more than two (2) supported readiness monitors not ready.
- If the above readiness criteria are not met, and the malfunction indicator light (MIL) is commanded off, the vehicle shall be subjected to an IM 240 emissions inspection immediately.
- II.C.3.b. If the vehicle's on-board diagnostics are unable to communicate electronically with the Colorado OBD Test Analyzer System, the vehicle will be subjected to an IM 240 emissions inspection immediately.

- II.C.3.c. The readiness requirement, outlined in this Part C, Section II.C.3.a. may be waived to accommodate for specific vehicles with known readiness design problems, in accordance with applicable technical service bulletins, EPA guidance, or division technical findings, as approved by the Division.
- II.C.4. The OBD test analyzer system shall evaluate the malfunction indicator light status and record status information in the vehicle test record.
- II.C.5. All diagnostic trouble codes resulting in malfunction indicator light commanded-on status shall be recorded in the vehicle test record.
- II.C.6. If the vehicle meets the passing criteria for the OBD inspection as listed in Part F, Section VII. Of this regulation, the vehicle passes the on-board diagnostic inspection.
- II.C.7. Vehicles in an OBD “not ready” status, or vehicles unable to communicate with the OBD Test Analyzer System that default to an IM 240 test as described in Part C, Section II.B. shall be subject to pass/fail for the applicable IM 240 pass/fail standards in Part F, Section III. of this regulation.
- II.C.8. If the malfunction indicator light is not commanded on and the vehicle passed the mil visual inspection, as outlined in this Part C, Section III.B., the vehicle shall pass the on-board diagnostic portion of the emissions inspection even if diagnostic trouble codes are present.
- II.C.9. The division may require no more than five percent, at random, of all OBD tested vehicles to undergo an IM 240 test at the time of the OBD testing. The IM 240 test shall be the pass/fail determinant for these vehicles.
- II.C.10. If the vehicle’s OBD responds that the catalyst readiness monitor is not supported or that all readiness monitors are supported; or if any other OBD tampering indicators are present, as determined by the Division and listed in the Division’s Emissions Technical Center Procedures Manual, then the OBD test will be FAILED and the vehicle owner will be provided with a Vehicle Inspection Report.

III. EMISSIONS CONTROL SYSTEMS INSPECTION PROCEDURES

Motor vehicles shall be configured as required for sale or use within the United States pursuant to 40 CFR, Part 86, Subpart A; unless specific documentation in the form of a state issued vehicle evaluation form (DR2365) or an EPA (EPA form 3520) or DOT exemption is submitted. To ensure compliance with this requirement, for all inspections performed through December 31, 2014, the emissions mechanic or emissions inspector shall inspect all model year 1975 through 1995 and newer model year vehicles and assess the integrity of the emissions control system in accordance with the procedures set forth in this Section III. Effective January 1, 2015, the emissions mechanic or emissions inspector shall inspect all model year 1975 through 1995 model year vehicles and assess the integrity of the emissions control system in accordance with the procedures set forth in this Section III.

- III.A. All model year 1975 through 1995 model year vehicles shall be visually inspected for the presence and operability of the air system, catalytic converter system(s) and oxygen (O₂) systems. If these parts or systems are not operating as designed, inoperable or have been removed or otherwise tampered with, the vehicle will not qualify for a Certification of Emissions Control. In assessing whether the proper emissions control systems are present, the emissions mechanic or emissions inspector shall examine the emissions control information decal within the engine compartment to determine the appropriate emissions control systems for that particular vehicle. If an emissions control information decal is missing, incomplete, illegible or is not appropriate for the specific vehicle, the emissions mechanic or inspector may contact a state emissions technical center for guidance, use other reference materials or refer the vehicle to a state emissions technical center for further evaluation.

For the period December 1, 2012 through December 31, 2014, in place of the visual inspection, the emissions control systems, model year 1996 and newer vehicles may be inspected using the vehicle's on-board diagnostic (OBD) systems. To utilize this alternative inspection procedure, the emissions inspector must interrogate the vehicle's OBD system using Division approved procedures and equipment. If the emissions inspector is unable to interrogate the OBD system, or if the interrogation reveals either that the malfunction indicator light (MIL) is commanded on or that any OBD monitors are not set, the vehicle shall be visually inspected in accordance with the procedures set forth in Subsection III.A.

- III.B. An assessment of the emissions control system malfunction/service-maintenance indicator(s) performance shall be conducted by the emissions mechanic or emissions inspector on those vehicles so equipped.

For those vehicles equipped with "check engine" dash indicator lights or similar emissions control systems malfunction or service-maintenance indicator(s), the following procedure if applicable will be performed to assess the integrity of the system:

- Ignition Off, Engine Off = indicator(s) off
- Ignition On, Engine Off = indicator(s) on or displayed
- Ignition On, Engine Running = indicator(s) off

The failure of the system to respond as described above shall be reported to the motorist, but shall not be used to fail the vehicle.

- III.C. The repair/replacement of catalytic converters must incorporate the same type, style and location on the exhaust system relative to engine as originally designed by the vehicle manufacturer. If a new original equipment manufacturer (OEM) part is not used, only an EPA "accepted" after-market component appropriate to that application may be used. Verification of the correct application and certification status must be performed at the time of reinspection. The submittal and review of repair receipts as specified in Subsection VII.B of this section is required in order to substantiate proper repairs of applicable emissions control system.
- III.D. If the necessary part(s) will not be available prior to the month of expiration of the present vehicle registration, and the owner obtains a signed form or statement to that effect from a manufacturer's dealer for that make vehicle, or from an automotive parts supplier which in the normal course of business supplies part(s) for that vehicle, Department of Revenue personnel after verification may issue a temporary Certification of Emissions Control. The form or statement provided must specifically identify by part numbers and description, the necessary part(s). The owner then has until the expiration of the temporary certification to complete the necessary repairs or replacement.

IV. ON-BOARD DIAGNOSTIC INSPECTION PROCEDURES

Effective January 1, 2015, light-duty vehicles to include light-duty trucks of model year 1996 through those vehicles that have reached their eleventh model year old equipped with California on-board diagnostic (OBDII) or EPA on-board diagnostic systems (EPA, OBD) shall be evaluated to determine operability and integrity of the applicable system(s). The OBD system will be connected to the TAS and interrogated. Fault codes and diagnostics shall be reported to the motorist with other emissions inspection information but with the exception of dynamometer incompatible vehicles as noted in Part C, Section II.B.4. shall not be used to fail the vehicle.

V. EVAPORATIVE FUEL CONTROL INSPECTION PROCEDURES

Model year 1975 and newer vehicles shall be inspected for the presence and integrity of the gasoline cap(s). The gasoline cap(s) of such vehicles inspected in the nine county Front Range enhanced program area as defined in Section 42-4-304(9)(a)., shall also be inspected for sealing integrity as specified in Part F, Section IV of this regulation.

Vehicles with a missing gasoline cap(s) shall not qualify for issuance of a Certificate of Emissions Control. Motorists whose vehicles have gasoline cap(s) demonstrating excessive leakage shall be notified of the deficiency, repair/replacement and a full retest shall be mandatory.

VI. FREE REINSPECTION

Vehicles which fail any or all elements of an emissions inspection are eligible for one free reinspection within ten (10) calendar days if presented to the same station or facility as initially inspected and failed. In the case of the contractor operated enhanced inspection center network, the ten (10) day free reinspection shall be honored at any enhanced inspection center.

VII. REPAIR INFORMATION

Any after-repairs reinspection of a vehicle initially failed calls for the submittal of a completed official AIR Program emissions repair form.

VIII. CERTIFICATION OF EMISSIONS CONTROL

In order to obtain a Certificate of Emissions Control, the vehicle must meet the following conditions:

VIII.A. Certification of Emissions Compliance may be issued if:

VIII.A.1. The vehicle emissions levels are the same as or less than the applicable emissions limits;
or

VIII.A.2. For vehicles in model years seven through ten subject to an on-board diagnostic inspection, the OBD system meets the passing criteria established in Part F, Section VII. of this regulation, and

VIII.A.3. There are no smoke emissions visible from the vehicle engine crankcase and/or tailpipe,
and

VIII.A.4. For 1975 through 1995 model years, the vehicle passes the emissions control systems inspection, and

VIII.A.5. Under enhanced inspection requirements, the vehicle owner/operator of a 1995 or newer model year vehicle shall demonstrate compliance with any federal emissions recall-pursuant to 40 CFR Part 85.1902 (d) or remedial repair plan pursuant to Section 207 (C) of the federal Clean Air Act for which owner notification occurs after 01 January 1995.

VIII.B. A Certification of Emissions Waiver may be issued if:

VIII.B.1. The vehicle passes the emissions control systems inspection (1975 and newer model year vehicles only) required by Part C, Section III. A, B and C. and there are no smoke emissions visible from the vehicle's exhaust, and the vehicle is not tampered, as determined by the Division's Emissions Technical Center staff or their direct designee.

VIII.B.2. Enhanced Program

For model year 1968 and newer, at least seven hundred fifteen dollars (\$715) or as adjusted annually by the Consumers Price Index for Urban Consumers (CPIU) of the previous year as compared to 2003 has been spent on emissions related adjustments and repairs as specified in Part C, Section IX, provided that proof of repair costs for that specific vehicle has been provided to Department of Revenue personnel or their designee in the form of an itemized receipt for parts purchased if repaired by the owner, or , invoice, work order, manifest, or statement in which emissions related parts and/or repairs are specifically identified as specified in 42-9-108 C.R.S.

For model year 1967 and earlier at least seventy-five dollars (\$75) has been spent on emissions related adjustments and repairs as specified in Part C, Section IX provided that proof of repair costs for that specific vehicle has been provided to and verified by the emissions inspector in the form of an itemized receipt for parts purchased if repaired by the owner, or invoice, work order, manifest, or statement in which emissions related parts and/or repairs, are specifically identified as specified in 42-9-108 C.R.S. .

The motorist is to be referred to the Department of Revenue or its designee pursuant to Sections IX.C. of this Part C.

VIII.C. If in the opinion of the Division's Emissions Technical Center personnel or its designee that no additional emissions related repairs would be effective or needed, yet the vehicle's Malfunction Indicator Light remains illuminated, and the repair expenditure limits have not been met, the vehicle will be given the alternate IM240 inspection in lieu of the OBD inspection. If the vehicle is unable to be inspected using the IM240 inspection procedure or continues to exceed one or more emissions limits, a waiver which shall not exceed one inspection cycle in duration shall be issued upon physical verification of systems operation and vehicle performance by emissions technical center personnel.

VIII.D. For vehicles registered and operated in the enhanced area, upon verification by a Department of Revenue Motor Vehicle Emissions Compliance Inspector, a waiver not to exceed one inspection cycle may be granted to obtain necessary emissions related repairs on a vehicle in the case of economic hardship when the Certificate of Emissions Waiver requirements of this section have not been met. It must be verified that the vehicle owner in question is participating in an established and recognized public assistance program. The provisions of this Paragraph D shall only apply to a vehicle once. To obtain a hardship waiver, the registered owner of the vehicle in question shall satisfy the following requirements:

VIII.D.1. The vehicle must fail for carbon monoxide, hydrocarbons, and/or oxides of nitrogen or OBD.

VIII.D.2. The hardship waiver will not be approved for vehicles that are tampered, missing equipment, fail the evaporative inspection, or fail for visible smoke.

- VIII.D.3. The vehicle owner must be participating in an established and recognized public assistance program.
- VIII.D.4. The vehicle must be the sole means of transportation for the vehicle owner, and the owner must not have more than two vehicles registered in his/her name.
- VIII.D.5. Such extension may be granted only once per vehicle.
- VIII.E. A Certificate of Emissions Waiver will not be issued to a vehicle that is eligible for the Emissions Control Systems Performance Warranty, 207(b) of the federal Clean Air Act. Per the provisions of the 207(b) Performance Warranty, the repair costs necessary for compliance with AIR Program emissions limits specified in Part F of this regulation will be borne by the vehicle manufacturer or his authorized dealer representative.
- IX. (Reserved)
- X. EMISSIONS RELATED REPAIRS
- X.A. Emissions related repairs include only those adjustments to and maintenance and repair of the motor vehicle that are directly related to the reduction of exhaust emissions and/or undertaking repairs that extinguish the OBD Malfunction Indicator Light (MIL) necessary to comply with the applicable emissions limits and procedures. The expenditure for emissions related repairs does not include the inspection fee as specified in Section 42-4-311, C.R.S. or expenses associated with the adjustments to and maintenance, replacement, and repair of air pollution control equipment on the vehicle if the need for such adjustment, maintenance, or repair pursuant to Part C, Section III is due to disconnection of, tampering with, or abuse to such air pollution control equipment. Air pollution control equipment is any part, assembly or system originally installed by the manufacturer for the sole or primary purpose of reducing emissions.
- X.B. Repairs and maintenance to the following systems shall qualify as emissions related repairs insofar as the purpose is to reduce exhaust emissions or extinguish the OBD MIL:
- Air Intake Systems
 - Ignition Systems
 - Fuel Control Systems
 - Emissions Control Systems
 - Basic Engine Systems
 - Microprocessor (O₂) based air/fuel control systems.
- X.C. If the vehicle continues to exceed applicable emissions limit, or continues to fail OBD, the vehicle must undergo specific emissions related repairs. Adjustments and repairs must be accomplished to the point of compliance, or the applicable repair cost ceiling has been met. If the applicable emissions related adjustment and repair requirements have been met, the vehicle owner may be referred to a Department of Revenue Motor Vehicle Emissions Compliance Inspector to receive a waiver. Repairs must have been reasonably calculated to achieve a reduction in emissions of those components of the inspection that the vehicle failed, pursuant to manufacturer's specifications as required by 42-4-306 (7)(a)(II)(A) and 42-9-111 C.R.S.

In order to be creditable to the enhanced repair cost limits, adjustments and repairs must have been performed by a repair facility/technician registered with the Division pursuant to Part D of this regulation.

Only the appropriate emissions failure related parts costs should apply to applicable waiver limits for repairs not performed at a licensed emissions inspection station or registered repair facility/technician.

XI. ENGINE CHANGES

- XI.A. For those vehicles in which the original engine has been replaced, the emissions limits and applicable emissions control equipment for the year and model of the vehicle body/chassis, as per registration/title or replacement engine, whichever is newest, shall apply. For those diesel powered vehicles which have been converted to operate on fuel(s) other than diesel; the emissions limits and applicable emissions control equipment for the year, make and model of the gasoline powered engine equivalent as originally manufactured, for the vehicle body/chassis, per the registration or replacement engine, whichever is newest, shall apply as determined by emissions technical center personnel or designee and specified on an official AIR Program vehicle evaluation form (DR2365).
- XI.B. For 1975 and newer vehicles in which the original engine has been replaced, if either the vehicle body/chassis original engine, as per registration/title or replacement engine as manufactured had a catalytic converter system, air injection reaction system, and/or microprocessor based air/fuel control system, these emission control systems must be present, intact and operational before a Certification of Emissions Control may be issued.
- XI.C. For those vehicles titled/registered as model year 1975 and newer, that were assembled by other than a licensed manufacturer such as kit-cars, registered/titled according to Section(s) 42-6-108 and/or 42-5-205, C.R.S. and assigned a state or manufacturer specific identification number, the applicable emissions control equipment and standards will be based upon a determination by technical center personnel of the vintage of the vehicle engine. The technical center personnel may issue an affidavit and the year of the engine shall be presumed to be that stated by the vehicle owner unless it is determined by state emissions technical center personnel or designee, after physical inspection of the vehicle engine, that the year of the engine is other than stated by the owner.

XII. CLEAN SCREEN INSPECTION PROGRAM PROCEDURES

- XII.A. Eligibility to participate
 - XII.A.1. Vehicles specified in Part A, Section IV.B., are eligible for participation in the Clean Screen Program.
 - XII.A.2. Clean Screen inspections applicable to the program are those performed within twelve months prior to an individual vehicle's registration renewal date.
 - XII.A.3. Vehicles are eligible for participation in the Clean Screen Program when the two most recent consecutive emissions readings observed during the 12-months prior to its registration date comply with the standards specified in Part F, Section VI. Additionally, vehicles that are identified as low emitters on the low emitting vehicle index are eligible for participation in the clean screen program when the most recent emissions reading observed during the 12-months prior to their registration date complies with the standard specified in Part F, Section VI.
 - XII.A.4. The following vehicles are ineligible for participation in the Clean Screen Program:

- XII.A.4.a. New Vehicles as specified in Section 42-4-310(b)(II)(A), C.R.S.
- XII.A.4.b. Vehicles involved in a change of ownership.
- XII.A.4.c. Vehicles owned by the United States government or any agency thereof pursuant to Section 42-4-310(l)(b)(I), C.R.S.

XII.B. All aspects of inspection must be performed by a licensed Clean Screen Inspector.

XII.C. Clean Screen Test Analyzer Systems

XII.C.1. Vehicles participating in the Clean Screen Program shall be tested as specified in this Part C utilizing a Clean Screen Test Analyzer System recognized by the Division as having complied with the performance and design requirements specified in Part B, Section IX. of this regulation.

XII.C.2. Clean Screen Test Analyzer Systems will be periodically calibrated and maintained as required in Part B, Section IX. of this regulation.

XII.C.3. The inspection data processing system(s) used by the Data Manger and Clean Screen Inspector will be that approved by the Division, and the Department of Revenue.

XII.D. Vehicle owners participating in the Clean Screen Program are not subject to the provisions of Part C, Sections I. through XI.

XII.E. Certification of Emissions Control.

In order to obtain a Certificate of Emissions Control the following conditions must be met:

XII.E.1. The vehicle emissions levels are the same as or less than the limits specified in Part F, Section VI.

XII.E.2. The most recent two consecutive emissions readings were observed within twelve months of the registration renewal date.

XII.E.3. No non-complying emissions readings are observed between or subsequent to the last pair of complying readings.

XII.E.4. For vehicles that are identified as low emitters on the low emitting index the most recent emission reading was observed within 12-months of the registration renewal date. For these vehicles, identification as a low emitter on the low emitting vehicle index shall take the place of the second remote sensing reading otherwise required under Section XII.E.2., above.

PART D Qualification and Licensing of Emissions Mechanics, Emissions Inspectors, and Clean Screen Inspectors; Licensing of Emissions Inspection and Readjustment Stations, Inspection-Only Stations, Inspection-Only Facilities, Fleets, Motor Vehicle Dealer Test Facilities, Enhanced Inspection Centers; Qualification of Clean Screen Inspection Sites; and Registration of Emissions Related Repair Facilities and Technicians

I. LICENSING OF EMISSIONS INSPECTION AND READJUSTMENT STATIONS, INSPECTION-ONLY STATIONS, INSPECTION-ONLY FACILITIES, ENHANCED INSPECTION CENTERS, FLEET INSPECTION STATIONS AND MOTOR VEHICLE DEALER TEST FACILITIES

I.A. Emissions Site Requirements for the Licensing of Emissions Inspection and Readjustment Stations, Inspection-Only Stations, Inspection-Only Facilities, Fleet Inspection Stations and Motor Vehicle Dealer Test Facilities:

I.A.1. Applicability

All emissions inspection and readjustment stations, inspection-only stations, inspection-only facilities, fleet inspection stations, and motor vehicle dealer test facilities are required to meet all applicable standards pursuant to this Part D and the Department of Revenue's adopted regulations in order to qualify for licensing for operation in Colorado's AIR Program.

To achieve the uniformity and security needed in test site locations; in order to meet federal EPA regulations contained in Federal Register vol. 57, Number 215, of the Federal Register and meet the statutory requirements contained in Sections 42-4-301 through 42-4-316, C.R.S.; the Air Quality Control Commission adopts this standard for emissions site requirements.

I.A.2. Standards for emissions inspection sites:

I.A.2.a. All facilities shall be a permanent type of structure.

I.A.2.b. All sites must be capable of receiving mail.

I.A.2.c. All test facilities shall have a minimum of two off-street parking spaces for staging to accommodate additional vehicles.

I.A.2.d. All test site facilities shall have a customer waiting area that provides for observation of the entire emissions inspection process. Observation can be, direct observation, observation by electronic equipment, or other methods that prove to be as effective with prior approval of the Department of Revenue.

I.A.2.e. All test sites shall be capable of conducting all aspects of the inspection process within the confines of a building or structure, and maintaining ambient air temperatures between 41 degrees and 110 degrees Fahrenheit in the inspection area as defined in Section I. C. 1. of Part C of this regulation. Inspections are not required to be performed within the confines of a structure or building provided ambient temperatures are within such parameters.

I.A.2.f. All test site facilities shall have an adequate exhaust removal system which shall be designed so as to not alter the inspection results and to assure safe ambient air quality of the inspection area as established by the Occupational Safety and Health Administration pursuant to 29 CFR, Part 1910, Subpart Z.

- I.A.3. Pursuant to Sections 42-4-306(4)(a) and 42-4-307 (8)(a), C.R.S. as amended, the Division shall develop or contract for the development of a training program for emissions mechanics and emissions inspectors. The training program shall be comprehensive in nature and address all aspects of vehicle inspection procedures specified for this regulation.
 - I.A.3.a. Participation by emissions inspectors intending to operate in the enhanced program area shall be required.
 - I.A.3.b. Participation by emissions mechanics intending to operate in the basic program area shall be voluntary.
 - I.A.3.c. Training classes shall be funded by tuition charged to the participants.
 - I.A.3.d. The following tuition rates and fees shall apply
 - I.A.3.d.(1) The training class fee shall be no greater than \$150 per participant.
 - I.A.3.d.(2) The instructor's fee for presenting a class shall not exceed \$400.
 - I.A.3.d.(3) The training manual for those emissions mechanics who choose not to participate in a training class shall be no greater than \$25.
 - I.A.3.e. These same training provisions shall be applicable to the requalification provisions of Section II.B. of this Part D.
- I.B. The following tools, reference manuals and diagnostic equipment shall be available for performance of inspections; and within the basic program, emissions related adjustments and repairs.
 - I.B.1. Division approved calibrated and spanned Test Analyzer System (TAS) or On-Board Diagnostic Test Analyzer System (OBD TAS).
 - I.B.1.a. As a provision of continued license to perform AIR Program inspections, the TAS must be updated as required, pursuant to this regulation.
 - I.B.1.b. The station or facility owner or operator shall maintain a full service/maintenance contract with the equipment manufacturer or equipment manufacturer's designee valid for the duration of the program but renewable on an annual basis
 - I.B.2. Rules for the operation of AIR Program inspection stations provided by the Colorado Department of Revenue.
 - I.B.3. Tachometer capable of reading 4,6 and 8 cylinders, 0-6,000 RPM minimum at no greater than 10 RPM of actual speed.
 - I.B.4. Emissions control systems applications guide as incorporated into the TAS, and oxygen sensor/check engine light, systems maintenance guide in either printed or electronic medium.

- I.B.5. Commercially available reference manuals giving idle speed, idle mixture, mixture control dwell or fuel injection duration, timing, dwell, fast idle speed specification, high altitude specifications and information covering the emissions control systems description, diagnostic and repair procedures for the year models of vehicles involved in the AIR Program. In either printed or electronic medium.
- I.B.6. Sufficient hand tools including but not limited to suitable computer scanner diagnostic link, digital volt/ohm meter, vacuum pump and other automotive diagnostic equipment for proper performance of the inspections, adjustments and emissions related repairs as applicable to the licensed entity.
- I.B.7. Division approved span gas and equipment for performing gas span checks and calibrations.
- I.B.8. Suitable non-reactive tail pipe extenders or probe adapter for inspecting vehicles with screened or baffled exhaust systems, or exhaust systems with multiple tail pipes.
- I.B.9. The analyzer manufacturer's maintenance and calibration manual must be retained in the inspection area.
- I.B.10. Items #5 and 6 above are not required for licensing as an inspection-only station or inspection-only facility.
- I.C. A licensed emissions mechanic or emissions inspector who has successfully completed a hands-on proficiency check administered by the Department of Revenue in accord with the Commission regulations and those of the Department of Revenue, and the criteria specified in Part D of this regulation is or will be available to make a proper inspection. Enhanced inspection centers shall be open 8:30 am - 7:30 p.m. weekdays, and Saturday 8:00 a.m. - 1:00 p.m.
- I.D. An emissions inspection-only station and inspection-only facility, must so indicate same by posting a sign in a readily visible location, and that no emissions related adjustments or repair services are available should the vehicle fail the inspection procedure.
- I.E. A person to whom there are twenty (20) or more vehicles registered, or to whom said number of vehicles are leased for not less than six continuous months, or are consigned for sale, may be licensed as a "fleet inspection station" or as a dealer licensed under Article 6 of Title 12, C.R.S., a motor vehicle dealers test facility and conduct inspections of that fleet or those vehicles inventoried or consigned for retail sale. As a fleet inspection station or motor vehicle dealer test facility, no inspections may be conducted for the employees or general public, but only on vehicles owned, leased by the business, or consigned or held in inventory for sale. A Certificate of Emissions Control issued by a fleet emissions inspection station will be valid for 12 months, one vehicle registration cycle.
 - I.E.1. Under the self-inspection provisions of Section 42-4-309, C.R.S. for fleets of twenty (20) or more vehicles, the retail sale of a fleet vehicle within the enhanced program area requires full compliance with applicable inspection procedures as performed by an enhanced inspection center or an (enhanced) inspection-only facility.
 - I.E.2. At the time of initial licensing and annually thereafter, the vehicle fleet shall be declared by completing a listing of all eligible vehicles by make, model year, light-heavy duty classification, vehicle identification number, license plate number, and if applicable unit number and state of registration on forms provided by the Division.

- I.F. All AIR Program inspection stations, facilities and centers are required to post in a conspicuous location in a clearly legible fashion a sign indicating the fees charged for inspections and in the basic program area, and maximum fees for emissions related adjustments and repairs required for the issuance of a Certificate of Emissions Control.
- I.G. All AIR Program inspection stations, facilities and centers are required to be linked via dedicated service line to the program data/communications network.
 - I.G.1. Basic program inspection services providers and independent inspection-only facilities in the enhanced area shall be linked to the data network via dedicated voice quality telephone lines with a dial-up back-up telephone line.
 - I.G.2. Enhanced inspection centers shall be linked via dedicated data quality lines with dedicated voice quality lines as dial-up back-up.
- I.H. All sites must provide for reasonable access in order for Departments of Revenue (or if applicable, Health) staff to conduct periodic quality control and audit functions as necessary.
- I.I. Upon request for a license as an emissions inspection and readjustment station, inspection-only station, fleet inspection station, motor vehicle dealer test facility, or inspection-only facility, applicants shall complete forms approved by the Department of Revenue which shall include but not be limited to a declaration of any past violations of AIR Program statute Section 42-4-301 through 42-4-316, C.R.S. as amended or any rule or regulation pursuant to such law.

II. QUALIFICATION AND LICENSING OF EMISSIONS MECHANICS AND EMISSIONS INSPECTORS

II.A. Qualification of Emissions Mechanics and Emissions Inspectors

- II.A.1. Application for qualification as an emissions mechanic and emissions inspector shall be filed with the Air Pollution Control Division. The Division shall administer issuance of letters of qualification. Applications for such letters of qualification shall be completed on forms provided by the Division. Before an applicant may be given a letter of qualification, he must comply with the requirements of this Section II. The Division will notify applicants of the evaluation requirements prior to testing.
- II.A.2. An applicant must demonstrate knowledge, skill, and competence concerning the conduct of emissions inspections, and within the basic program area the adjustment and repair of vehicles to manufacturers' specifications. Such knowledge, skill and competence will be shown by passing a written and skills proficiency qualification test including, but not limited to, knowledge of the following:
 - II.A.2.a. Operation and purpose of emissions control systems.
 - II.A.2.b. Relationship of exhaust and evaporative HC and CO to timing and air/fuel ratio control.
 - II.A.2.c. Adjustment and repair to manufacturers' and applicable high altitude specifications.
 - II.A.2.d. Rules and regulations of AIR Program and proper inspection procedures.
 - II.A.2.e. Contemporary diagnostic and engine tune-up procedures.

- II.A.2.f. The provisions of the Emissions Control Systems Performance Warranty pursuant to Section 207 (A) and (b) of the federal Clean Air Act as it applies to the AIR Program.
- II.A.2.g. Visual inspection of the required emissions control equipment for 1975 and newer vehicles.
- II.A.2.h. Operation of and proper use, care maintenance, calibration and gas span checking of the Division-approved inspection equipment.
- II.A.2.i. Proper use of, security, and distribution of inspection forms, Certificates of Emissions Control, and supplemental inspection documents.
- II.A.2.j. Emissions related adjustment and repair requirements for all vehicles failing the initial emissions inspection.
- II.A.2.k. Inspecting for visible smoke emissions.
- II.A.2.l. (Reserved)
- II.A.2.m. Cause and effect of air pollution.
- II.A.2.n. Purpose, goal and function of the AIR Program.
- II.A.2.o. Exhaust and evaporative emissions inspection procedures and rationale for use.
- II.A.2.p. Public relations and motorist assistance.
- II.A.2.q. Safety procedures in the inspection lane or bay.

II.B. Requalification Requirements for all Emissions Mechanics and Emissions Inspectors

- II.B.1. Upon the determination by the Commission of the necessity of technically updating the qualifications for emissions mechanics or emissions inspectors and, upon development or approval of retraining courses and retesting requirements for emissions mechanics to demonstrate said qualification, emissions mechanics, or holders of certificates of qualification, shall be required to requalify biennially.
- II.B.2. Emissions mechanics and emissions inspectors shall be required to requalify within ninety days from the date of written notification by the Department of Revenue. Said notice shall be mailed to the address of record in the office of the Department of Revenue charged with licensing of emissions mechanics and inspectors, which notice shall inform the person of the necessity of requalification and the nature of such skills, systems, and procedures requiring the retraining for the continued performance of the emissions inspection. The notice shall give the name and location of training sources approved or accredited for purposes of retraining, the necessity of requalification by a certain date, and the nature and evidence of documentation to be filed with the Department of Revenue evidencing such requalification, and state that failure to requalify within said period of time shall result in suspension or revocation of the emissions mechanic's or emissions inspector's license or certification as described in the Department of Revenue rules and regulations.
- II.B.3. The Division shall issue a letter of requalification to any person who has requalified to the satisfaction of the Division and according to the requalification regulation of the Department of Revenue.

II.C. Transmittal of Letters of Qualification and Issuance of Emissions Mechanic's and Emissions Inspector's Licenses

The Division shall provide a listing of all letters of qualification or letters of requalification for emissions mechanics or emissions inspectors to the Department of Revenue, and, upon application by any person qualified, the Department of Revenue shall issue an emissions mechanic's or emissions inspector's license or renewal license in accord with the regulations of that department.

II.D. Lapse of Certificate of Qualification for Emission Mechanic.

A person to whom the Division has issued a letter of qualification, who has not been issued an emissions mechanic's or emissions inspector's license within six (6) months from the date of issuance of the most recently issued letter of qualification shall be deemed to have forfeited said qualification and shall be required to reapply if a new letter of qualification is requested.

II.E. Program License Application Performance Review Criteria

II.E.1. Applicability

Pursuant to Sections 42-4-306(4)(c) and 42-4-308(1)(b), C.R.S. the Commission is authorized to establish minimum performance criteria for licensed emissions inspectors, mechanics, and stations. Based on these performance criteria, Section 42-4-312, C.R.S. grants authority to the Executive Director of the Department of Revenue to suspend or revoke a license on a finding of a pattern of violations.

In order to meet federal act requirements and to provide consistent criteria for the Department of Revenue's review of performance based evaluations that may result in a denial of the license application, the Executive Director of the Department of Revenue or the designee shall apply criteria contained in this Section E.

II.E.2. Standards

The following criteria shall be used by the Department of Revenue's Executive Director or his designee in the review of any emissions license application for a mechanic, inspector, inspection and readjustment station, inspection-only station, inspection-only facility, fleet station, or motor vehicle dealer test facility.

Performance

Based on violations and penalties provided in Section 42-4-313(4)(b)(1), C.R.S. the following criteria will be used for the review of any emissions license application listed in this section:

II.E.2.a. Any substantiated violation of intentional passing of a failing vehicle.

II.E.2.b. Any substantiated violation of performance of emissions tests by an unlicensed mechanic, inspector, or station.

II.E.2.c. Any substantiated violation of performance of an emissions test on falsified emissions test equipment.

II.E.2.d. Any substantiated violation of failing of passing vehicles.

- II.E.2.e. Any substantiated violation of flagrant misuse of emissions program control documents.
- II.E.2.f. Any substantiated pattern of non-compliance with AIR Program regulations.
- II.E.2.g. Any substantiated violation of false statements on any emissions license application in an attempt to conceal problems such as: administrative hearings held for program violations, any probation of any emissions license held previously or currently held, any suspension or revocation of any emissions license held previously or currently.

For the purposes of emissions license application review, past performance may entail complete program history review of any person, persons, or officers of a corporation, or partners of any partnership that hold or held a license with the AIR Program.

- II.E.2.h. As a prerequisite to licensing of an emissions mechanic or emissions inspector, a hands-on proficiency check to address the criteria described in Section II. A. 2. of this Part D will be administered by the Department of Revenue in accord with the regulations of the Commission. This evaluation will be conducted at the emissions mechanic's or emissions inspector's place of employment and on an exhaust gas analyzer or test analyzer system that would be used to conduct inspections.

In order to provide for continuity and consistency with training, testing and licensing activities conducted per this Part D, the development and maintenance of the hand-on proficiency check will be coordinated between the Department of Revenue and the Division.

III. REGISTRATION OF EMISSIONS RELATED REPAIR FACILITIES

- III.A. Automotive Emissions Related Repair Facilities May Voluntarily Register with the Division.
 - III.A.1. The repair facility/technicians agree to have the effectiveness of their emissions related repairs and repair costs monitored by the Division on an on-going basis.
 - III.A.2. Repair facility/technicians agree to have repair effectiveness listing provided to those motorists whose vehicles fail any element of the inspection procedures specified in Part C of this regulation.
 - III.A.3. The facility shall complete and process AIR Program repair report forms as approved by the Division. Repair report form processing equipment may incorporate PC based bar code technology such that one-dimensional "3 of 9" and two dimensional "PDF 417" symbology can be read and written. The system must be capable of supporting form generation software provided by the state. The printer shall be an ink jet printer or equivalent capable of printing the bar code symbology stated. Refer to Section 2.14 of the TAS specifications attached as Appendix A of this regulation for microcomputers specifications. The Division shall determine performance equivalence.
- III.B. As an aid to motorists seeking emissions related repair assistance, a means will be established whereby a listing of registered repair facilities whose repair effectiveness would be made available and presented to the motorist at the time of inspection failure. Repair effectiveness shall include but may not be limited to:
 - a. Number of vehicles repaired and retested

- b. Percent passing on first retest
- c. Percent requiring additional repairs and retests
- d. Percent issued waivers

The listing shall document any recognized professional automotive accreditation or memberships that may include but not be limited to the National Institute for Automotive Service Excellence, or Automotive Service Association. The listing may also indicate the vehicle make(s) or vehicle classification that the repair facility specializes in.

III.C. Repair facilities may request removal from the listing or temporary placement on an inactive listing while measures are being taken to improve repair effectiveness.

III.D. It is further suggested that:

III.D.1. The repair facility/technicians will seek out appropriate training when repair effectiveness deficiencies are identified.

III.D.2. Repair facilities will hire and retain technicians certified under "Automotive Service Excellence" tests number A-1, A-6, A-8, and L-1 and that technicians will maintain these levels of certifications.

III.D.3. That the repair facility be adequately equipped and maintain a level of diagnostic and repair equipment necessary to perform emissions related repairs based upon the criteria set forth by the Automotive Service Association of Colorado, Incorporated.

III.D.4. The Department of Revenue performs a site evaluation of facilities that apply to assess compliance and confirm qualifications.

III.D.5. The facility has or could comply with the provisions established in Part D of this regulation and have not been subject to the penalties prescribed by Section 42-9-111, C.R.S.

III.E. The Division will monitor and periodically report to individual repair facilities their repair effectiveness and average costs as compared to other registered repair facilities.

III.F. The Division shall make repair effectiveness data available to the general public upon request as well as periodically to the Department of Revenue.

III.G. The Division may request a site evaluation of any registered repair facility by the Department of Revenue for reasons of diminished repair effectiveness or noted consumer complaints.

III.H. The Division shall identify the level(s) of repair effectiveness that would result in inadequate emission(s) reductions and negatively impact consumer protection.

IV. REQUIREMENTS FOR CLEAN SCREEN/REMOTE SENSING SITES

IV.A. Applicability

Clean Screen Inspection Sites must meet all applicable standards pursuant to this Part D and the Department of Revenue's regulations in order to qualify for operating in Colorado's Clean Screen Program.

IV.B. Standards for emissions inspection sites

All sites shall comply with all applicable state and local codes/ordinances and maintain appropriate permits for that specific municipality and location.

IV.C. All Clean Screen Sites must provide reasonable access in order for Department of Revenue (and if applicable, Division) staff to conduct periodic quality control and audit functions as necessary.

IV.D. Applicants for a license as a Clean Screen Emissions Inspector shall complete forms approved by the Department of Revenue which shall include, but not be limited to, a declaration of any past violations of AIR Program statute Sections 42-4-301 through 42-4-316, C.R.S., as amended or any rule or regulation pursuant to such law.

IV.E. A Clean Screen Inspection Site where two consecutive emissions readings collected at the same location on the same day may be used, must meet site criteria for same-day remote sensing devices established by the Division, and as licensed by the Department of Revenue.

V. QUALIFICATION OF CLEAN SCREEN EMISSIONS INSPECTORS

V.A. Clean Screen Emissions Inspector applicants shall apply for letters of qualification on forms provided by the Division. The Division shall issue letters of qualification to applicants who comply with the requirements of this Section V. The Division will notify applicants of the evaluation requirements specified in Part D, Section V.B. prior to testing.

V.B. An applicant for a letter of qualification or requalification must demonstrate knowledge, skill, and competence concerning the operation of Clean Screen emissions inspections. Such knowledge, skill and competence will be demonstrated on actual Clean Screen equipment and by passing a skills proficiency qualification test including, but not limited to, knowledge of the following:

V.B.1. Operation of and proper use, care, maintenance, calibration and gas span checking of the Division-approved Clean Screen Test Analyzer System.

V.B.2. Safety procedures for the Clean Screen Inspection Site.

V.B.3. Proper setup and breakdown of the Clean Screen equipment

VI. REQUALIFICATION REQUIREMENTS FOR ALL CLEAN SCREEN EMISSIONS INSPECTORS

VI.A. Upon the determination by the Division of the necessity of updating the technical qualifications for Clean Screen Emissions Inspectors, holders of certificates of qualification shall be required to requalify biannually. The Division may waive this requirement should it be unnecessary.

VI.B. Clean Screen Emissions Inspectors shall be required to requalify within ninety days from the date of electronic notification by the Department of Revenue.

VI.C. The Division shall issue a letter of requalification to any licensed Clean Screen Emissions Inspector who meets the requirements of Section Part D, Section V.B.

VII. TRANSMITTAL OF LETTERS OF QUALIFICATION AND ISSUANCE OF CLEAN SCREEN INSPECTOR LICENSES

The Division shall provide a listing of all letters of qualification or letters of requalification for Clean Screen Inspectors to the Department of Revenue, and upon application by any person qualified, the Department of Revenue may issue a Clean Screen Inspector's license or renewal license in accordance with the regulations of that department.

VIII. LAPSE OF CERTIFICATE OF QUALIFICATION FOR CLEAN SCREEN INSPECTOR

A person to whom the Division has issued a letter of qualification, who has not been issued a Clean Screen Inspector license within six (6) months from the date of issuance of the most recently issued letter of qualification shall be deemed to have forfeited said qualification and shall be required to reapply if a new letter of qualification is requested.

IX. PROGRAM LICENSE APPLICATION PERFORMANCE REVIEW CRITERIA

IX.A. Applicability

Pursuant to Sections 42-4-306(4)(c) and 42-4-308(1)(b), C.R.S., the Commission is authorized to establish minimum performance criteria for licensed Clean Screen Inspectors and Data Management Contractor(s). Based on these performance criteria, Section 42-4-312, C.R.S., grants authority to the executive director of the Department of Revenue to suspend or revoke a license.

In order to provide consistent criteria for the Department of Revenue's review of performance based evaluations that may result in a denial of a license application, or revocation of a license, the executive director of the Department of Revenue or the designee shall apply criteria contained in Sections IV through VII of this Part D.

IX.B. Requirements

The Department of Revenue's executive director or his designee in the review of any emissions license application shall use the following criteria for a Clean Screen Inspector, or Clean Screen Data Manager.

Performance

Based on violations and penalties provided in Section 42-4-313(4)(b)(1), C.R.S., the following criteria will be used for the review of any license application listed in the section:

- IX.B.1. Any violation of intentional passing of a failing vehicle.
- IX.B.2. Any violation of performance of Clean Screen inspections by an unlicensed inspector, or at an unapproved/unlicensed site.
- IX.B.3. Any violation of performance of a Clean Screen inspection on a falsified Clean Screened Test Analyzer System.
- IX.B.4. Any violation of flagrant misuse of Clean Screen inspection data, control documents, vehicle owner information, or vehicle registration data.
- IX.B.5. Any pattern of non-compliance with AIR Program regulations, including Clean Screen provisions.
- IX.B.6. Any violation of false statements on any license application.

- IX.B.7. As a prerequisite to licensing of a Clean Screen Inspector, a hands-on proficiency check to address the criteria described in Section V of this Part D will be administered by the Department of Revenue in accord with the regulations of the Commission. This evaluation will be conducted at a mutually agreed upon location and on an approved Clean Screen Test Analyzer System that would be used to conduct inspections.

In order to provide for continuity and consistency with qualifying and licensing activities conducted per this Part D, the development and maintenance of the hands-on proficiency check will be coordinated between the Department of Revenue and the Division.

PART E Prohibited Acts and Penalties to Ensure Proper Inspection Procedures, Adherence to Prescribed Procedures and Effective Emissions Related Repairs

I. THIS PART E DESCRIBES THE GROUNDS UPON WHICH THE LICENSE OF AN EMISSIONS MECHANIC, EMISSIONS INSPECTOR OR ANY TYPE OF AIR PROGRAM INSPECTION BUSINESS MAY BE SUSPENDED, FOR A PERIOD OF TIME NOT LESS THAN Six MONTHS, OR REVOKED.

I.A. Pattern of Violations

The license of an emissions mechanic, emissions inspector, inspections and readjustment station, inspection-only station, inspection-only facility, fleet inspection facility, motor vehicle dealer test facility, or contractor's contract may be revoked or suspended, as appropriate pursuant to Sections 42-4-312 and, 42-4-313, C.R.S., if such mechanic, inspector or facility has engaged in a pattern of violations of the provisions of this Regulation Number 11, or other applicable statutes or regulations, including, but not limited to:

- I.A.1. AIR Program inspection business, and/or emissions inspector or emissions mechanic is involved in any unauthorized entry into the analyzer or inspection system that result in a fraudulent inspection report and/or emissions certificate being issued.
- I.A.2. AIR Program inspection business, and/or emissions inspector or emissions mechanic caused an inspection report and/or emissions certificate to be issued to a vehicle that did not at the time of issue comply with the laws, rules or regulations.
- I.A.3. AIR Program inspection business, and/or emissions inspector or emissions mechanic makes, issues, or knowingly uses any imitation or deceptively similar or counterfeit inspection report and/or emissions certificate.
- I.A.4. AIR Program inspection business, and/or emissions inspector or emissions mechanic possesses an inspection report and/or emissions certificate which is known to be fictitious, or was issued for another vehicle, or was issued without an emissions inspection test having been performed when required.
- I.A.5. Exercising licensing privilege other than those granted by the Department of Revenue and the Commission.
- I.A.6. AIR Program inspection(s) have not or are not being made in accordance with applicable laws and the rules and regulations of the Department or the Commission.
- I.A.7. Vehicles have not or are not being repaired in accordance with applicable laws and the rules and regulations of the Department or the Commission.
- I.A.8. Emissions mechanic or emissions inspector failed to a post-valid license.

- I.A.9. AIR Program inspection business, and/or emissions inspector or emissions mechanic failed to post AIR Program license(s) in a location available and conspicuous to the public.
- I.A.10. AIR Program inspection business, and/or emission inspector or emissions mechanic failed to use the correct inspection report form issued by the Department.
- I.A.11. AIR Program inspection business, and/or emissions inspector or emissions mechanic used an inspection report form for a purpose other than permitted by the Department.
- I.A.12. AIR Program inspection business, and/or emissions inspector or emissions mechanic failed to complete the correct inspection report form or.
- I.A.13. AIR Program inspection business, and/or emissions inspector or emissions mechanic loaned, sold, gave or transferred inspection report forms to another AIR Program inspection business or mechanic.
- I.A.14. Repealed.
- I.A.15. AIR Program inspection business, and/or emissions inspector or emissions mechanic performed air tests with an analyzer or test system that was not certified.
- I.A.16. AIR Program inspection business, and/or emissions inspector or emissions mechanic used span gas that was not approved.
- I.A.17. AIR Program inspection business, and/or emissions inspector or emissions mechanic, failed to have tools, supplies and records available for inspection by the Department of Revenue.
- I.A.18. AIR Program inspection business, and/or emissions inspector or emissions mechanic used "escape" mode in analyzer without valid reason.
- I.A.19. AIR Program inspection business, and/or emissions inspector or emissions mechanic failed to properly identify and record a vehicle that fails the air test.
- I.A.20. AIR Program inspection business, and/or emissions inspector or emissions mechanic failed to properly identify and record a vehicle that passes the emissions inspection.
- I.A.21. AIR Program inspection business, emissions inspector or emissions mechanic falsely reports an (incorrect) vehicle identification number or vehicle information on a DR2411 form supplied by the Department of Revenue.
- I.A.22. AIR Program inspection business, and/or emissions inspector or emissions mechanic performed inspections while under suspension or administrative hold.
- I.A.23. AIR Program inspection business, and/or emissions inspector or emissions mechanic continued using an analyzer knowing it was malfunctioning.
- I.A.24. AIR Program inspection business, emissions inspector or emissions mechanic charged more than posted fee for service.
- I.A.25. AIR Program inspection business, through its agent denied the issue of a vehicle inspection report and/or Certificate of Emissions Compliance when at the time of inspection the vehicle did comply with the laws, rules and regulations for the issuance of such a certificate.

- I.A.26. AIR Program inspection business was not open and available to perform inspection services during normal business hours.
- I.A.27. AIR Program inspection business, through its agent, failed to issue a Certificate of Waiver to a vehicle that met all the requirements.
- I.A.28. AIR Program inspection business, through its agent, issued a Certificate of Waiver to a vehicle that was eligible pursuant to Section 207(b) of the federal Clean Air Act
- I.A.29. AIR Program inspection business, through its agent, performed repairs to the emissions control systems of a vehicle that are eligible for any manufacturer's warranties without informing the owner of said warranties.
- I.A.30. AIR inspection business failed to display all required signs and post fees for inspection services.
- I.A.31. Electrical supply fails to meet voltage and frequency requirements of 110V (\pm) 10% 60HZ, or is not publicly supplied as appropriate to that area.
- I.A.32. AIR Program inspection business, through its agent, performed an inspection when the temperature of the inspection area was not between 41 degrees and 110 degrees Fahrenheit.
- I.A.33. AIR Program inspection business could not account for controlled documents.
- I.A.34. Emissions mechanic or emissions inspector failed to keep their access code secure which resulted in an inspection conducted by an unlicensed person.
- I.A.35. Emissions mechanic or emissions inspector failed to keep his current mailing address on file with the Department of Revenue.
- I.A.36. A licensed emissions mechanic or emissions inspector is not employed at the facility.
- I.B. Conditions Under Which a Station, Facility or Center License may be Denied, Suspended or Revoked.

In addition to the grounds listed in Section A, the license of any inspection and readjustment station, inspection-only station, inspection-only facility, fleet inspection facility, motor vehicle dealer test facility or the Contractor, may be suspended or revoked as appropriate pursuant to Sections 42-4-312 and, 42-4-313, C.R.S. for any of the following violations:

- I.B.1. AIR Program inspection business, and/or its agent have engaged in a pattern of violation of any provision of the applicable laws, rules or regulations.
- I.B.2. AIR Program inspection business, through its agent issued a vehicle inspection report and/or Certificate of Emissions Waiver when at the time of issue the vehicle did not comply with the laws, rules and regulations for the issuance of such a certificate.
- I.B.3. AIR Program inspection business, through its agent issued a vehicle inspection report and/or Certificate of Emissions Control without an air test having been performed.
- I.B.4. Adjustments or repairs were performed when such adjustments or repairs were not authorized or required.
- I.B.5. AIR Program inspection business is not equipped as required.

- I.B.6. AIR Program inspection business was not operating from the location for which the license was issued.
- I.B.7. Emissions mechanic or emissions inspector made false statements on official forms.
- I.B.8. Facilities of applicant for an AIR Program license are not properly equipped for the type of license applied for.
- I.B.9. The AIR Program inspection business flagrantly misuses control documents by committing any of the violations described in Part E, Sections I.A.10 through I.A.14.
- I.B.10. An unlicensed person performed all or any part of an inspection procedure.
- I.B.11. Within the enhanced program area, Motor Vehicle Dealer Test Facility inspections are limited to one per vehicle (consecutively) such that no vehicle shall be inspected twice consecutively. Following an inspection at a Motor Vehicle Dealer Test Facility that vehicle's inspection for the next cycle must be performed in the inspection-only network of enhanced inspection centers or decentralized inspection-only facilities; as applicable to the model year of the vehicle.
- I.C. Conditions Under Which an Emissions Mechanic or Emissions Inspector License may be Denied, Suspended or Revoked.
 - I.C.1. Emissions mechanic or emissions inspector caused a passing Certificate of Emissions Compliance to be issued to a failing vehicle.
 - I.C.2. Emissions mechanic or emissions inspector made false statements on official forms.
 - I.C.3. The emissions inspector or emissions mechanic performed two or more emissions inspections using a test analyzer system that was not updated as required by Part B or Appendix A of this regulation.
- I.D. Any action to suspend or revoke the license for any enhanced emissions center, or to revoke the contractor's agreement pursuant to this Part E, shall be subject to the terms of the agreement entered into pursuant to Section 42-4-304(5), C.R.S.

PART F Maximum Allowable Emissions Limits for Motor Vehicle Exhaust, Evaporative and Visible Emissions for Light-Duty and Heavy-Duty Vehicles

In order for a vehicle (owner) to obtain a Certificate of Emissions Compliance, the exhaust and evaporative emissions from the motor vehicle subject to an EPA approved emissions test as specified in Part C of this regulation may not exceed the applicable maximum concentrations or if applicable, maximum mass for exhaust carbon monoxide (CO), hydrocarbons (HC) and oxides of nitrogen (NO_x); and the integrity requirements specified for fuel evaporation control and visible smoke.

- I. LIGHT-DUTY VEHICLES (INCLUDING LIGHT-DUTY TRUCKS) SUBJECT TO IDLE SHORT TEST(S) FOR ALL VEHICLES OF MODEL YEAR 1981 AND NEWER SUBJECT TO IDLE SHORT TEST(S), THE EMISSIONS CONCENTRATION LIMITS OF THIS SECTION I SHALL ALSO APPLY AT RAISED IDLE SPEEDS AS SPECIFIED IN SECTION II OF PART C OF THIS REGULATION.**

I.A. Maximum Concentration Limits for Light-Duty Vehicles (Includes Light-Duty Trucks)

Model Year	Percent Carbon Monoxide	Parts/million Hydrocarbon
1970 and earlier	3.5	1000
1971	3.0	1000
1972	3.0	1000
1973	3.0	1000
1974	3.0	1000
1975	2.0	600
1976	2.0	600
1977	1.5	400
1978	1.5	400
1979	1.5	400
1980	1.5	400
1981 and newer	1.2	220

II. HEAVY-DUTY VEHICLES (1978 AND EARLIER GREATER THAN 6000 LBS. GVWR) SUBJECT TO IDLE SHORT TEST(S) FOR ALL VEHICLES OF MODEL YEAR 1981 AND NEWER SUBJECT TO IDLE SHORT TEST(S), THE EMISSIONS CONCENTRATION LIMITS OF THIS SECTION II SHALL ALSO APPLY AT RAISED IDLE SPEEDS AS SPECIFIED IN SECTION II OF PART C OF THIS REGULATION.

II.A. Maximum Concentration Limits for Heavy-Duty Vehicles

Model Year	Percent Carbon Monoxide	Parts/million Hydrocarbon
1967 and earlier	7.0	1500
1968	6.5	1200
1969	6.5	1200
1970	5.5	1000
1971	5.5	1000
1972	5.5	1000
1973	5.5	1000
1974	5.5	1000
1975	5.5	1000
1976	5.5	1000
1977	5.5	1000
1978	5.5	1000

Model Year	Percent Carbon Monoxide	Parts/million Hydrocarbon
Heavy-Duty Vehicles (1979 and Newer Greater Than 8500 lbs. GVWR) Subject to Idle Short Test(s)		
1979	4.0	800
1980	3.5	800
1981	3.0	600
1982	3.0	600
1983	3.0	600
1984	3.0	600
1985	3.0	600
1986 and newer	2.0	300

III. TRANSIENT TEST MASS EMISSIONS LIMITS IN GRAMS/MILE (GPM)

III.A. Light-Duty vehicles (Excluding Light-Duty Trucks)

MODEL YEAR	HC	CO	NOx
1982	3.5	45.0	5.0
1983	3.5	30.0	4.5
1984	3.0	30.0	4.5
1985	2.5	20.0	4.5
1986	2.5	20.0	4.5
1987	2.5	20.0	4.0
1988	2.0	20.0	4.0
1989	2.0	20.0	4.0
1990	2.0	20.0	3.5
1991	1.5	20.0	3.5
1992	1.5	15.0	3.5
1993	1.5	15.0	3.5
1994	1.2	15.0	3.0
1995	1.2	15.0	2.5
1996	1.2	15.0	2.0
1997	1.2	15.0	2.0
1998	1.2	15.0	1.5
1999 and newer	1.2	15.0	1.5

III.B. Light-Duty Trucks (equal to or less than 8,500 lbs. G.V.W.R.)

MODEL YEAR	HC	CO	NOx
1982	6.0	65.0	6.0
1983	6.0	65.0	6.0
1984	5.0	55.0	6.0
1985	4.5	45.0	6.0
1986	4.0	40.0	6.0
1987	3.5	30.0	5.5
1988	3.0	25.0	5.0
1989	3.0	25.0	5.0
1990	3.0	25.0	5.0
1991	2.5	25.0	4.5
1992	2.5	25.0	4.5
1993	2.5	25.0	4.5
1994	2.0	20.0	4.0
1995	2.0	20.0	4.0
1996	1.2	15.0	3.5
1997	1.2	15.0	3.0
1998	1.2	15.0	2.5
1999 and newer	1.2	15.0	2.0

IV. EVAPORATIVE EMISSIONS CONTROL STANDARDS

System Integrity - A gas cap integrity check to assess the degree of leakage between the fuel filler neck sealing surface and the gasoline cap sealing surface shall be performed on all model year 1975 and newer vehicles.

IV.A. Pressure decay of the gasoline cap to filler neck sealing surfaces shall not exceed six (6) inches of water over a ten (10) second period, or

- IV.B. The gasoline cap flow rate shall be compared to an orifice with a National Institute of Standards and Technology (NIST) traceable flow rate that will result in a pass/fail flow rate threshold of 60 cc/minute of air at 30 inches of water (column).

V. VISIBLE SMOKE

Vehicles shall not exhibit any continuous gray, blue, blue-black, or black smoke of greater than 5% opacity from the engine crankcase and/or tailpipe(s) during any engine operating condition of applicable inspection procedures.

VI. CLEAN SCREEN PROGRAM MAXIMUM ALLOWABLE EMISSIONS LIMITS

- VI.A. In order to obtain a Certificate of Emissions Control through the Clean Screen Program, vehicles must not exceed maximum emissions concentrations of 0.50 percent carbon monoxide (CO), 1,000 parts per million nitrogen oxides (NO_x), and 200 parts per million hydrocarbon (HC) as reflected in remote sensing emissions readings.
- VI.B. Vehicle owners who participate in the Clean Screen Program shall not be subject to the provisions of this Part F other than this Section VI.
- VI.B.1. On or before July 1st of each year the Air Pollution Control Division shall develop a low emitting vehicle index based on a tabulation of the previous calendar year's inspection program results for specified make, model and model year of vehicles.
- VI.B.2. A passing rate for emissions shall be set as the minimum allowable passing criteria for the low emitting vehicle index.
- VI.B.3. In developing the low emitting vehicle index, the Division may use passing criteria as necessary to ensure that the use of the low emitting vehicle index is equivalent to or better than the use of a second remote sensing measurement in terms of air quality benefits.
- VI.B.4. The passing rate criteria for the low emitting vehicle index shall be submitted to the U.S. EPA on or before July 1 of each year.

VII. ON-BOARD DIAGNOSTIC INSPECTION PASSING CRITERIA

In order for a vehicle (owner) to obtain a certificate of emissions compliance, the results of the OBD inspection as specified in Part C, Section II.C. of this regulation must meet the following requirements:

- VII.A. The data link connector (DLC) is not missing, has not been tampered with, and is operational
- VII.B. The malfunction indicator light (MIL) illuminates when the ignition key is turned to the key on, engine off (KOEO) position.
- VII.C. The MIL extinguishes and remains off once the vehicle's engine is started (KOER).
- VII.D. The MIL status, as indicated by the on-board diagnostic test analyzer system is commanded off.

PART G Reserved

PART H Statements of Basis, Specific Statutory Authority and Purpose

I. AMENDMENTS TO PART A - E

ADOPTED MARCH 21, 1996

The amendments to Regulation Number 11 were adopted by the Air Quality Control Commission (Commission) of the State of Colorado. This Statement of Basis, Specific Statutory Authority and Purpose is required by Sections 24-4-103(4), C.R.S. The specific statutory authority for these changes is Sections 42-4-301 through 42-4-316, C.R.S. (1995 Supplement).

The revisions to Regulation Number 11 address the effects of recodifying Title 42 of Colorado's Revised Statutes. This regulatory action is necessary to correct statutory references within the regulation in order to be consistent with the renumbered statute. The only other change to the rule is to clarify that "licensed emissions inspectors" are eligible to perform an emissions inspection pursuant to Part C, Section I.A. The previous rule referred only to "authorized emissions inspectors". The purpose of this change is to avoid confusion between emissions inspectors authorized to perform an inspection at an enhanced inspection center and emissions inspectors licensed to do so at an inspection-only facility, fleet inspection station, or motor vehicle dealer test facility. This rule amendment does not change the rights or obligations of any person because the term "authorized emissions inspector" has been applied to include "licensed emissions inspectors" for purposes of Part C Section I. A. The specific statutory authority for this rule amendment is set out at Section 42-4-304 (7), C.R.S.

For the reasons noted, the Commission has adopted amendments to Regulation Number 11, Parts A-E. These rule revisions are administrative in nature; do not apply to stationary sources; and will have no regulatory impact on any person, facility or activity. Furthermore, the Commission has no discretion not to adopt the changes to the numbering scheme for the statutory provisions, and these revisions will have no significant fiscal impact. These revisions are not more stringent than the relevant federal requirements.

II. AMENDMENTS TO PARTS A, B, C, F, G, AND APPENDICES A AND B

ADOPTED JULY 17, 1997

The amendments to Regulation Number 11 were adopted by the Air Quality Control Commission (Commission) of the State of Colorado. This Statement of Basis, Specific Statutory Authority and Purpose is required by Sections 24-4-103(4), C.R.S. The specific statutory authority for these changes is Sections 42-4-301 through 42-4-316, C.R.S. (1995 Supplement).

1. Changes to Part A(I) (C) (9) and (11) address statutory amendments to Section 42-4-309 (6) enacted by the 1996 session of the General Assembly which make provision for an inspection voucher system for retail sale of used motor vehicles into the enhanced emissions inspection program area by licensed dealers. The rule revisions ensure that such dealers are not required to have the vehicle inspected prior to the sale provided they comply with the requirements of Section 42-4-309 (6). Furthermore, the revisions allow sellers to have a vehicle inspected up to one hundred twenty days prior to the sale. The specific authority for these changes is set out in Sections 42-4-309 (6) and 42-4-306 (7). This provision is necessary to implement state law, but is not required by federal law. The rule specifically provides that the provisions of 42-4-309 (6) are not federally enforceable, and are not included in the SIP. The Department of Revenue, may however, enforce such requirements, subject to the adoption of any regulations that may be necessary. Such administrative enforcement is necessary to ensure compliance with the statutory requirements. The revisions to Regulation Number 11, Part A(I)(C)(13) make it clear that a vehicle will fail the inspection for purposes of 42-4-309 (6) if the vehicle has any defect that makes it impractical or unsafe to test the vehicle.

2. The revisions to Part A(I)(B) clarify motorist compliance requirements For those persons that live in the basic program area yet commute into and have complied with enhanced program requirements. The specific statutory authority for these changes is set out in Sections 42-4-306 (7) and 42-4-310 (1) (c) (V). This provision is consistent with, and does not exceed, federal requirements.
3. The revisions to Part C (II)(G)(4) make it clear that vehicles with excessively long or short wheelbases, and specially designed vehicles equipped with hand controls or similar apparatus, are exempt from testing on the IM 240 dynamometer. The IM 240 dynamometer system is not designed to handle such vehicles, and the population of such vehicles is so small that this exemption will have no effect on emissions reductions. This provision is consistent with, and does not exceed, federal requirements. The specific statutory authority for this exemption is set out in Section 42-4-306 (6) (d).
4. The revisions to Part C (III) (D) eliminate the previous requirement to repair or replace the catalytic converter and exhaust gas oxygen sensor if the fuel inlet restrictor has become enlarged. Leaded fuels, which damaged these components, have not been available for several years and this rule is no longer necessary. This provision is consistent with, and does not exceed, federal requirements. The specific statutory authority for this exemption is set out at Section 42-4-306 (6) (a).
5. The revisions to Part C (XI) allow inspection stations to use vehicle identification numbers (VINs) issued by kit car manufacturers and by other states. The rule previously required inspection stations to use a VIN assigned by Colorado for kit cars, custom cars and home-built vehicles. Under the previous rule, such specialized vehicles were often required to comply with inspection criteria applicable to later model vehicles. As a result the inspection criteria were unreasonably stringent. This change will ensure that vehicles are inspected pursuant to the appropriate procedure. This provision is consistent with, and does not exceed, federal requirements. The specific statutory authority for this provision is set out at Section 42-4-306 (6).
6. The revisions to Parts C (IV) and F (IV) provide a pressure integrity or leak check for gas caps in order to reduce emissions of volatile organic compounds, an ozone precursor. The gas cap pressure check requirements is based on established demonstrated methodologies, and will provide an estimated 40% reduction in VOC, an ozone precursor, to escape into the atmosphere. Such evidence supports the finding that the rule will result in a demonstrable reduction in air pollution. Because the Denver area is in the inspection and maintenance program due to carbon monoxide, rather than ozone problems, federal law does not require such a pressure check. The state did not take credit for such a pressure check in the maintenance plan for ozone, and associated redesignation request, recently adopted by the AQCC. Therefore, this provision is not required by federal law, and will not be incorporated into the State implementation Plan. An evaporative emissions inspection procedure is required pursuant to Sections 42-4-310 (2) (a) and 42-4-306 (6) (a), C.R.S. for those vehicles inspected in the metro Denver enhanced program area.
7. The revisions to Part B (IV)(B&C), (VI)(C&D) and Appendix B propose standards and specifications consistent with EPA and recognized industry standards for the manufacturer and "naming" of precision calibration gases for use in test analyzer systems. Consistent protocol reduces the burden to the gas manufacturer, those regulated parties that are end users of the calibration gases, and improve overall quality control. Additionally, revisions to Appendix B address specific program administrative needs such as the bar code tracking system necessary for tracking certified test analyzer system gases which have been placed into service. The revisions to Appendix B are consistent with guidance documents issued by EPA. Federal law requires span gases to be accurate within a tolerance of 2%, but federal law does not specifically require the state to establish requirements for manufacturers. Therefore, the requirements set out in Appendix B shall not be included in the SIP, and shall not be federally enforceable. The specific statutory authority for this action is Section 42-4-306 (3)(a)(I).

8. The revisions to Appendix A, attachment III establish equipment design and performance specifications for a "Motor Vehicle Dealer Transient Mode Test Analyzer System (IG 240)" to be used at Motor Vehicle Dealer Test Facilities (MVDTFs). Equipment that meets these specifications will allow MVDTFs to conduct emissions inspections on their used vehicle inventory prior to its retail sale. This provision provides increased convenience and reduced costs for affected automobile dealers that currently utilize the contractor operated IM 240 system in the enhanced program area. Use of this system is not mandated. Federal law does not require specifications for an IG 240, and the state did not take credit for inspections conducted at the time of sale or transfer of used vehicles sold by motor vehicle dealers. Therefore, the specifications applicable to MVDTFs and the IG 240 are not included in the SIP. The specific statutory authority for this revision is Sections 42-4-304 (19) and 42-4-306 (3)(a)(I)(A-C).
9. Revisions to Part A(I)(9) delete the present exemption that vehicles sold as "tow-away" by licensed dealers are not required to comply with applicable emissions inspection requirements at the time of sale. The proposal would eliminate present confusion within the regulated community. Part A (I)(9) is now consistent with Section 42-4-309(3)(a). The Commission is not required to create a specific exemption for tow-away vehicles and therefore has the authority to remove the existing exemption. Additional statutory authority is set out at Sections 42-4-306 (1) and 42-4-309 (3)(A).

The Department of Revenue is the state agency charged with the regulation of motor vehicle dealers, and for the titling and registration of motor vehicles. The tow-away exemption has hampered the Department of Revenue's enforcement actions. Therefore, the Commission is repealing this exemption and deferring this issue to the Department of Revenue. The Department of Revenue should handle this issue through rule making or otherwise, as appropriate.

10. Revisions to Part A (V) amends the notice to interested parties that materials incorporated into the rule by reference may be examined at any state publications depository library, as required by Section 42-4-103 (12.5)(d). The revision expands the text of the existing notice of availability to be consistent with prescriptive state requirements.

For the reason noted, the Commission has adopted amendments to Regulation Number 11, Parts A, B, C, F, G and Appendices A and B. Revisions implement and/or clarify statutory provisions for the vehicle emissions inspection program pursuant to Sections 42-4-301 through 42-4-316, C.R.S. Rule revisions amend existing inspection procedures consistent with State Implementation Plan commitments.

III. REVISIONS TO PART C (VIII) AND PART F (III)

ADOPTED NOVEMBER 19, 1998

Basis and Purpose

The November 19, 1998 revisions to regulations Part C (VIII) (b.4) (b.5) and (c.-g.) reinstate, with some minor clarifications, text addressing compliance waivers and related inspection provisions regarding specific circumstances involving certain participating motorists and the repair of vehicles that had failed one or more emissions inspections. This text was inadvertently omitted during the last publication of the regulation, August 1997. The omitted text was initially adopted by the Commission immediately prior to implementing the improved basic program and enhanced inspection and maintenance program January 1995, pursuant to Sections 42-4-301 through 42-4-316, C.R.S. (1998). Reinstating this text results in the regulation being consistent with state statute and the federal program. The November 19, 1998 revisions to regulations Part F (III) reconcile the emissions limits used by enhanced inspection centers for motor vehicle emissions inspections with the emissions limits that were used for purposes of demonstrating attainment of the National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO) and for particulate matter less than ten microns in diameter (PM10). The rule change only applies to the enhanced emissions program and only affects the standards used for testing 1982 and newer vehicles.

The emissions limits adopted by the Commission are more stringent than the emissions limits that were being implemented prior to the hearing, but are less stringent than the emissions limits that were scheduled to take effect on January 1, 1999 under the previous version of Regulation Number 11.

The emissions limits adopted by the Commission must go into effect by the end of December 1998 in order to comply with the minimum federal requirement to show attainment of the NAAQS for CO by December 31, 2000.

The emissions limits contained in the previous rule for 1999 and beyond were more stringent than necessary to comply with federal law and were so stringent that many vehicles would not be able to comply with the standards even when repaired. Such emissions limits were based on EPA guidance issued in 1993. Experience with the program since then has demonstrated that such standards are unreasonable.

Federal Requirements

There are several federal requirements that are relevant to the emissions limits used in the AIR Program. 40 CFR Part 51 establishes specific emissions limits for the AIR Program. In addition, the AIR Program was used to demonstrate attainment of the NAAQS for CO and PM10. Therefore, the emissions limits must be included as enforceable control measures in the State Implementation Plan.

For purposes of CO, 40 CFR Section 51.351 requires the AIR Program to achieve at least as much reduction in fleet emissions, measured in grams per mile, as the model federal program. The modeling results that were used to demonstrate compliance with the requirements of 40 CFR Part 51 were also used to demonstrate attainment of the NAAQS for CO in the Denver CO SIP. The emissions limits for CO and hydrocarbons implement the assumptions that were made in the modeling to show compliance with 40 CFR 51.351 and to show attainment of the CO NAAQS. The emissions limits for hydrocarbons are a necessary component of an effective CO control program and, therefore, are being included in the State Implementation Plan.

The emissions limits for NOx for the years 1999 through 2014 established in the rule are necessary to achieve the NOx reductions that were assumed for the AIR Program in the Denver PM10 SIP. Thus, such emissions limits are necessary to implement the control measures contained in the Denver PM10 SIP as required by federal law.

For the foregoing reasons, the Commission concludes that the emissions limits in Regulation Number 11 for the years 1999 through 2014 are necessary to comply with federal law and do not otherwise exceed the minimum federal requirements. However, the rule revision also includes an emissions limit for NOx for the year 2015 and beyond that is more stringent than the minimum federal requirements. Such more stringent NOx limit is necessary beginning in the year 2015 in order for the Denver Regional Council of Governments (DRCOG) to demonstrate that the transportation network for the Denver metropolitan area will remain below the emissions budget for NOx in the State Implementation Plan. Pursuant to federal law, the Commission must adopt such a control measure before DRCOG makes its conformity determination. 40 CFR 93.122(a)(3)(I). However, federal law does not require the more stringent emissions limit for NOx to be included in the State Implementation Plan. Therefore, the emissions limit for NOx established in Part F, Sections III.A.2 and III.B.2 shall not be included in the State Implementation Plan.

Statutory Authority

The specific statutory authority for the adoption of emissions limits for carbon monoxide, hydrocarbons and oxides of nitrogen is set out at Section 42-4-306(6), C.R.S. (1998).

Effective date of rule changes

Pursuant to Section 24-4-103(5), C.R.S. (1998), the standards or cut-points established by the Commission on November 19, 1998 shall take effect on December 30, 1998; provided the rule revisions are published in the Code of Colorado Regulations on December 10, 1998. Such an effective date is consistent with the relevant SIP demonstrations. For purposes of Section 42-4-306(6)(b)(ii), C.R.S. (1998), the standards established by this rule revision were established on November 19, 1998 even though such standards shall not become effective until December 30, 1998.

Findings pursuant to Section 25-7-110.8. C.R.S. (1998).

The revisions to Regulation Number 11 are based on reasonably available, validated, reviewed and sound scientific methodologies. The Commission has considered all scientific and other information made available by interested parties.

Evidence in the record supports the finding that the revised emissions limits will result in a demonstrable reduction in air pollution when compared to the emissions limits that were in effect prior to the rule change.

The rule adopted by the Commission is the most cost-effective alternative, and will maximize the air quality benefits of the regulation in the most cost-effective manner.

IV. REVISIONS TO PARTS A, B, C, D, AND F

ADOPTED FEBRUARY 19, 1999

Basis and Purpose

The February 19, 1999 revisions implement Sections 42-4-304 through 42-4-307 and 42-4-310, C.R.S. as amended, pursuant to S.B. 98-182. Additionally, the revisions codify the provisions of Sections 42-4-304 and 42-4-310, C.R.S. as amended, pursuant to S.B. 98-182.

Explanation of the Provisions

The revisions implement a "Clean Screen Program" as an operating element of Colorado's AIR Program as established in Sections 42-4-301 through 42-4-316, C.R.S. The Clean Screen Program is designed and intended to improve participating motorist convenience and reduce costs when complying with a periodic inspection requirement. Screening clean vehicles out of the vehicle population subject to inspection requirements reduces the burden of compliance on vehicle owners. One program premise is that these vehicles would have passed a traditional inspection and that air quality would not necessarily benefit from using traditional inspection procedures on these vehicles. Clean Screened vehicles would be exempt from complying with what would normally be mandatory inspection, for one inspection cycle.

Participation by owners of vehicles registered in the program areas specified, i.e., Larimer County and metro Greeley, Weld County as well as by owners of vehicles registered elsewhere but required to obtain a certification of emissions compliance by Section 42-4-310 (l)(c)(I), C.R.S., is voluntary. Provisions within the enabling legislation allow for participation by other program areas or for other areas of the state based upon a request by respective lead air quality planning agencies, and approval by the Commission.

As proposed for implementation in the Larimer County and Weld County program areas, Clean Screening is an appropriate application of remote emissions sensing technology. Based on the Greeley Pilot Study conducted by the Division, implementing this technology as an alternate inspection procedure brings with it an estimated maximum 4-7% loss in emissions reduction compared to traditional inspection procedures. The Environmental Protection Agency's modeling projects a 1% loss. The Commission concludes that this loss of emissions reductions will have no negative impact on compliance with the National Ambient Air Quality Standards for the areas included.

Reducing the number of vehicles seeking an inspection each cycle will reduce business for licensed inspection providers serving these program areas.

The Division is committed to continuously evaluating the performance of the program especially as it pertains to the specific emissions thresholds used in the program, impacts on air quality, and may request the Commission to consider revisions to elements of the program. Additionally, the Division has committed to evaluating the feasibility of low emission(s) profiling as a supplementary inspection criteria to a Clean Screen Program.

Statutory Authority

Sections 42-4-304 through 42-4-307, and Section 42-4-310, C.R.S., as amended, authorize adoption of a Clean Screen Program.

Federal Requirements

There are no specific federal requirements requiring a Clean Screen Program. This program is not a federal mandate. The United States Environmental Protection Agency has published general guidance that is reflected in the revised regulations. A revision of the SIP for the applicable program areas is necessary to reflect the potential emissions reduction impact associated with Clean Screen Program procedures.

Explanation of Additional Revisions to Regulation for February 19, 1999.

The revisions to the regulation also implement the provisions of Sections 42-4-304 and 42-4-310, C.R.S., as amended, pursuant to SB 98-046 as it pertains to the responsibility of compliance with emissions inspection requirements for vehicles in the process of being sold. The provisions require the seller to obtain an emission inspection when the vehicle is operable and can be tested. Where the vehicle is deemed inoperable or otherwise cannot be tested, the seller must provide written notice to the purchaser prior to completion of the sale on specific forms prepared by the Department of Revenue.

Statutory Authority

The specific statutory authority for the provisions discussed above is set out at Sections 42-4-304 and 42-4-310, C.R.S. as amended. The Department of Revenue adopted and implemented regulations to address these provisions. Regulation Number 11 is now consistent with state statute.

Federal Requirements

There are no federal requirements as it pertains to these provisions.

Effective Date of Rule Changes

The effective date for the revisions to Regulation Number 11 shall be April 30, 1999.

V. AMENDMENTS TO PARTS A, C AND F (III)

ADOPTED JANUARY 10, 2000

Basis and Purpose

Regulation Number 11 requires periodic emissions tests for vehicles registered or operating within the program area, which covers most of the Front Range. The purpose of the program is to reduce the amount of carbon monoxide, oxides of nitrogen, and hydrocarbons emitted by automobiles. The purpose of the January 2000 revisions to Regulation Number 11 is to make the program more cost-effective and more convenient for motorists, and to do so in a manner that protects air quality.

This rule revision makes two changes to the motor vehicle emissions inspection program. First, it extends the clean screen program to the Denver metropolitan area. The clean screen program uses remote sensing technology to identify vehicles that do not need to be tested at an emissions inspection station. Beginning in the year 2002, the revised rule will allow a motorist that passes the requisite remote sensing test to obtain a certification of emissions compliance through the mail without taking the vehicle to an inspection station for a test.

Second, the rule-revisions amend the emissions standards for 1996 and later motor vehicles, beginning in the year 2002. The revisions make the standards consistent with the air pollution control technology on new vehicles.

Federal Requirements

The revisions to Regulation Number 11 were developed in conjunction with the redesignation of the Denver metropolitan area as an attainment area for carbon monoxide. Section 175 a of the federal Clean Air Act requires the State to demonstrate that the region will remain within the national ambient air quality standard (NAAQS) for carbon monoxide for ten years after EPA takes action on the maintenance plan. EPA may not take action on the maintenance plan until 2002. Thus, federal law requires the maintenance plan to show compliance with the NAAQS for carbon monoxide through the year 2013.

Air quality analyses performed for the maintenance plan indicate that the region will remain within the NAAQS for carbon monoxide through the year 2010, even with the clean screen program. The tools currently available for predicting air quality in the future suggest, however, that the clean screen program may be inconsistent with maintenance of the NAAQS for carbon monoxide after 2010. The rule revisions provide for the expiration of the clean screen program in the year 2010 in order to demonstrate maintenance of the NAAQS through 2013.

The rule revisions codify the emissions standards that were used to perform the computer modeling to demonstrate maintenance of the NAAQS. In performing the requisite computer modeling, the Air Pollution Control Division (APCD) used emissions standards that are more stringent than appeared in Regulation Number 11 prior to these amendments. The APCD used the more stringent standards in order to maximize the air quality benefits of the program for purposes of the computer model. Although the revisions make more stringent the emissions standards in the rule, the changes do not necessarily make the program as a whole more stringent. This is because, as a practical matter, more stringent standards will automatically apply under pre-existing state and federal law. The federal rules require vehicle manufacturers to equip all 1996 and later light-duty vehicles with on-board diagnostic systems that will cause vehicles with emissions in excess of the revised standards to display fault codes (40 CFR Section 86.094-17). Regulation Number 11 already provides that a vehicle will fail the emissions test if the on-board diagnostic system displays such a fault code (Regulation Number 11, Part C, Section III.C.). The result is that the federal standards for the on-board diagnostic systems (which are more stringent than even the revised standards) already apply as a practical matter. The rule change is necessary to allow the APCD to take credit for more stringent standards when performing the computer modeling exercise. The revision merely make the standards consistent with improved technology that vehicle manufacturers are using to meet the on-board diagnostic requirements and to meet the Tier-1 standards mandated by federal law. The revised standards do not exceed the requirements of federal law.

The air quality impacts of the revisions to Regulation Number 11 were analyzed using the computer models approved by EPA, as is required by federal rules. Regulation Number 11, as revised, is necessary to comply with the requirements of the federal act and is not more stringent than the requirements of the federal act.

Statutory Authority

Specific statutory authority for the extension of the clean screen program to the Denver area is provided in Section 42-4-306(23), C.R.S. (1999). Specific statutory authority to establish emissions standards is provided in Section 42-4-306(6)(a), C.R.S. (1999).

Findings pursuant to Section 25-7-110.8

The primary intent of the January 2000 changes to Regulation Number 11 is to make the motor vehicle emissions inspection program more convenient and less costly, rather than achieving further reductions in emissions of air pollution. In addition, the rules establish more stringent emissions standards for automobiles in order to make the standards consistent with technology mandated by federal law.

The revisions are based on the computer model currently approved by the EPA. The computer model used to develop the revised rule overstates the carbon monoxide problem the Denver area will face in the future. The EPA is currently updating and improving the computer model but the revised computer model has not been approved by EPA and may not be used for federal regulatory purposes. In spite of the problems with the computer model used to develop this regulation, the regulation is based on the most reasonably available, validated, reviewed, and sound scientific methodologies currently available under federal law. All methodologies and information made available by interested parties have been considered.

The alternative chosen by the Commission provides the regulated community flexibility and achieves the necessary reduction in air pollution. The evidence is insufficient for the Commission to determine that the alternative chosen by the Commission is the most cost-effective alternative. The cost analysis developed by the Division indicates that it may be more cost-effective to eliminate the oxygenated fuels program instead of implementing a clean-screen program, but there is considerable uncertainty in that cost estimate. The impact of oxygenates on gasoline prices varies from year to year depending on the cost of ethanol and gasoline. Thus, reducing the oxygen content of gasoline does not ensure lower consumer gasoline prices. The Commission chose the alternative proposed by the Regional Air Quality Council (RAQC) for several reasons. First the RAQC's proposal is a balanced proposal that was developed through an inclusive stakeholder process. Second, it will establish a remote-sensing network, which is a necessary first step to establish a cost-effective high-emitter program in the future. Finally, the selection of a different option could delay the redesignation of the Denver area and would delay any cost-savings associated with such alternative.

VI. AMENDMENTS TO PARTS C AND D

ADOPTED NOVEMBER 16, 2000

Basis and Purpose

This rule revision makes two changes to the motor vehicle emissions inspection program. First, the change to Part C, Section XII.E.2 extends the time period for taking valid emissions readings for purposes of the clean screen program. This section previously required a reading within 90 days of the registration renewal date for the relevant motor vehicle. Since it often takes 90 days just to correlate the data, make the necessary communications and receive payment for the motorist, this time period was too restrictive and made the clean screen program impractical. The time period was extended by a minimum of 30 days to allow more time for emissions readings.

Second, the provision on licensing requirements for clean screen inspectors in Section IX.B.7 erroneously required such inspectors to demonstrate proficiency with the criteria in Section II.A.2 (qualifications for emissions mechanics and emissions inspectors) rather than Section V (qualifications for dean screen inspectors). The rule revision corrects this citation error.

Federal Requirements

The federal act and EPA regulations do not mention clean screen programs. See, 40 CFR Part 51, Subpart S. EPA has, however, developed a draft guidance document that authorizes the use of dean screen programs to exempt certain vehicles from the federally-required automobile inspection program. EPA document 420-P-98-008 (May 1998). The draft guidance document requires two remote-sensing readings, but does not require the readings to be any more recent than twelve months prior to the vehicle's regularly scheduled emissions test.

The clean screen program is voluntary and is designed to reduce the burden of the federally based automobile inspection program described at 40 CFR Part 51, Subpart S. Overall, the dean screen program results in an automobile inspection program that is less stringent than the program described in the federal regulations. Thus, the amendments will result in a motor vehicle inspection program that is less stringent than the program described in the federal regulations, but that requires more recent test results than is required by the draft federal guidance. Because EPA does not expressly require such a cutoff date, the revised rule will not be part of the federally enforceable SIP.

Although not expressly required by draft federal guidance, the requirement for a recent emission reading is necessary and reasonable to ensure that the emission test is representative of vehicle emissions near the time of registration. Motor vehicle emissions deteriorate over time. It follows that emission readings should be considered valid for a limited period of time. The General Assembly intended for 1982 and newer vehicles to be inspected every twenty-four months. Section 42-4-310(1)(b)(II)(C), C.R.S. A vehicle that passes a clean screen test based on a reading taken 120 days prior to the registration renewal date can go twenty-eight months without inspection (or even twenty-nine months if the motorist takes full advantage of the one month grace-period allowed by the Department of Revenue following the registration renewal date). The requirement for an emissions reading within 120 days of the registration renewal date strikes a reasonable balance between the requirement to implement a clean screen program and the legislative intent for emissions tests every two years.

The federal requirements for the licensing or certification of inspectors are set out at 40 CFR 51.367. The criteria established in Regulation Number 11, Part D, Section V are not more stringent than the federal requirements.

Statutory Authority

Specific statutory for the authority to promulgate regulations governing the operation of the clean screen program is set out at 42-4-306(23), C.R.S.

Findings Pursuant to 25-7-110.8. C.R.S.

The primary intent of the November 2000 changes to Regulation Number 11 is not to achieve further reductions in emissions of air pollution, but rather to make more practical the administration of the clean screen program. Thus, the rule revision is administrative in nature.

The expanded time period allows additional time for taking emission measurements, analyzing the data, and communicating with motorist and the Clerk and Recorder. The revision to the time period does not change the standards or technology used in the program. The revision is consistent with all relevant, reasonably available, validated, reviewed, and sound scientific methodologies. All validated, reviewed, and sound scientific methodologies and information made available by interested parties has been considered.

The rule revision makes the dean screen program more cost-effective, provides the contractor and motorists with greater flexibility, will achieve the necessary reduction in air pollution, and will maximize the air quality benefits of the automobile inspection program in the most cost-effective manner.

VII. AMENDMENTS

ADOPTED DECEMBER 20, 2001

Basis and Purpose

The December 2001 revisions to Regulation Number 11 do three things: First, the rule revisions expand the clean screen program to include the enhanced emissions program area. However, the Commission did not, at this time, establish an implementation schedule pursuant to Section 42-3-134, C.R.S. This rule change is necessary to establish the clean screen authority pursuant to Section 42-4-307.5(1), C.R.S. The creation of the clean screen authority is necessary so that the Colorado Department of Revenue may receive and expend funds pursuant to Sections 42-4-307(10.5)(a) and Section 13 of House Bill 2001 - 1402 ("HB1402"). Thus, this portion of the rule change has no regulatory effect other than the creation of the clean screen enterprise. The Commission intends to hold a subsequent rulemaking hearing to establish an implementation schedule.

Second, the rule change excludes the El Paso county portion of the basic emissions program area from the clean screen program pursuant to Section 42-4-306(23)(a), C.R.S.

Third, the revisions conform Regulation Number 11 to the provisions of HB 1402, which repealed the Verification of Emissions Test requirements.

Federal Requirements

Although federal rules establish minimum performance requirements for the basic and enhanced emissions programs, nothing in the federal rules bear directly on the rule changes that were the subject of the December 2001 rulemaking hearing. The revised rule does not exceed the minimum requirements of federal law.

Statutory Authority

The specific statutory authority to expand the clean screen program to enhanced emissions program area is set out at 42-4-306(23)(b), C.R.S. The specific statutory authority to exclude the El Paso county portion of the basic emissions program area from the clean screen program is set out at 42-4-306(23)(a), C.R.S. The statutory authority to conform the Regulation to the applicable statutory provision is set out at 42-4-306(1), C.R.S.

Findings Pursuant to 25-7-110.8, C.R.S.

The requirement for findings set out in Section 25-7-110.8, C.R.S. does not apply to this rulemaking hearing. The creation of the clean screen authority is merely an administrative change; it is not intended to reduce air pollution. Similarly, the exclusion of El Paso County from the clean screen program is exempt from the requirements of 25-7-110.8 because it makes no change to the program applicable in that area because El Paso County was already exempt from the clean screen program. This rule change merely formalizes the area's status in the wake of HB 1402. Finally, the Commission has no discretion concerning the repeal of the provisions related to the verification of emissions tests. For these reasons, 25-7-110.8 does not apply to this matter.

VIII. AMENDMENTS TO PART A

ADOPTED JULY 18, 2002

Basis and Purpose

This rulemaking action removes the Fort Collins area component of the Automobile Inspection and Maintenance Program ("AIR Program") from the State Implementation Plan (SIP), but does not make any change in the state laws implementing the program. This means that the AIR Program will remain in full force and effect under state laws, but it will not be federally enforceable after January 1, 2004. The continuation of the AIR Program as a state-only program will afford the Division and the City of Fort Collins an opportunity to work together to identify feasible options to replace the AIR Program in the Fort Collins area.

The maintenance plan adopted by the Commission in conjunction with these rule changes includes a commitment to begin implementing the AIR Program in the Fort Collins area in the year 2026. Such a commitment is necessary to authorize state and local transportation planning agencies to take emissions reduction credit for such a program when such agencies make transportation conformity determinations 40 CFR 93.122(a)(iii). The Commission intends to reevaluate this commitment when it revises the maintenance plan, as it is required to do within eight years pursuant to as required by 42 USC 750 a (b), and may, in compliance with all applicable state and federal laws, revise the commitment as necessary and appropriate.

Federal Requirements

After January 1, 2004, the basic AIR Program will no longer be necessary to maintain the National Ambient Air Quality Standards for carbon monoxide in the Fort Collins area through the year 2015. Therefore, the program is no longer a federal requirement for the Fort Collins area. The Commission is removing the program from the State Implementation Plan, but is not repealing the program. The basic AIR Program will continue to apply in the Fort Collins area. Thus, the provisions of Regulation Number 11 applicable to motorists registered in the Fort Collins area are not required by federal law and are more stringent than the minimum federal requirements.

IX. AMENDMENTS TO PARTS A AND C

ADOPTED AUGUST 15, 2002

Basis and Purpose

The primary purpose of this rulemaking action is to switch Larimer and Weld counties to a pay-upon-registration system for the Clean Screen Program. The purpose of the Clean Screen Program is to make the Automobile Inspection and Readjustment Program ("the AIR program") more convenient, although not necessarily less expensive. The intent behind the pay-upon-registration system is to make it easier for motorists to pay for dean screen tests. Motorists were previously required to make a separate payment to the contractor by mail before a dean screen test could be used to register a motor vehicle. With the change adopted by the Commission, motorists will be able to pay for dean screens tests at the time of registration. This change should make the Clean Screen Program, and therefore the AIR Program, more convenient for motorists. This rule change is intended merely to give motorists an option.

Clean screen motorists will have the choice of paying for the clean screen test and using it to register the vehicle, or having the vehicle tested at a conventional inspection and readjustment station and paying for such test at the testing station.

The rule amendments include a change to the timing requirements for remote sensing readings to make the Clean Screen Program more flexible. As amended, the regulation requires two valid remote sensing readings within a twelve-month period in order to clean screen a vehicle. The regulation previously required the most recent reading to be within 120 days of the registration renewal date. The 120-day requirement exceeded the minimum federal requirement. The rule has been revised rule to reflect EPA guidance and to maximize the use of the Clean Screen Program. The contract provides for adequate quality assurance by requiring the contractor to return to the same remote sensing locations on a frequent basis. Such rotation of the remote sensing units should minimize the number of vehicles that are dean screened based solely on readings taken early in the twelve-month period.

In addition, the rule changes include several minor, housekeeping changes such as:

The elimination of a requirement for the agencies to develop the equivalent of a windshield sticker for clean screened vehicles. Such a rule was inconsistent with the change in statute eliminating the windshield sticker requirements.

The elimination of a provision requiring annual inspections for government vehicles. Such a rule was inconsistent with a change in statute establishing biennial inspections for such vehicles.

The repeal of provisions establishing a method to mail payments to the contractor.

Federal Requirements

There are no federal requirements relevant to the payment mechanism for the Clean Screen Program. As indicated above, the purpose of this change is to make the program more convenient and to provide motorists with an option. Although the AIR Program may not be federally required in Larimer or Weld county after January 1, 2004 federal law requires the continued implementation of the AIR program in such areas until removed from the SIP through the SIP revision process. In the meantime, motorists must pay for emissions tests. Therefore such payment requirements do not exceed minimum federal requirements.

For clean screen programs, federal guidelines require two remote sensing readings within twelve months. The rule change makes the Colorado rule identical to the federal guideline.

For these reasons, this rule change does not exceed minimum federal requirements and is not otherwise more stringent than federal law.

Statutory Authority

The statutory authority to establish the specific dates for county clerks and recorders to begin collecting emissions inspection fees is set out at Section 42-3-134(26.5)(a), C.R.S. The Commission expressed the start date as the month in which motor vehicle registrations come due in order to effectively coordinate the Commission rules with the motorist notification process used by the County Clerks and Recorders.

In addition Section 42-4-306(1) grants the Commission the authority to promulgate such regulations as may be necessary to implement the Automobile Inspection and Readjustment Program, which authority extends to all the relevant rule changes.

Findings Pursuant to 25-7-110.8. C.R.S.

The requirements of 25-7-110.8 do not apply to the August 15, 2002 rule revisions because such revisions were not adopted for the purpose of reducing air pollution. Section 25-7-110.8 requires the Commission to make express findings whenever it imposes new regulatory requirements to improve air quality. The changes are administrative in nature and that are designed to implement the Clean Screen Program and the pay-upon-registration program in an efficient and cost-effective manner. Therefore, the requirements of Section 25-7-110.8 do not apply here.

X. AMENDMENTS TO PARTS A AND C

ADOPTED OCTOBER 17, 2002

Basis and Purpose

This rulemaking action implements the Clean Screen Program in the enhanced emissions program area. The purpose of the Clean Screen Program is to make the Automobile Inspection and Readjustment Program ("the AIR program") more convenient, although not necessarily less expensive. This rule change is intended merely to give motorists the option of using the Clean Screen Program. Clean screened motorists will have the choice of paying for the clean screen test and using it to register the vehicle, or paying to have the vehicle tested at a conventional inspection and readjustment station and paying for such test at the testing station.

The rule was also changed so that the malfunction indicator light (MIL) and on-board diagnostic ("OBD II") fault codes will not be used as the basis for test failures. Data provided by the Division reveals that MIL and OBD II requirements are not cost effective test criteria.

Federal Requirements

There are no relevant federal requirements to the payment mechanism for the Clean Screen Program. As indicated above, the purpose of this change is to make the program more convenient and to provide motorists with an option.

Nothing in federal law requires MIL or OBD tests for pre-1996 vehicles. The rule change eliminates a pre-existing state requirement for such vehicles to pass MIL tests. The rule change also eliminates the requirement for 1996 and newer vehicles to pass MIL and OBD tests. Although federal law requires OBD tests on such newer vehicles registered in certain carbon monoxide and ozone nonattainment areas, such federal requirement no longer applies in Colorado because all carbon monoxide and ozone areas have been redesignated to attainment.

For these reasons, this rule change does not exceed minimum federal requirements and is not otherwise more stringent than federal law.

Statutory Authority

The statutory authority to establish the specific dates for County Clerks and Recorders to begin collecting emissions inspection fees is set out at Section 42-3-134(26.5)(a), C.R.S. The Commission expressed the start date as the month in which motor vehicle registrations come due in order to effectively coordinate the Commission rules with the motorist notification process used by the County Clerks and Recorders.

The authority to revise the OBD and MIL requirements is set out in Section 42-4-306((i)(a).

Findings Pursuant to 25-7-110.8. C.R.S.

The requirements of 25-7-110.8 do not apply to the October 2002 rule revisions. Section 25-7-110.8 requires the Commission to make express findings only when it imposes new or amended regulatory requirements intended to reduce air pollution. Essentially, the statute requires the Commission to determine that the costs and burdens imposed by the new or more stringent requirements are justified by the air quality benefits. The purpose of the October 2002 rule changes is to reduce the burden of Automobile Inspection and Readjustment Program. Therefore, the requirements of Section 25-7-110.8 do not apply to such revisions.

XI. AMENDMENTS TO PART C

ADOPTED NOVEMBER 21, 2002

This rule change requires the Division to make annual adjustments to the minimum expenditure required to qualify for a certification of emissions waiver, based on the consumer price index for all urban consumers for the Denver-Boulder metropolitan statistical area as authorized by Section 42-4-310(1)(d)(VI), C.R.S. The rule adopted by the Commission requires the Division to make such annual adjustments through the year 2004. The Commission intends to re-evaluate the waiver amount in 2004. At such time, the Division shall submit to the Commission an analysis of cost and emission reduction benefit, if any, associated with the adjustments to the waiver amount.

In addition, the rule was also modified so that changes adopted by the Commission at their October 17, 2002 hearing, concerning malfunction indicator light (MIL) requirements, will be delayed until April 1, 2003 to provide an opportunity to complete necessary computer software changes.

Federal Requirements

The federal requirements for an emissions waiver are set out in 40 CFR 51.360(a)(7). The federal rule requires a minimum expenditure of \$450, which amount is to be adjusted annually, beginning in 1998, based on the consumer price index. However, the federal requirement applies only in certain carbon monoxide nonattainment areas. The federal requirement no longer applies to the Denver area since it has been redesignated as an attainment area for carbon monoxide, provided the waiver rate does not exceed 3% of the failed vehicles. Arguments can be made both ways on the question of whether the rule change exceeds minimum federal requirements. Arguably, it does not because the revised rule is consistent with the intent of the federal law to annually adjust the waiver amount based on the consumer price index.

Statutory Authority

The authority to revise the waiver amount is set out in Section 42-4-310(1)(d)(VI), C.R.S.

The authority to delay the effective date of the rule change concerning the MIL is set out in Section 24-4-103(5), C.R.S.

Findings Pursuant to 25-7-110.8, C.R.S

The revision of emissions repair waiver limits brings the waiver limits in line with the customer cost index. The rule revision is based on reasonably available, validated, reviewed, and sound scientific methodologies. All validated, reviewed, and sound scientific methodologies and information made available by interested parties has been considered. Evidence in the record supports the finding that the rule shall result in a demonstrable reduction in air pollution. The rule revision is the most cost-effective alternative, provides the regulated community flexibility, and achieves the necessary reduction in air pollution. The revised rule will maximize the air quality benefits of the regulation in the most cost-effective manner.

The requirements of 25-7-110.8 do not apply to the rule revision delaying repeal of the MIL test requirement. Section 25-7-110.8 requires the Commission to make express findings only when it imposes new or amended regulatory requirements intended to reduce air pollution. Essentially, the statute requires the Commission to determine that the costs and burdens imposed by the new or more stringent requirements are justified by the air quality benefits. The rule revision concerning delay of the MIL test requirement make implementation of the Commission revisions of October 17, 2002 possible, and thus reduce the cost and burden of the Automobile Inspection and Readjustment Program. Therefore, the requirements of Section 25-7-110.8 do not apply to such revisions.

XII. AMENDMENTS

ADOPTED DECEMBER 19, 2002

Basis and Purpose

This rulemaking action removes the Greeley component of the Automobile Inspection and Maintenance Program ("AIR Program") from the State Implementation Plan ("SIP"), effective January 1, 2004. The AIR Program would remain a state-only program while the lead air quality planning agency for the Greeley area evaluates options for discontinuing the program altogether or retaining it as a local program. The AIR Program for the Greeley area has been removed from the SIP because it is no longer necessary for the Greeley area to meet the ambient air quality standards.

The maintenance plan adopted by the Commission in conjunction with these rule changes includes a commitment to begin implementing the AIR Program in the Greeley area anew in the year 2026. Such a commitment is necessary to authorize state and local transportation planning agencies to take emissions reduction credit for such a program when such agencies make transportation conformity determinations, 40 CFR 93.122 (a) (iii). The Commission intends to reevaluate this commitment when it revises the maintenance plan, as it is required to do within eight years pursuant to as required by 42 USC Section 750 a (b), and may, in compliance with all applicable state and federal laws, revise the commitment as necessary and appropriate. The rule resulting from this rule change exceeds minimum federal requirements because air quality modeling shows that the AIR Program is not necessary to maintain the national ambient air quality standard for carbon monoxide in the Greeley area after 2003.

Specific Statutory Authority

The application of the Basic AIR Program to the Greeley area is prescribed in state statute, Section 42-4-304(20)(a)(V). The Commission has the statutory authority to adopt a comprehensive State Implementation Plan (SIP) and to decide which control measure should be included in such SIP, Section 25-7-105, C.R.S. The Commission is required to exclude from the SIP rules that exceed the minimum requirements of federal law, and has the authority to adopt regulations exclusively under state authority, Section 25-7-105.1(1), C.R.S. Thus, the Commission has the statutory authority to maintain the AIR Program as a state-only rule in the Greeley area, but remove the program from the SIP for such area.

Findings Pursuant to 25-7-110.8. C.R.S.

The December 2002 changes to Regulation Number 11 merely change the federal status of the regulation; this rule change does not have any effect on air quality or motor vehicle emission. Thus, the rule change is administrative in nature, and is not based on scientific evidence demonstrating that it will improve air quality.

In evaluating the available options, the Commission considered the option of repealing the AIR Program for the Greeley area. Such an option would likely comply with the minimum federal requirements in a more cost-effective manner.

Notwithstanding the cost effectiveness of the repeal of the program, the Commission has retained the AIR Program as a state-only program. This is the same approach the Commission took for the City of Ft. Collins in July 2002. The retention of the regulation as a state-only rule will provide an opportunity for the North Front Range Transportation and Air Quality Planning Council to explore planning options for the region as a whole.

XII. AMENDMENTS

ADOPTED SEPTEMBER 18, 2003

Basis and Purpose

The purpose of this rulemaking action is to implement House Bill 2003-1016 and House Bill 2003-1357. The bills revised Sections 42-4-309 and 42-4-310, C.R.S. to allow the sale and registration of used motor vehicles without an emissions inspection if the motor vehicle is less than three years old, and to provide that motor vehicle dealers shall not be required to have vehicles inspected more than once a year.

Federal Requirements

The federal rules do not require an inspection upon vehicle sale or transfer. The relevant federal requirement is the general requirement for the state implementation plan to contain the control measures necessary to demonstrate maintenance of the national ambient air quality standards. Although the pre-existing requirement for an emissions test upon sale or transfer of a vehicle is included in the state implementation plan, Colorado did not take any emissions reduction credit for such a requirement. Thus, we may revise the state implementation plan to implement HB03-1016 and HB03-1357.

Statutory Authority

The Commission promulgates these regulatory changes pursuant to its authority to promulgate such regulations as may be necessary to implement the program set out in Section 42-4-306(1), C.R.S.

Findings Pursuant to 25-7-110.8, C.R.S.

The requirements of 25-7-110.8 do not apply to the September 2003 rule revisions because these revisions do not establish new requirements intended to reduce air pollution. Instead, the rule revisions relax pre-existing requirements as provided in HB03-1016 and HB03-1357.

XIII. AMENDMENTS

ADOPTED DECEMBER 18, 2003

The purpose of this revision is to postpone the change in emissions standards scheduled to take effect on January 1, 2004 for 1996 and newer light-duty vehicles. The standards scheduled to take effect on January 1, 2004 were overly stringent, and were likely to result in an unacceptable number of "false failures". A false failure occurs when a vehicle fails the emissions test even though there is nothing wrong with the vehicle. The effect of the rule change is to maintain the *status quo* pending a SIP revision based on MOBILE6. The Commission will reconsider the standards appropriate for 1996 and newer light-duty vehicles when it revises the carbon monoxide maintenance plan for the Denver metropolitan area.

The specific authority to establish emissions standards is set out at Section 42-4-306(6)(b), C.R.S.

The requirements of Section 25-7-110.8, C.R.S. do not apply to the November 2003 rule revision because the revision does not establish new requirements intended to reduce air pollution. Instead, the rule revision relaxes the emissions standards for 1996 and newer vehicles.

XV. AMENDMENTS

ADOPTED DECEMBER 18, 2003

Basis and Purpose

The purpose of this rulemaking action is to remove the El Paso County component of the automobile inspection and maintenance program ("AIR Program") from the federally enforceable state implementation plan (SIP). Although the AIR Program will continue to apply in El Paso County as state law, the Commission will schedule another hearing to consider terminating the program in El Paso County once the Division has evaluated the impact such termination may have on ozone concentrations.

The AIR program is no longer necessary to comply with minimum federal requirements in El Paso County. The retention of a state-only program is arguable more stringent than the minimum federal requirements, but it is reasonable and appropriate to retain the program while the Division evaluates the impacts the program may have on ozone concentrations.

Statutory Authority

Section 25-7-105, C.R.S. grants the Commission the authority to adopt a comprehensive SIP. In addition, Section 25-7-105.1(1), C.R.S. authorizes the Commission to adopt rules exclusively under state authority that shall not be part of the SIP.

Findings Pursuant to 25-7-110.8. C.R.S.

The December 2003 changes to Regulation Number 11 merely change the federal status of the regulation. This rule change is administrative in nature and will not have any effect on air quality or motor vehicle emissions.

XVI. AMENDMENTS

ADOPTED MARCH 12, 2004

Basis and Purpose

The revisions to Regulation Number 11 reduce the maximum number of vehicles that may be exempted from conventional emissions testing at an inspection station through the use of the Clean Screen Program. The Clean Screen Program, beginning February 28, 2005, may evaluate regulation Number 11 previously provided that up to 80% of the fleet. However, it appeared at the hearing the goal of screening 80% of the vehicle fleet with the Clean Screen Program was unrealistic; a more realistic goal would be to screen 50% of the vehicle fleet. Revising the Regulation and the SIP to reflect this reality will result in an emission reduction benefit for purposes of the attainment demonstration.

The Commission also repealed provisions stating that the NOx standards and gas cap test requirements were not to be included in the State Implementation Plan. Previously, such requirements were not necessary to the SIP because the State took no credit for the measures for SIP modeling purposes. The requirements are, however, necessary for the attainment demonstration set out in the Early Action Compact Ozone Action Plan for the 8-hour Ozone Control Area. Therefore, these requirements must now be incorporated into the SIP.

The statutory authority for the rule change is set out at Section 42-4-306(23)(a), C.R.S. This rule revision is based on the recognition that practical and technical hurdles make it unlikely that the clean screen program will achieve the 80% level previously authorized by the regulation. The amendment is not intended to reduce pollution, rather the change is necessary so that the SIP will reflect the true nature of the clean screen program. Since this change is not intended to reduce air pollution, the requirements of 25-7-110.8 do not apply.

XVII. AMENDMENTS

ADOPTED FEBRUARY 18, 2005

Basis and Purpose

The purpose of this rulemaking is to specify that the AIR program will no longer apply in El Paso, Larimer, and Weld counties.

Federal Requirements

Federal law no longer requires the basic program in El Paso, Larimer, and Weld counties because the Commission has submitted carbon monoxide maintenance plans for such areas showing maintenance of the NAAQS without the AIR program.

Statutory Authority

The Commission promulgates these regulatory changes pursuant to its authority to promulgate such regulations as may be necessary to implement the program set out in Section 42-4-306(1), C.R.S. Specific statutory authority to specify that the AIR program no longer apply in El Paso, Larimer, and Weld counties is set out in Section 42-4-316(1), C.R.S.

Findings Pursuant to 25-7-110.8, C.R.S.

The requirements of 25-7-110.8 do not apply to the February 2004 rule revisions because these revisions do not establish new requirements intended to reduce air pollution. Instead, these revisions terminate the program in El Paso, Larimer, and Weld counties.

XVIII. AMENDMENTS

ADOPTED NOVEMBER 17, 2005

The purposed of this rulemaking is to implement provisions contained in HB05-1214 that eliminate the inspection requirement for vehicles that have not yet reached their fourth model year registering in the I/M Program area for the first time. Another purpose of this revision is to prevent a change in emissions standards scheduled to take effect on January 1, 2006 for 1996 and newer light-duty vehicles. The standards scheduled to take effect on January 1, 2006 were overly stringent, and were likely to result in an unacceptable number of "false failures". A false failure occurs when a vehicle fails the emissions test even though there is nothing wrong with the vehicle. The effect of the rule change is to maintain the status quo. The provisions amended in this rule change are not more stringent than federal requirements.

Statutory Authority

The Commission promulgates these regulatory changes pursuant to its authority to promulgate such regulations as may be necessary to implement the program set out in Section 42-4-306(1), C.R.S. and the authority to set emissions standards provided by Section 42-4-306(6)(b).

Findings Pursuant to 25-7-110.8, C.R.S.

The requirements of 25-7-110.8 do not apply to the November 2005 rule revisions because these revisions do not establish new requirements intended to reduce air pollution. Instead, these revisions implement state statute and lessen the cost and burden of the automobile inspection and readjustment program.

XIX. AMENDMENTS

ADOPTED JUNE 21, 2007

The purpose of this rulemaking is to allow the option of using a low emitting vehicle index in place of a second remote sensing clean screen measurement for clean screen program eligibility.

Federal Requirements

Federal requirements allow substitution of program elements or criteria contained in a State Implementation Plan when such new program element or criteria gives equal or greater air quality benefits than the program element or criteria replaced. Rule modifications adopted at this rule making are intended to produce similar air quality benefits as the old rule.

Statutory Authority

The Commission promulgates these regulatory changes pursuant to its authority to promulgate such regulations as may be necessary to implement the clean screen and high emitter programs set out in Sections 42-4-306(23), 42-4-307(12), and 42-4-310(5) C.R.S. Specific statutory authority for this rule change is set out in Section 42-4-306(23), C.R.S. General authority for this regulation is contained in the Colorado Air Pollution and Control Act (Colorado Act) Sections 25-7-105, and 25-7-109, C.R.S., which authorize the Commission to promulgate air emission control regulations to control air pollutants and to implement a State Implementation Plan (SIP) for maintenance of air quality.

Findings Pursuant to 25-7-110.8, C.R.S.

This rule modification is intended to make the Clean Screen Program more convenient to the public and increase the cost effectiveness of the program. It is administrative in nature, and is not intended to be more stringent than existing rule. Therefore requirements of 25-7-110.8 do not apply to the April 2007 rule revisions because these revisions do not establish new requirements intended to reduce air pollution.

Factual and Policy issues For Commission To Decide

The requested rulemaking action is designed as a step to implement HB1302 requirements to increase the use of remote sensing to clean screen vehicles in the I/M Program. The requested rulemaking is not anticipated to raise any significant factual, policy or legal issues, but rather to improve the efficiency of the I/M Program, to reduce its regulatory burden, and to help facilitate the eventual implementation of a high-emitter program as required by statute.

Scientific/Technical Rationale

The proposed rule is designed to implement the requirements in HB06-1302 for increasing the use of remote sensing in the I/M Program and for building a framework for a high-emitter program. The scientific and technical basis for the specific revisions in this rulemaking are generally accepted results found in reports developed under the direction of the Colorado Air Quality Control Commission and the Air Pollution Control Division, including reports conducted by the state contractor, Envirotech, for the State of Colorado, such as the Greeley Study Report which EPA relied upon in developing its guidance for remote sensing programs.

Rule Portions Not Specifically Required by the Federal Act

The Federal Act does not specifically require this rule, nor is it more stringent than requirements of the federal act. Rather, it provides a means to more efficiently meet current requirements of the state implementation plan as now required under the federal act. In addition, as addressed above, this rule meets requirements under state law to improve the clean screen program.

Further, these revisions will include any typographical and grammatical errors throughout the regulation.

XX. AMENDMENTS

ADOPTED OCTOBER 18, 2007

This Statement of Basis, Specific Statutory Authority and Purpose complies with the requirements of the Colorado Administrative Procedure Act Sections 24-4-103(4), C.R.S. for new and revised regulations.

Basis and Purpose

The Air Quality Control Commission has adopted these state-only provisions as a means of implementing the legislative direction set forth in HB06-1302. The specific purpose of the amendments is to establish the regulatory requirements for a mandatory remote sensing based High Emitting Vehicle Identification Program on a limited pilot scale basis as an add-on to the existing vehicle inspection and maintenance program and to continue the Clean Screen Program as contemplated by HB06-1302. These revisions reflect the Commission's determination that the goals of HB06-1302 can be achieved in the most cost effective way by first enacting a High Emitting Vehicle Identification Pilot Project, that can be used to test the effectiveness of using remote sensing technology to identify high emitting vehicles prior to establishing a full scale High Emitting Vehicle Identification Program. In the establishing the pilot Program the Commission has concluded that while the program should be independent of the existing inspection and maintenance programs, the testing procedures and requirements should, for the most part, mirror the procedures and requirements applicable to the existing I/M programs. Additional requirements have been added, however, to make the Pilot Project more useful in studying the effectiveness of remote sensing technology in identifying high emitting vehicles without unduly burdening the motoring public, while still enacting the specific legislative directives set forth in HB06-1302.

These revisions are not specifically required by the Federal Clean Air Act and are not intended to be included in any State Implementation Plan

Specific Statutory Authority

The specific statutory authority for these revisions is set forth in Sections 42-4-307, 42-4-307.7, and 42-4-313 C.R.S, which direct the Commission to develop and implement a remote sensing based high emitting vehicle identification program, and to expand the existing Clean Screen Program.

Scientific/Technical Rationale

The proposed rule is designed to implement the requirements in HB06-1302 for increasing the use of remote sensing in the I/M Program and for building a framework for a high-emitter program. The scientific and technical basis for the specific revisions in this rulemaking are generally accepted results found in reports developed under the direction of the Colorado Air Quality Control Commission and the Air Pollution Control Division, including reports conducted by the state contractor, Envirotest, for the State of Colorado, such as the Greeley Study Report which EPA relied upon in developing its guidance for remote sensing programs. Evidence in the record supports the finding that the High Emitter Pilot Project will result in a reduction of air emissions through the identification and repair of high emitting vehicles.

XXI. AMENDMENTS

ADOPTED MARCH 20, 2008

Basis and Purpose

The purpose of this rulemaking is to implement revised, more stringent, model year emissions standards. It is expected that this revision will result in increased air quality benefits generated by the inspection and maintenance program. Another purpose of this revision is to delete obsolete language and correct minor typographic errors.

The effect of the rule change is to identify more high emitting motor vehicles. Emissions reductions generated by the repair of these vehicles are expected to assist in reducing summertime ozone concentrations. The state this summer violated the national ambient air quality standards for ozone, making necessary these modifications. The provisions amended in this rule change are not more stringent than federal requirements.

Specific Statutory Authority

The Commission promulgates these regulatory changes pursuant to its authority to authority to set emissions standards as provided by Section 42-4-306(6)(b)(I), C.R.S. Additional authority is set forth in Section 42-4-306(1), C.R.S., which gives the Commission the authority to adopt regulations as may be necessary to implement the emissions testing program.

Scientific/Technical Rationale

The rule is based on reasonably available, validated, reviewed, and sound scientific methodologies including analysis of existing emission testing data and EPA approved mobile source emissions modeling. It will result in demonstratable reductions in ozone precursor emissions, and should help reduce the risk to human health or the environment from high ozone levels in the Denver Metro Area. Among the options considered, the regulatory option chosen will maximize the air quality benefits in the most cost-effective manner.

XXII. AMENDMENTS

ADOPTED OCTOBER 16, 2008

Basis and Purpose

The purpose of this rulemaking is to implement revised visual inspection procedures and methodology for 1996 and newer model year vehicles. It is expected that this rule revision will result in improved inspection throughput, resulting in shorter vehicle wait times and improved motorist convenience. Another purpose of this revision is to delete obsolete language and correct minor typographic errors.

The effect of the rule change is to shorten the amount of time it takes to inspect vehicles for exhaust and gas cap evaporative emissions.

Currently the state receives no sip credit from visual inspecting 1996 and newer vehicles. Therefore, this rule change will result in no sip credit loss. Vehicles that would be expected to fail the visual component of the I/M inspection will continue to be detected through interrogation of the MIL command and OBD system.

Another purpose of this rulemaking is to eliminate certain no longer relevant components of the regulation, concerning chlorofluorocarbons and motor vehicle filler-neck inspections. These inspections have become obsolete, and no longer serve a purpose. Chlorofluorocarbons have been outlawed for a number of years now. The filler-neck restriction was to prevent the use of leaded gasoline in unleaded fueled vehicles. Leaded gasoline use in on-highway motor vehicles has been banned since 1993.

Specific Statutory Authority

The Commission promulgates these regulatory changes pursuant to its authority to authority to set emissions inspection requirements and procedures as provided by Section 42-4-306(a), C.R.S. Additional authority is set forth in Section 42-4-306(1), C.R.S., which gives the Commission the authority to adopt regulations as may be necessary to implement the emissions testing program.

Scientific/Technical Rationale

The rule is based on reasonably available, validated, reviewed, and sound scientific methodologies. This rule change will bring the visual inspection component in line with current EPA guidance and requirements and the practices of other states. The regulatory change will maximize the air quality benefits from the AIR Program, while improving motorist convenience in a cost-effective manner.

XXIII. AMENDMENTS

ADOPTED DECEMBER 12, 2008

Basis and Purpose

In November 2007, USEPA designated the Denver Metro Area (DMA) and North Front Range (NFR) as out of attainment with the then current eight-hour ozone standard of 0.84 ppm. Since that time, USEPA has promulgated a new, stricter standard of 0.75 ppm.

High ozone concentrations are of concern since breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level ozone also can reduce lung function and inflame the linings of the lungs. Emissions from motor vehicles are one of the prime contributors to ozone pollution in the DMA and NFR.

The purpose of this rulemaking is to expand the existing enhanced emissions inspection program currently applicable in the seven County Denver Metro Areas to the AIR Program area of Larimer and Weld counties. It is important to re-establish an inspection and maintenance program in this area as part of the state's efforts to reduce ozone precursor emissions in the Denver Metro and North Front Range Area.

Specific Statutory Authority

The Commission promulgates these regulatory changes pursuant to 42-4-306(9)(A)(II), C.R.S., which allows the Commission to expand the existing enhanced emissions inspection program to the AIR Program Area portions of Larimer and Weld counties. Additional authority is set forth in Section 42-4-306(1), C.R.S., which gives the Commission the authority to adopt regulations as may be necessary to implement an emissions testing program.

Scientific/Technical Rationale

The rule is based on reasonably available, validated, reviewed, and sound scientific methodologies. Analysis of existing motor vehicle emissions inspection programs and their benefits, both in state, as well as from other states, were analyzed in developing this rule. Emissions benefits were derived using EPA approved mobile source emissions modeling.

Comprehensive analysis of this rule shows that it will result in demonstratable reductions in ozone precursor emissions, and should help reduce the risk to human health or the environment from high ozone levels in the Area. Among the options considered, the regulatory option chosen will maximize the air quality benefits in the most cost-effective manner.

XXIV. AMENDMENTS

ADOPTED MARCH 18, 2010

Basis and Purpose

The purpose of this rulemaking is to provide agreement with statute regarding program boundaries, update certain technical specifications, and provide for some limited flexibility for the startup of the enhanced vehicle inspection and maintenance program in the North Front Range area. This rule revision will result in:

- 1) Boundaries for the inspection and maintenance program in Larimer and Weld Counties that are consistent with the boundaries established in SB09-003. While the Commission interprets that the boundaries that the legislature adopted in Section 42-4-304(20) as part of SB09-003 are self-implementing, this regulatory action will provide clarity for the motoring public and the county clerks in understanding which geographic areas in Larimer and Weld Counties are included and excluded from emissions testing requirements,
- 2) Specifications for an up-to-date test analyzer system for vehicle fleets and independent inspection shops (for 1981 and older vehicles) to provide a voluntary alternative to centralized emissions testing,
- 3) A set of interim phase-in emissions cut-points (pass/fail standards) that better reflect the condition of vehicles in the North Front Range vehicle fleet and the capabilities of the North Front Range automobile repair industry, and
- 4) Flexibility of program start date that reflect the realities of starting up a major contractor-operated public program in the North Front Range,
- 5) A demonstrable reduction in tailpipe and evaporative emissions of ozone precursor pollutants that will help Colorado achieve compliance with the 8 hour ozone standard in the Denver Metropolitan Area and North Front Range.

The enhanced emissions program startup in the North Front Range is a state-only emissions reduction strategy and is not included in any State Implementation Program (SIP) with the US EPA.

The Commission has extended the timeline for implementation of the program for the Estes Park area and intends for the Division to return to the Commission to discuss an analysis of the applicable science and the effects of the program on the population living in the region. The Commission also intends for the Division to provide a review of other vehicle emission testing programs that could be implemented in the area.

Specific Statutory Authority

The Commission promulgates these regulatory changes pursuant to its authority to: 1) establish regulations for program areas under 42-4-306(1); 2) review and change emissions program area boundaries under 42-4-304 (20) (d); 3) establish technical specifications for Test Analyzer Systems under 42-4-306 (3)(a); and 4) to establish interim emissions cut-points (standards) under 42-4-306 (6). Statute also provides flexibility for startup of the North Front Range enhanced I/M Program in 42-4-304 (20)(c) as amended by SB 09-003.

Scientific/Technical Rationale

The proposed rule is based on reasonably available, validated, reviewed, and sound scientific methodologies. All validated, reviewed and sound scientific methodologies and information made available by interested parties has been considered by the Commission in the adoption of this revision. Further, the Commission finds, based on the evidence in the record, that this revision will bring about reductions in risks to human health and the environment associated with ground-level ozone, as well as its precursor pollutants, and that these benefits justify the costs to government and the public. This revision maximizes air quality benefits in the most cost-effective manner of all alternatives available to the Commission. This proposed rule change will provide clarity for citizens, county clerks, and vehicle fleet operators in the North Front Range. It will also ensure that the vehicle emissions failure rate of this new program is reasonable, manageable and that those vehicles that fail emissions are repairable within the capabilities of local repair businesses. Finally, the proposed rule will allow administrative flexibility to begin the program when the testing network is complete and the public has been properly informed of program requirements. The record demonstrates that this change will result in demonstrable reductions in tailpipe and evaporative ozone precursor emissions from vehicles in the Front Range ozone non-attainment area.

XXV. AMENDMENTS

ADOPTED AUGUST 19, 2010

Basis and Purpose

The purpose of this rulemaking is to revise the provisions of Regulation Number 11 to add a Nitrogen Oxides (NOx) cut-point to the selection criteria used in the Clean Screen Program. This change will enhance the environmental effectiveness of the Automobile Inspection and Readjustment (AIR) Program as a whole by helping to ensure that vehicles with high NOx emissions are not exempted from testing through the Clean Screen Program. This change will also address one of the key recommendations by the State Auditor's Office during the 2009 performance audit of the AIR Program.

Specific Statutory Authority

The Commission promulgates these regulatory changes pursuant to its authority to establish rules governing the Clean Screen Program including clean screen emission levels pursuant to Sections 42-4-306 (23)(a) and 42-4-306 (6)(a), C.R.S.

Scientific/Technical Rationale

The rule is based on reasonably available, validated, reviewed, and sound scientific methodologies including analysis of existing emission testing data, clean screen data and EPA approved mobile source emissions modeling. It will result in demonstrable reductions in ozone precursor emissions as well as mobile source air toxics, and should help reduce the risk to human health or the environment from vehicle emissions in the program area. Among the options considered, the regulatory option chosen will maximize the air quality benefits in the most cost-effective manner.

XXVI. AMENDMENTS

ADOPTED OCTOBER 21, 2010

Basis and Purpose

The purpose of this rulemaking is to correct 12 clerical errors for the implementation of the enhanced vehicle inspection and maintenance program in Colorado's North Front Range.

This rule revision will result in a set of interim phase-in emissions cut-points (pass/fail standards) that better reflect the condition of vehicles in the North Front Range vehicle fleet and the capabilities of the North Front Range automobile repair industry.

The Commission's intent to implement phase-in cutpoints is evident in the Statement of Basis and Purpose for the March 18, 2010 rulemaking hearing; however 12 of the 108 numerical values in the tables adopted at that time were incorrect. This rulemaking is intended to correct those 12 values and implement the Commission's original intent from its March 18, 2010 public hearing.

The enhanced emissions program startup in the North Front Range is a state-only emissions reduction strategy and is not included in any State Implementation Program (SIP) with the US EPA.

Specific Statutory Authority

The Commission promulgates these regulatory changes pursuant to its authority to establish interim emissions cut-points (standards) under 42-4-306 (6) C.R.S.

Scientific/Technical Rationale

The proposed rule is based on reasonably available, validated, reviewed, and sound scientific methodologies. All validated, reviewed and sound scientific methodologies and information made available by interested parties has been considered by the Commission in the adoption of this revision. This proposed rule change will ensure that the vehicle emissions failure rate of this new program is reasonable, manageable and that those vehicles that fail emissions are repairable within the capabilities of local repair businesses.

XXVII. AMENDMENTS

ADOPTED JANUARY 20, 2011

Basis and Purpose

The purpose of this rulemaking is to correct 12 clerical errors for the implementation of the enhanced vehicle inspection and maintenance program in Colorado's North Front Range.

This rule revision will result in a set of interim phase-in emissions cut-points (pass/fail standards) that better reflect the condition of vehicles in the North Front Range vehicle fleet and the capabilities of the North Front Range automobile repair industry.

The Commission's intent to implement phase-in cutpoints is evident in the Statement of Basis and Purpose for the March 18, 2010 rulemaking hearing; however 12 of the 108 numerical values in the tables adopted at that time were incorrect. This rulemaking is intended to correct those 12 values and implement the Commission's original intent from its March 18, 2010 public hearing.

The enhanced emissions program startup in the North Front Range is a state-only emissions reduction strategy and is not included in any State Implementation Program (SIP) with the US EPA.

Specific Statutory Authority

The Commission promulgates these regulatory changes pursuant to its authority to establish interim emissions cut-points (standards) under 42-4-306 (6) C.R.S.

Scientific/Technical Rationale

The proposed rule is based on reasonably available, validated, reviewed, and sound scientific methodologies. All validated, reviewed and sound scientific methodologies and information made available by interested parties has been considered by the Commission in the adoption of this revision. This proposed rule change will ensure that the vehicle emissions failure rate of this new program is reasonable, manageable and that those vehicles that fail emissions are repairable within the capabilities of local repair businesses.

XXVIII. AMENDMENTS

ADOPTED SEPTEMBER 15, 2011

Basis and Purpose

The purpose of this rulemaking is to revise the provisions of Regulation Number 11 to exclude the Estes Park area from the North Front Range Enhanced IM Program. Previous rulemaking had scheduled the Estes Park area to be included in the program on December 31, 2011.

Specific Statutory Authority

The Commission promulgates these regulatory changes pursuant to its authority to establish rules governing program adoption and implementation pursuant to Sections 42-4-304(20)(d) and 42-4-306(1) and 42-4-306 (6)(a) and Section 42-4-306 (7)(a) and Section 42-4-306 (9)(a)(II), C.R.S.

Scientific/Technical Rationale

As compared with the Denver Metro North Front Range region, the Estes Park area is unique because most summertime vehicle emissions are from tourist vehicles, the areas older residents would experience a hardship driving to remote testing stations, the increased vehicle miles travelled to the test stations is counter-productive, and the cost of emission reductions is proportionally higher in Estes Park.

In developing this rule, the Division met with Estes Park and Larimer County officials on April 13, 2011 to discuss the upcoming rulemaking proceedings and the Division's proposal. Those officials obtained party status and presented an alternative proposed rule to exclude Estes Park from the emissions program.

XXIX. AMENDMENTS

ADOPTED MAY 17, 2012

Basis and Purpose

The purpose of this rulemaking is to:

- Remove the regulatory prohibition that disallows government fleet-owned vehicles from being clean screened by roadside emissions monitors,
- Clarify the language for criteria to issue an economic hardship waiver for a vehicle that cannot pass emissions,
- Add clarifying language to the body of the regulation that clearly designates the North Front Range I/M Program as a state-only program and that it is not part of any State Implementation Plan with US EPA,

- Remove obsolete provisions for less-stringent phase-in emissions standards (cutpoints) for the North Front Range enhanced program startup, and remove the repealed Part G, which established regulatory authority to operate the roadside remote sensing high emitter pilot project through July 1, 2010.

- Replace language that was inadvertently deleted in Part F that provides for specific pass/fail criteria for 1981 and newer vehicles receiving a two-speed idle emissions test.

The Automobile Inspection and Readjustment (AIR) Program is designed to reduce motor vehicle emissions through the detection and repair of high emitting gasoline-powered motor vehicles. To accomplish this goal vehicles within the program area are required to undergo a periodic inspection at an emissions testing station. Vehicles that fail the inspection must undergo repairs and pass a retest in order to register their vehicle. To reduce the inconvenience for motorists, the AIR Program also uses roadside remote sensing devices to screen out clean vehicles and exempt them from their periodic test (Clean Screen Program). Clean screened vehicle owners still pay the \$25 inspection fee.

Government-owned fleet vehicles (City, County, State, School district and special district vehicles) are required to undergo emissions testing just like privately-owned vehicles. Since government-owned vehicles renew their registration information every year in a completely different manner than privately owned vehicles, and government vehicles do not pay an annual registration fee, there was never a mechanism for notification of "Passing Roadside Emissions" or payment for clean screen of government vehicles. Therefore, government vehicles were prohibited by Regulation from participation in Clean Screen.

At the request of several local governments, and in an effort to comply with directives from the Governor's office, the Division, Department of Revenue and the emissions inspection contractor have agreed to develop procedures to provide for clean screen notification and payment mechanisms to allow government fleet vehicles to be clean screened, at the option of the government agency. The proposed rule in this request for hearing removes the regulatory prohibition against clean screening Government vehicles in Part C, Section XII.A.4.c.

The Commission is revising rules on hardship waivers in Part C, Section VIII.D. to ensure that the Commission's rules are consistent with its statutory authority. The Commission is revising rules to clarify that the North Front Range program is a state-only program to address an objection from the US EPA in Part A, Section II.40. and Part A, Section V.A. The Commission is removing provisions already noted in the regulation as repealed or obsolete (North Front Range phase-in cutpoints in Part F, Section III.C. and Part F, Section III.D. and the High emitter pilot project), and replacing language that was inadvertently rescinded in 2006 (pass/fail criteria for 1981 and newer vehicles receiving a two-speed idle emissions test).

The Commission is revising the language for criteria to issue an economic hardship waiver for a vehicle that cannot pass emissions after receiving comment that Regulation Number 11 should, but does not, establish those criteria. The Commission adds clarifying language that clearly designates the North Front Range I/M Program as a state-only program because, under the previous version of the rules governing the North Front Range I/M program, it is not clear whether the program is in the State Implementation Plan approved by the Environmental Protection Agency. When originally adopted, the Commission intended for the program to be state-only. EPA sought clarification, so the rules now explicitly state that the program is state-only.

Finally, the Commission is removing expired cutpoints and addressing the inadvertent deletion of pass/fail criteria for older vehicles.

This rule revision will result in:

- 1) Improved convenience and reduced costs for state and local government fleet operators, by making emissions compliance easier and faster,

- 2) Legal and regulatory clarity in the rule language, while not affecting procedures and operation of the program or its customers,
- 3) A lean and streamlined regulation by removing repealed and obsolete provisions.

Specific Statutory Authority

The Commission has the authority to promulgate rules governing the operation of the clean screen program pursuant to Section 42-4-306(23). The Commission has the authority to promulgate rules governing the issuance of economic hardship waivers pursuant to Section 42-4-306 (7) (a) (II) (C), C.R.S.; the labeling of the North Front Range as state-only falls under the general authority of the Commission to promulgate rules pursuant to Section 42-4-306 (1) C.R.S.; establishing cutpoints and pass-fail criteria in Section 42-4-306 (6)(a) C.R.S.; operating the remote sensing high emitter project in Section 42-4-307.7 C.R.S.

Additional findings under Sections 25-7-110.5(5) and 25-7-110.8, C.R.S

None of the revisions in this rulemaking exceed federal requirements. With the exception of the revision addressing the two-speed idle emissions test, these rules are not federally mandated, nor are there any counterpart federal rules. The rule is based upon reasonably available, validated, reviewed, and sound scientific methodologies, and the Commission has considered all information submitted by interested parties. This revision will result in cost savings and efficiencies to state and local government vehicle fleets with minimal impact on air quality and emissions, and that the cost savings to government and the public justify the slight air quality impact. This proposed rule change will provide clarity for citizens, government vehicle fleet operators, and the automotive repair industry and achieve any necessary reduction in air pollution. These rules will maximize the air quality benefits of the regulation in the most cost-effective manner.

XXX. AMENDMENTS

ADOPTED DECEMBER 20, 2012

This revision to Regulation Number 11, Parts A, B, C, D, E, F and H – is to amend language that would extend model-year exemptions; require on-board diagnostic inspections; no longer require visual inspections of emission control systems on 1996 model-year and newer vehicles; require retesting after failing gas cap integrity test; delete obsolete language; and revise typographical, grammatical, and formatting errors.0

This Statement of Basis, Specific Statutory Authority, and Purpose complies with the requirements of the Colorado Administrative Procedures Act, Section 24-4-103, C.R.S., and the statutory authority provided in Sections 42-4-301 through 42-4-316, C.R.S.

Basis and Purpose

The Commission's December 2012 amendments are intended to assure that emission reduction benefits are maintained while at the same time increasing the flexibility and convenience of motor vehicle emission inspections. The amendments increase new vehicle model-year exemptions from emissions testing from four to seven years. The amendments provide for OBD inspections of 1996 year-model and newer motor vehicles for the first two testing cycles (four model years) after the seven year new vehicle exemption runs out. Procedures are included to default to the use of OBD testing on vehicles that are not readily testable using IM 240; and to default to IM 240 testing on vehicles that are not readily testable with OBD. Visual inspections of emission control equipment are eliminated on 1996 year-model and newer motor vehicles. To clarify and assure compliance with the federal requirements at Title 40, Part 51, Subpart S, 51.357, the already current practice of requiring a full retest after a gas cap failure is being specified as part of the evaporative fuel control inspection procedures.

Federal Requirements

The current inspection and maintenance program, except in the North Front Range is contained in Colorado's ozone State Implementation Plan (SIP). Any revision to the program requires that air quality credits achieved from the program are not lost.

In general, EPA rules require certain nonattainment areas implement Inspection and Maintenance programs as part of a SIP. Under the Clean Air Amendments of 1990, the Denver metropolitan area was required to implement an "Enhanced" IM Program, specifically for carbon monoxide. Since that time, the state has come into attainment with carbon monoxide, but the program remains a necessary element of Colorado's ozone SIP. The North Front Range area of the program operates as a state-only program

Specific Statutory Authority

Sections 42-4-306 and 42-4-310, C.R.S. authorize the Air Quality Control Commission ("Commission") to promulgate rules for inspection of motor vehicle emissions. Section 42-4-306(8) authorizes the Commission to exempt motor vehicles from emission inspections. Section 42-4-306(3)(b)(V)(B) authorizes the Commission to promulgate rules for alternative motor vehicle emission inspections, including on-board diagnostics (OBD) inspections. 42-4-306(6)(a) authorizes the Commission to promulgate rules on inspection procedures, including those related to OBD and evaporative gases.

Findings Pursuant to 25-7-110.8, C.R.S.

The revision of the rule is to lessen the regulatory burden on the motoring public through expanding the new vehicle exemption period to seven years and the introduction of OBD inspection to select vehicles, among other measures, while maintaining the current air quality benefits received from the program, in a cost effective manner, at similar or reduced costs to the current program.

The rule revision is based on reasonably available, validated, reviewed, and sound scientific methodologies. All validated, reviewed, and sound scientific methodologies and information made available by interested parties has been considered. Evidence in the record supports the finding that the rule shall result in a continued demonstrable reduction in air pollution. The rule revision is the most cost-effective alternative, provides the regulated community flexibility, and achieves the necessary reduction in air pollution. The revised rule will maximize the air quality benefits of the regulation in the most cost-effective manner.

XXXI. AMENDMENTS

ADOPTED NOVEMBER 21, 2013

This revision to Regulation Number 11 is to amend language that will clarify provisions contained in the existing regulation concerning model year exemptions and program implementation dates, updating the listed repair waiver cost limit from \$450 to the currently used \$715 limit, modifying qualification criteria used to grant an economic hardship waiver, and incorporating a new Test Analyzer Specification for On-board Diagnostics in Appendix A. Obsolete technical specifications and procedures are being deleted and formatting, grammatical and typographical corrections are being made.

This Statement of Basis, Specific Statutory Authority, and Purpose complies with the requirements of the Colorado Administrative Procedures Act, Section 24-4-103, C.R.S., and the statutory authority provided in Sections 42-4-301 through 42-4-316, C.R.S.

Basis and Purpose

The Commission's November 2013 amendments are intended to clarify, amplify, and streamline the rule in support of previous recent changes to the Automobile Inspection and Readjustment Program. The proposed modifications are considered minor and will not result in any significant change in program costs or air quality benefits.

The basis of these modifications is to address any ambiguities that may exist in the interpretation of new program changes, as well as add a new Test Analyzer Specification for On-board Diagnostics as required by Regulation Number 11, Part B, Section X.

Federal Requirements

The current inspection and maintenance program is contained in Colorado's ozone State Implementation Plan (SIP), with the exception of Larimer and Weld Counties in the North Front Range. Any revision to the program requires that air quality credits achieved from the program are not lost.

In general, EPA rules require certain nonattainment areas implement Inspection and Maintenance programs as part of a SIP. Under the Clean Air Amendments of 1990, the Denver metropolitan area was required to implement an "Enhanced" IM Program, specifically for carbon monoxide. Since that time, the state has come into attainment with carbon monoxide, but the program remains a necessary element of Colorado's ozone SIP. The North Front Range area of the program operates as a state-only program

Specific Statutory Authority

Sections 42-4-306 and 42-4-310, C.R.S. authorize the Air Quality Control Commission ("Commission") to promulgate rules for inspection of motor vehicle emissions. Section 42-4-306(8) authorizes the Commission to exempt motor vehicles from emission inspections. Section 42-4-306(3)(b)(V)(B) authorizes the Commission to promulgate rules for alternative motor vehicle emission inspections, including on-board diagnostics (OBD) inspections. 42-4-306(6)(a) authorizes the Commission to promulgate rules on inspection procedures, including those related to OBD and evaporative gases.

Findings Pursuant to 25-7-110.8, C.R.S.

The revision of the rule is to clarify provisions contained in rule or that are administrative in nature. These changes do not increase the regulatory burden on the motoring public, while maintaining the current air quality benefits received from the program, in a cost effective manner, at similar or minimally reduced costs to the current program.

The rule revision is based on reasonably available, validated, reviewed, and sound scientific methodologies. All validated, reviewed, and sound scientific methodologies and information made available by interested parties has been considered. Evidence in the record supports the finding that the rule shall result in a continued demonstrable reduction in air pollution. The rule revision is the most cost-effective alternative, provides the regulated community flexibility, and achieves the necessary reduction in air pollution. The revised rule will maximize the air quality benefits of the regulation in the most cost-effective manner.

XXXII. AMENDMENTS

ADOPTED OCTOBER 16, 2014

Basis and Purpose

These revisions to Regulation Number 11 are intended to clarify and make more transparent existing provisions, delete obsolete language, delete certain qualifying criteria and standards, and introduce more flexibility to the Automobile Inspection and Readjustment (AIR) Program. The changes primarily relate to recent changes the Air Quality Control Commission (Commission) made to the program that resulted in new requirements that will become effective starting January 1, 2015.

Seven changes were made in this rule making. 1) Changes that removed incomplete and obsolete qualifying criteria for certain vehicles that are unable to be tested on the IM240 chassis dynamometer; 2) modified the use of the roadside remote sensing clean screen 'Low Emitter Index' to allow for greater utilization of this customer convenience element; 3) permitted self-inspecting gasoline vehicle fleets to utilize the more effective and convenient OBD II testing procedure on all 1996 model year and newer vehicles; 4) revised Appendix A and deleted Appendix B that removed obsolete specifications and procedures for inspection analyzer calibration gases; 5) established a definition for Tampering and revised language to clarify and modernize provisions for issuance or repair waivers; 6) corrected certain typographical, grammatical, and formatting errors; and 7) allowed for the use of two remote sensing readings collected at the same location on the same day to qualify vehicles for clean screening, and delegated authority to the Division to authorize or deny the use of same-day observations from a single unit at any given location.

This Statement of Basis, Specific Statutory Authority, and Purpose complies with the requirements of the Colorado Administrative Procedures Act, Section 24-4-103, C.R.S., and the statutory authority provided in Sections 42-4-301 through 42-4-316, C.R.S.

Federal Requirements

The current inspection and maintenance program, except in the North Front Range is contained in Colorado's ozone State Implementation Plan (SIP). Any revision to the program requires that air quality credits achieved from the program are not lost.

In general, EPA rules require certain nonattainment areas implement Inspection and Maintenance programs as part of a SIP. Under the Clean Air Amendments of 1990, the Denver metropolitan area was required to implement an "Enhanced" Inspection and Maintenance Program, specifically for carbon monoxide. Since that time, the state has come into attainment with carbon monoxide, but the program remains a necessary element of Colorado's ozone SIP. The North Front Range area of the program operates as a state-only program

Specific Statutory Authority

Sections 42-4-306 (1) and (3)(b)(V)(B) authorize the Commission to remove incomplete and obsolescent qualifying criteria for certain vehicles that are unable to be tested on the IM240. Sections 42-4-307.7 (4) and (6) authorize the Commission to modify roadside remote sensing clean screen 'Low Emitter Index' criteria. Section 42-4-306 (14)(b) authorizes the Commission to permit self-inspecting gasoline vehicle fleets to utilize the more effective and more convenient OBD II testing procedures. Section 42-4-306 (3)(a)(1)(A) authorizes the Commission to remove obsolete specifications and procedures for inspection analyzer calibration gases. And, Section 42-4-306 (16)(a)(1) authorizes the Commission to clarify and modernize provisions for issuance of repair waivers.

Findings Pursuant to 25-7-110.8, C. R. S.

Revisions are being made to clarify provisions in the rule and to provide increased program flexibility and convenience. These changes do not increase the regulatory burden on the motoring public, while maintaining the current air quality benefits received from the program, in a cost effective manner, at similar or minimally reduced costs to the current program

The rule is based on reasonably available, validated, reviewed, and sound scientific methodologies. All validated, reviewed, and sound scientific methodologies and information made available by interested parties have been considered. Evidence in the record supports the finding that the rule shall result in a continued demonstrable reduction in air pollution. The rule revision is the most cost-effective alternative, provides the regulated community flexibility, and reduces risks to human health and the environment by achieving necessary reductions in air pollution. The revised rule will maximize the air quality benefits of the regulation in the most cost-effective manner.

XXXIII. AMENDMENTS

ADOPTED NOVEMBER 17, 2016

Basis and Purpose

The Denver Metro/North Front Range ozone nonattainment area ("DMNFR") did not attain the 2008 ozone NAAQS by the attainment deadline of July 20, 2015; therefore, on May 4, 2016, EPA reclassified the DMNFR as a Moderate Nonattainment area with an attainment date of July 20, 2018. As a Moderate Nonattainment area, Colorado must revise the State Implementation Plan (SIP) to include, among other things, an attainment demonstration, baseline year and attainment year inventories, reasonably available control technology ("RACT") and reasonably available control measures ("RACM") requirements, and nitrogen oxides (NOx) and volatile organic compound (VOC) emission offsets ratios for major source permits.

To comply with the Clean Air Act (CAA), the Commission has incorporated the state-only area of the Automobile Inspection and Readjustment (AIR) Program into the SIP. The state-only portions of the AIR Program are those areas located in Larimer and Weld counties. Incorporation of the state-only portions of the AIR Program permits Colorado to take credit for the motor vehicle emissions reductions received from operation of the AIR program in these areas.

This Statement of Basis, Specific Statutory Authority, and Purpose complies with the requirements of the Colorado Administrative Procedures Act, Section 24-4-103, C.R.S., the statutory authority provided in Sections 42-4-301 through 42-4-316, C.R.S., and the Commission's Procedural Rules.

Federal Requirements

As a "Moderate" ozone nonattainment area, Colorado is required to operate and maintain a gasoline motor vehicle inspection program. Including the North Front Range area into the Ozone SIP allows Colorado to claim full program benefits in Colorado's SIP. The current inspection and maintenance program, except in the North Front Range, is presently contained in Colorado's ozone element of the SIP.

Specific Statutory Authority

The Commission has the duty and authority to adopt the revisions. 40 C.F.R. § 51.350(4) provides that "Any area classified as moderate ozone nonattainment, and not required to implement enhanced I/M under paragraph (a)(1) of this section, shall implement basic I/M in any 1990 Census-defined urbanized area in the nonattainment area."

Further, the Colorado Air Pollution Prevention and Control Act, C.R.S. §§ 25-7-101, et seq., C.R.S. § 25-7-105(1)(a), 25-7-301, and 25-7-302 direct the Commission to promulgate such rules and regulations necessary for the proper implementation and administration of a comprehensive state implementation plan that will assure attainment and maintenance of national ambient air quality standards. Section 25-7-106 provides the Commission maximum flexibility in developing an effective air quality program and promulgating such combination of regulations as may be necessary or desirable to carry out that program.

Findings pursuant to C.R.S. 25-7-110.5(5)

The Commission finds that the revisions adopted do not exceed the requirements of the federal Clean Air Act or differ from the federal act or rules thereunder.

Findings pursuant to C.R.S. § 25-7-110.8

Colorado must revise its Ozone SIP to address the Moderate Nonattainment area requirements. However, to the extent that C.R.S. § 25-7-110.8 requirements apply to this rulemaking, and after considering all the information in the record, the Commission hereby makes the determination that:

- a. These rules are based upon reasonably available, validated, reviewed, and sound scientific methodologies, and a technical review of the AIR Program was undertaken that utilized sound scientific principles. The Commission has considered all information submitted by interested parties.
- b. Evidence in the record demonstrates the AIR Program areas in Larimer and Weld counties produce demonstrable emission reductions. Extending AIR Program covered by the SIP into these areas will allow the state to take emissions credit in the SIP for these areas.
- c. Modifications to Regulation Number 11 will result in benefits to public health and to the environment by making the AIR Program federally enforceable.
- d. This action is cost effective and provides flexibility. No program costs are associated with this action.
- e. The rule change maximizes benefits to air quality in a cost-effective manner. The rule change ensures keeping the air quality benefits generated in Larimer and Weld counties as part of a federally enforceable SIP, with no additional program costs.

Further, the Commission corrected any typographical, grammatical and formatting errors found within the regulation.

XXXIV. AMENDMENTS TO PARTS C, D, F AND APPENDIX A

ADOPTED AUGUST 17, 2017

Basis and Purpose

These revisions are intended to clarify and make more transparent existing provisions, correct administrative errors, delete obsolete language, delete certain qualifying criteria and standards and establish inspection procedures when tampering is detected.

Six changes were made in this rule making: 1) Deleted the older IM 240 test as the sole data to be used to develop a clean screen low emitting vehicle index, thereby allowing the On-Board Diagnostic ("OBD") test data collected from newer vehicles to also be used to develop the low emitting vehicle index; 2) Corrected an administrative error where the readiness requirements for Envirotest public lanes and the readiness requirements for self-inspecting vehicle fleets were transposed in the regulation; 3) Deleted readiness language from OBD "Inspection Passing Criteria" to clarify that readiness is a determinant of whether or not a vehicle will undergo an OBD inspection; 4) Corrected language to clarify that the IM 240 test conducted on five percent of OBD tested vehicles will be the pass/fail determinant for those vehicles; 5) Established language regarding OBD test procedures where tampering is detected; and 6) Deleted obsolete language by removing antiquated equipment requirements.

This Statement of Basis, Specific Statutory Authority, and Purpose complies with the requirements of the Colorado Administrative Procedures Act, Section 24-4-103, C.R.S., and the statutory authority provided in Sections 42-4-301 through 42-4-316, C.R.S.

Federal Requirements

The current inspection and maintenance program is contained in Colorado's Ozone State Implementation Plan (SIP). Any revision to the program requires that air quality credits achieved from the program are not lost. The six changes will not result in any loss in air quality credit.

In general, EPA rules require certain nonattainment areas to implement Inspection and Maintenance programs as part of a SIP. Under the Clean Air Amendments of 1990, the Denver metropolitan area was required to implement an "Enhanced" Inspection and Maintenance Program, specifically for carbon monoxide. Since that time, the state has come into attainment with carbon monoxide, but the program remains a necessary element of Colorado's Ozone SIP. Colorado's current inspection program is a hybrid system, utilizing both OBD inspections and IM 240 inspections. This hybrid program is in compliance with the Code of Federal Regulations. See Title 40, Part 51, Subpart S, Sections 51.351(f) and 51.357(a)(13).

Specific Statutory Authority

C.R.S. §§ 42-4-306(1) and (3)(b)(V)(B) authorize the Commission to remove incomplete and obsolescent qualifying criteria for the data used to develop the low emitting vehicle index. Sections 42-4-306(6)(a) and 42-4-306(10) authorize the Commission to develop and adopt regulations providing inspection procedures for detection of tampering with emissions-related equipment and on-board diagnostics systems. Sections 42-4-307.7(4) and (6) authorize the Commission to modify roadside remote sensing clean screen 'Low Emitter Index criteria. Section 42-4-306(3)(a)(1)(A) authorizes the Commission to correct administrative errors, clarify procedures and practices and remove antiquated equipment requirements regarding the proper performance of inspections. Section 42-4-306(3)(b)(V)(B) authorizes the Commission to implement OBD testing.

Findings pursuant to C.R.S. 25-7-110.5(5)

The Commission finds that the revisions adopted do not exceed the requirements of the federal Clean Air Act or differ from the federal act or rules thereunder.

Findings pursuant to C.R.S. § 25-7-110.8

Revisions are being made to correct administrative errors, clarify existing provisions and ensure the integrity of the automobile inspection and readjustment program. To the extent that C.R.S. § 25-7-110.8 requirements apply to this rulemaking, and after considering all the information in the record, the Commission hereby makes the determination that:

- a. These rules are based upon reasonably available, validated, reviewed, and sound scientific methodologies, and the Commission has considered all information submitted by interested parties.
- b. Evidence in the record supports the finding that the rules shall result in a continued demonstrable reduction in air pollution.
- c. Evidence in the record supports the finding that the rules shall bring about reductions in risks to human health or the environment by continuing to achieve necessary reductions in air pollution.
- d. The revised rules are the most cost-effective alternative to achieve the necessary reduction in air pollution and provide the regulated community flexibility.
- e. The rule revisions will maximize the air quality benefits of regulation in the most cost-effective manner.

Further, the Commission corrected any typographical, grammatical and formatting errors found within the regulation.

APPENDIX A Technical Specifications

Revised Sept 09, 1994

INTRODUCTION

The Colorado AIR Program is in the process of modifying its current automotive inspection and maintenance program to comply with the Clean Air Amendments of 1990. Colorado's current program is based upon BAR 84 inspection technology utilizing a decentralized program format encompassing nine Front Range counties. In order to achieve compliance with the Clean Air Amendments of 1990, Colorado will change to a program format that will have a contractor based operation conducting the IM 240 emissions test and a population of independent inspectors conducting inspections utilizing a new Colorado 94 emissions analyzer. The contractor is based in the "enhanced" program area, basically the Denver metropolitan area and will inspect 1982 and newer vehicles. Independent inspection facilities will inspect vehicles of all years within the "basic" program area as well as being able to inspect 1981 and older vehicles within the "enhanced" area.

The demands for more accurate analytical information as well as a more automated inspection process with real-time data transfer has superseded the capabilities of BAR 84 technology. Current BAR 90 analytical technology is acceptable, but other system enhancements are necessary to meet Colorado's inspection needs. These enhancements and other technical details are described in the remainder of this document.

1.0 GENERAL

1.1 Design Goals

The specifications that have been developed are designed utilizing a personal computer system. The analyzer system must be capable of performing uniform and consistent emission tests for Colorado's Automotive Inspection and Readjustment (AIR) Program. Features of the analyzer include: vehicle emissions measurements of hydrocarbon (HC), carbon monoxide (CO), carbon dioxide (CO₂) and oxygen (O₂); engine RPM measurements, exhaust dilution determinations, pressure test system for EVAP; data entry; data retrieval tables; a dedicated printer (for vehicle inspection certificates) and an additional printer for diagnostics and general purpose printouts; data recording on double sided high density 1.44 megabyte (Mb) 3.5" floppy diskette and a 120Mb (or greater) hard drive; modem for "on-line real time" data transmission; CRT information display to the inspector; bar code (2D) reader and printing capabilities; and fully menu driven, interactive simple microprocessor controlled operation.

Additional, automatic features required include: gas calibrations, zero and span checks, pressure calibrations, gas auditing procedure; leak checks, HC hang-up checks, audit menus (i.e., data read system), test sequencing, and low-flow checks. The analyzer shall be designed and constructed to provide reliable and accurate service in the automotive environment. The software used in the analyzer shall consist of a process control system as well as data look-up files. Security shall be provided to prevent unauthorized modifications to the software or test data and recording unauthorized entry (tampering) and locking out of the inspection process when detected.

The emissions analyzer software shall be designed for maximum operational simplicity.

It shall also be capable of providing emission-reading characteristics, independent of the inspection function, which can be used for vehicle diagnostic.

1.2 Useful Life

The useful life of the analyzer shall be a minimum of five years.

1.3 Nameplate Data

A nameplate including the following information shall be permanently affixed to the housing of the analyzer:

Name and Address of Manufacturer

Model Description

Serial Number

Date of Assembly

The manufacturer shall affix a stick-on type label to the analyzer that contains a toll-free telephone number for customer service. This number can also be included in a service software message.

1.4 Manuals

Each analyzer shall be delivered with the following manuals:

- A. Reference Operating Instructions
- B. Operation Instruction Manual
- C. Maintenance Instruction Manual (limited)
- D. Initial Start-up Instructions

Colorado 94 Analyzer manufacturers may consolidate manuals. The manuals shall be constructed of durable materials and shall not deteriorate as a result of normal use over a five-year period. The analyzer housing shall provide convenient storage for each manual in a manner that will:

- E. Allow easy use.
- F. Prevent accidental loss or destruction.

1.5 Certification Documentation

The analyzer software shall be fully documented. Two copies of the documentation listed below shall be submitted to the Colorado Department of Public Health and Environment as part of the certification application.

- A. Complete program listings. Program listings may be on diskette. They are not required to be submitted with the application for certification.
- B. Functional specifications.
- C. Functional flowcharts of the software.

- D. Example inputs and outputs from all processes.
- E. Detailed interface information on system components including the identification of protocol and output specifications.
- F. All DOS file layouts with file names, file types, file security, field names, field types, field sizes, and field editing criteria.

Documentation provided by the vendor to meet this requirement will be treated as proprietary information by the Colorado Department of Public Health and Environment.

Prior to certification of any Colorado 94 emissions analyzer for sale in Colorado, the manufacturer of such analyzer shall provide the Division with software source codes and all other technical information (including, but not limited to all working codes, schematics and drawings) necessary to operate, maintain, calibrate and repair such analyzer in the event that the manufacturer or its agent ceases providing adequate maintenance, calibration and repair services in Colorado. The manufacturer shall keep such information current, and will provide the Division with copies of any and all changes. So long as such maintenance, calibration and repair, services are available from the manufacturer or its agent, the Division shall protect such information as confidential commercial data if it is clearly marked as such. In the event that the manufacturer becomes insolvent or stops providing adequate maintenance, repair or calibration services in Colorado all such information shall be the property of the Division and may be released to a third party as necessary to repair, calibrate and maintain the analyzers.

1.6 Warranty Coverage/Mandatory Service Contract

A written warranty coverage agreement, signed by an authorized representative of the equipment manufacturer and the vehicle inspection station owner, which provides a complete description of coverage for all systems and components and all manufacturer provided services listed in Section 1.8, must accompany the sale or lease of each Colorado 94 emissions analyzer.

An extended service contract must be available upon the expiration of the manufacturers original warranty period. Original manufacturer's warranty shall be a minimum of one year from the date of purchase. The "service contract" shall be offered in one-year increments and is a mandatory condition of inspection station operation. The "service contract" agreement shall include the inspection station owner's name, inspection station address, telephone number, inspection station identification number, analyzer serial number and detailed terms of the agreement. The agreement must extend for at least one year with the expiration date entered to software file and monitored by the system clock. Approaching expiration messages must be displayed at daily system start-up beginning thirty days prior to expiration and messaging "30 days until expiration, 29 days etc." Failure to renew the "service contract agreement" will cause the analyzer to automatically "lock-out" from any official inspection process. Renewals shall be offered at the inspection station owner's request and governed by "good business" practices between the parties involved. Service contract agreements must be available by the manufacturer for the mandated life of the Colorado AIR Program. Cost disclosures and detailed descriptions of coverage's must be available in printed form and distributed to all Colorado 94 users. Cost disclosure shall also be made for "consumable" inventory items 1.8B. This information would most appropriately be presented with the original manufactures warranty.

1.7 Tampering Resistance

Controlled access design shall be the responsibility of the manufacturer and is subject to approval by the Colorado Department of Public Health and Environment. Analyzer service personnel, inspectors or others shall be prohibited, to the Colorado Department of Public Health and Environment satisfaction, from creating or changing any test results, programs or data files contained in the analyzer. Manufacturers shall utilize special BIOS partitions, or other appropriate software and hardware provisions, deemed necessary to protect the I/M files and programs. The protection features shall prevent access to the secured floppy disk drive and those portions of the hard disk containing I/M programs and test data or files.

The emission analyzer and the sampling system shall be made tamper-resistant to the Colorado Department of Public Health and Environment satisfaction. At a minimum, the manufacturer shall develop tamper-resistant features to prevent unauthorized access through the cabinet. Microswitches, keyed locks, or software algorithms requiring the use of a password, which can be changed by the Colorado Department of Public Health and Environment would all be acceptable provided the physical or logical design effectively prevents unauthorized access.

Manufacturers may offer analyzers with additional floppy disk drives that can run optional software application programs.

If tampering occurs, a software lockout algorithm shall be activated which aborts any existing test sequence and prevents further inspections until an authorized AIR Program official clears the lockout.

The lockout system shall be designed so that an AIR Program official from the audit menu can activate it. Only AIR Program Auditors may remove lockouts put in place from the audit menu. Manufacturers shall develop a system by which their service technicians shall be prevented from clearing "tamper" lockouts.

Optional software packages shall not interfere with the normal operation of the I/M inspection and testing software, and shall not compromise the tamper-resistant features of the analyzer.

Manufacturer field service representatives will not have access to DOS, unless assurances acceptable to the Colorado Department of Public Health and Environment have been provided that insure, integrity of the system will not be jeopardized.

1.8 Manufacturer Provided Services

The manufacturer shall agree to provide the following services to the inspection station as part of the manufacturer's original warranty and thereafter as a portion of the service contract agreement. The cost of a service agreement is to be listed on a year-by-year basis. Future charges cannot exceed the amount published.

- A. Delivery, installation, calibration, and verification of the proper operating condition of a Colorado 94 emissions analyzer.
- B. Quarterly (90 days) examination, calibration, and routine maintenance of the analyzer and sampling systems. Full systems support and repair, including loaner units. Upon initial sale or loan, provide "extra" printer medium (1 ea.) sample filter(s)(2), sample hose (1) and sample probes (1). Maintain the "extra" consumable inventory upon examination and provide a software history file for the replacement of consumables accessible to AIR Program officials. Consumables and the cost(s) thereof must be disclosed in the service agreement.

- C. Instruct all certified inspectors employed by the inspection station at the time of installation in the proper use, maintenance, and operation of the analyzer. The analyzer shall contain a feature that will allow an inspector to go through the complete inspection procedure without generating an official inspection record. This function will be used for evaluating inspector performance, by AIR Program officials, or by the manufacturer for demonstration purposes. The "training mode" shall not require the use of an inspector's access code or allow access to secured areas of hardware or software. The display shall show a message throughout the inspection that this is not an official inspection. Vehicle inspection reports shall indicate to the satisfaction of the Colorado Department of Public Health and Environment that they are for training only. No official Certificate of Compliance will be generated during the training exercise.
- D. On-site service response by a qualified repair technician within two (2) business days, (48 hours) excluding Sundays and national holidays, of a request from the inspection station. The names, toll-free telephone numbers, and service facility addresses of all manufacturer representatives responsible for equipment service shall be provided to the inspection station. A service representative shall be available at all times during normal working hours. Sundays and national holidays are not included. All system repairs, component replacements, and/or analyzer adjustments, shall be accomplished on-site within 48 hours after a service request has been initiated. If the completion of this work is not possible within this time period, a Colorado 94 loaner unit shall be provided until the malfunctioning unit is properly repaired and returned to service. Service representatives shall have a software driven menu option that allows the transfer of inspection station, inspector information and other applicable data files from one analyzer to another without manual inputs and without transfer of previous test files.
- E. Updates of the "Functional" software will be limited to once per year at no cost.

Updates of operational software i.e., file based information will be on an "as required" basis. All forms of software updating will utilize modem technology for the updating process. File updates are at no cost and every effort will be made to minimize them.
- F. The analyzer software shall be designed so that AIR Program officials can insert a floppy disk, prepared by the manufacturer, into the Program system host, and update the existing software version, via modem. A system of manual updating by program officials utilizing the auditor's menu shall also be available. Look-up tables and message screens shall be designed sufficiently separate from the main operations software so that it is not possible, to interfere in any way with the operations of the analyzer.

The Colorado Department of Public Health and Environment will require the manufacturer to render updates as necessary in the first year of the program to ensure the program meets all design criteria. Thereafter software updates will be limited to once per year at no cost. Since modem software updating will be utilized, there are no costs to the analyzer owner. A software version number, consisting of a four character alpha-numeric code made up of the last two digits of the year followed by a two character version number, shall be recorded in the analyzer and included on each vehicle test record. The analyzer manufacturer shall not modify any existing software version without obtaining written approval from the Colorado Department of Public Health and Environment.

The Colorado Department of Public Health and Environment may require the manufacturers to conduct on-site or laboratory testing of in-use analyzers in order to document continued compliance. When an analyzer is removed from the field, for repair or testing, manufacturers shall supply the inspection station from which it was removed with a temporary replacement unit meeting all program requirements. Manufacturers shall pay for all necessary shipping and transfer costs for the replacement of the analyzer selected for compliance testing. Manufacturers shall also pay for any required testing performed by their personnel or by an independent company.

The manufacturers shall provide training to AIR Program officials on all operational, maintenance, and quality control features of the analyzers, including full access to and use of inspection menus, audit menus and calibration menus, as well as optional programs offered to inspectors. Such training shall be conducted at the manufacturer's expense as a condition of certification and thereafter at reasonable intervals upon written request by the Colorado Department of Public Health and Environment

1.9 Certification Requirements

The manufacturer shall submit a formal certificate to the Colorado Department, of Public Health and Environment that states that any analyzer sold or leased by the manufacturer or its authorized representatives for use in the Colorado AIR Program will satisfy all design and performance criteria described in these specifications. The manufacturer shall also provide sufficient documentation to demonstrate conformance with these criteria including a complete description of all hardware components, the results of appropriate performance testing, and a point-by-point response to specific requirements. Previous certification by the California Bureau of Automotive Repair (BAR) is necessary for the analytical bench.

In addition, a full description of the company's service procedures and policies, as well as sample contracts, warranties, and extended service agreements, shall be provided as part of the certification application to ensure proper maintenance of all analyzers throughout their useful life. One fully functional analyzer shall be presented for evaluation and one additional fully functional analyzer for the certification process. If certified these units will remain in AIR Program possession for continued in-use evaluation for the life of the AIR Program. In the event that 1 % of overall unit sales exceed this two-unit base, in-use evaluation will require 1 % of overall unit sales for in use evaluation.

2.0 CONSTRUCTION DESIGN

2.1 Materials

All materials used in the fabrication of the analyzer and the appropriate housing assembly shall be new and of industrial quality and durability. Contact between non-ferrous and ferrous metals shall be avoided where possible. Suitable protective coatings shall be applied where galvanic action is likely. All mechanical fasteners shall have appropriate locking features. Use of self-tapping screws shall be limited. All parts subject to adjustment or removal and reinstallation shall not be permanently deformed by the adjustment or removal-reinstallation process and this process shall not cause deformations to adjoining parts. Only materials that are not susceptible to deterioration when in contact with automobile exhaust gases shall be used.

2.2 Construction

The analyzer shall be complete and all necessary parts and equipment required for satisfactory operation shall be furnished. A suitable means of storing the probes and sample hose shall be provided. A means of storing the "spares" inventory shall be included. All parts shall be manufactured and assembled to permit the replacement and/or adjustment of components and parts without requiring the modification of any parts or the basic equipment design. Where practical, components and/or subassemblies shall be modularized. The analyzer cabinet finish shall be baked enamel or another durable finish.

2.3 Mobility

The analyzer unit shall be designed for easy and safe movement over rough surfaces and/or graded surfaces (15° incline). The center of gravity and wheel design shall be such that the analyzer can negotiate a vertical grade separation of one-half inch (1/2") without overturning when being moved in a prescribed manner. Industrial grade, swivel casters shall be used to permit 360° rotation of the unit. The caster wheels shall be equipped with oil resistant tires and foot operated brakes capable of preventing movement on a 15° incline.

2.4 Electrical Materials/Construction

Unless otherwise specified, all electrical components and wiring shall conform to standards established by the Underwriters Laboratories, Standard for Electrical and Electronic Measuring and Testing Equipment (U.L-1244).

The analyzer shall operate from an 115VAC, 60 hertz (Hz) supply. An input voltage variation of ± 12 volts shall not change analyzer performance more than 1 % of full scale. The analyzer must operate on a 15 AMP breaker. The power cable shall be equipped with a standard three-prong connector at the inlet, and shall have a National Electrical Code rating of SO, SJO or better with an overall length not to exceed 25 feet. Each emissions analyzer shall incorporate safety devices to prevent conditions hazardous to personnel or detrimental to equipment. The system shall be grounded to prevent electrical shock, and adequate circuit overload protection shall be provided. The analyzer shall incorporate an internal surge protector.

2.5 Sampling System

The sampling system consists of two subsystems: (1) external sampling system; and (2) internal sampling system. The external system shall include a sample probe, sample hose twenty-five feet (25') in length, a water trap, and a filtration system. The internal subsystem shall include but not necessarily be limited to, a sample pump and bypass pump, or an equivalent system approved by the Colorado Department of Public Health and Environment.

The sample probe shall incorporate a positive means of retention to prevent it from slipping out of the tailpipe when in use. A thermally insulated, securely attached handgrip shall be provided on the probe in such a manner that easy probe insertion using one hand is ensured.

The probe shall also have a smooth surface near the probe tip before the flexible portion of the probe to be used for sealing of the span gas adaptor necessary for field or on-board leak checking (vacuum or gas) or response time checking equipment. For standardization, it is recommended that the sealing surface be one-half inch (1/2") in outside diameter and one-half to one inch (1/2" to 1") long. A probe tip cap shall be provided for the sample system leak check. A probe tip adapter or assembly shall be included for use with spark arrester type tail pipes.

The interconnecting hose shall be of such design and weight that the inspector can easily handle it. The hose shall be of non-kinking construction and fabricated of materials that will not be affected by or react with the exhaust gases. Molecular HC hang-up shall be minimized. The hose connection to the analyzer shall be reinforced at the point of maximum bending. The system shall be designed with a water trap in the bypass sample stream. The water trap shall be continually self-draining. The trap bowl shall be constructed of a durable transparent material. The water trap should be located as low as possible on the analyzer so that condensed water in the sample hose will drain into them. However, the trap must be placed in a position readily visible to the inspector. The sample for the analyzer shall be obtained from the top of the water trap. The sampling system shall be equipped with a suitable particulate filter upstream of the optical bench. There may be a secondary filter located in the sample hose, serviceable by the inspector. This filter must have sufficient capacity to filter the samples obtained during the routine testing of vehicles in the inspection station. Threaded connections must be used to attach the filter to the sample hose. A prompt shall be provided to the inspector indicating when the filter should be changed based on an indication of low flow (automatic lock-out) or other criteria approved by the Colorado Department of Public Health and Environment

The pumps shall contain corrosion resistant internal surfaces. The pumps shall have a minimum operational life of 2,000 hours without failure.

The sample pump system may be a single pump, multiple pumps, or a multiple stage pump or an equivalent system approved by the Colorado Department of Public Health and Environment. The sample pump shall have integral motor overload protection and be permanently lubricated. The bypass system shall be connected in the sample system so that any water condensed in the water trap is removed and dumped outside the system.

2.6 Storage Temperature

While in storage, the analyzer and all components thereof shall be undamaged from ambient air temperatures ranging from 0° F to 120° F.

2.7 Operating Temperature

The analyzer and all components shall operate within calibration limits in ambient air temperatures ranging from 41° F to 110° F.

2.8 Humidity Conditions

The analyzer shall be designed for use inside a building that is vented or open to outside ambient humidity. The analyzer, including all components of the analytical, sampling, and computer systems, shall operate within the required performance specifications at ambient conditions of up to 80% percent non-condensing relative humidity throughout the required temperature range, assuming the components are reasonably protected by the inspector from direct contact with water, or other condensing moisture. Failure of any component due to exposure to temperature and humidity extremes within this limits specified during actual use shall be corrected at the manufacturer's expense.

2.8.1 Temperature Control

Analyzer components that affect sensitivity and calibration shall have their internal temperatures controlled to maintain design temperature when exposed to prevailing ambient conditions. If internal operating temperatures are exceeded the analyzer will automatically lockout from any official inspection process.

2.9 Barometric Pressure Compensation

Barometric pressure compensation shall be provided. Compensation shall be made for elevations up to 6,000 feet (mean sea level). At any given altitude and temperature, errors due to barometric pressure changes of \pm two inches (2") of mercury shall not exceed the accuracy limits specified in this specification. Manufacturers shall describe in writing how compensation will be accomplished. The method used shall be acceptable if approved by the Colorado Department of Public Health and Environment.

2.10 Operational Design

A. Analytical System

These analyzers shall utilize non-dispersive infrared systems for measuring hydrocarbons (HC), carbon monoxide (CO), and carbon dioxide (CO₂). Oxygen (O₂) shall also be measured and ambient air will be used for calibration purposes.

B. Readout Display/CRT Screen

The screen shall contain numerical HC (as hexane), CO, CO₂ and O₂ displays and a pass/fail indication at the completion of the inspection process. Pressure purge shall be a pass/fail indication, with pressure/time values recorded to file.

The numerical display shall be of a digital format. The resolution of the emissions display shall be as follows:

HC: XXXX ppm (as hexane)

CO: XX.XX%

CO₂: XX.X%

O₂: XX.X%

The **MINIMUM** display increments shall be 1 ppm HC, 0.01 % CO, 0.1% CO₂, and 0.1% O₂. The displays shall be capable of full-scale readings of 2000 ppm HC (as hexane), 9.99% CO, 16.0% CO₂ and 25.0% O₂.

CRT display is to be employed for an exhaust sample validity (sample dilution). This indication will signal excess dilution in the exhaust system based upon measurement of CO + CO₂ emissions.

The analyzer shall be capable of selecting the pass/fail values (limits) based on vehicle model year, vehicle type, or other criteria. The system shall be designed in such a manner that the standards and vehicle groups may be readily revised by a modem software update.

Specific emissions limits and vehicle model year groupings are available in this Regulation Number 11, Part F: maximum allowable emissions limits for motor vehicle exhaust, evaporative and visible emissions for Light-Duty and Heavy-Duty vehicles.

2.11 Automatic Calibrations

The analyzer shall be designed to require an automatic two-point gas calibration for HC, CO, and CO₂, and an automatic electrical zero and span check. (O₂ shall be measured by ambient air.) The automatic gas calibration shall be conducted every 24 or 72 hours, activated by the internal clock. The option of 24 HOUR calibration will be software selectable, with the default @ 72 hours. Electrical zero and span check (automatic) shall be required prior to each test sequence. User-friendly prompts shall be provided to the inspector to indicate every step needed to properly perform the required gas calibration (including when it is necessary to turn the gas cylinder valve on and off).

If the system is not calibrated, or the system fails the calibration or the zero and span check, an error message or fault indication shall be displayed and the analyzer shall be locked out to prevent the performance of an emissions inspection. Lockout will remain until the system is properly calibrated and passes a calibration check and zero and span check.

The calibration record will contain before and after calibration readings. The gas calibration shall ensure that accuracy specifications are satisfied and that linearity is correct at the required span points. The gas calibration and leak check procedures shall require no more than five (5) minutes to complete. The analyzer shall provide adequate prompts on the display to guide the inspector through the calibration procedure in a manner that minimizes the amount of calibration gas used.

The system shall have the capability of printing historical calibration data for specified date ranges by the AIR Program Auditor. (Audit menu, calibration history)

For HC, CO and CO₂, analyzer manufacturers shall limit gas usage during the gas calibration procedure to two liters per point. The analyzer shall also be designed to keep the loss of calibration gas to an absolute minimum (less than 0.5 liters in 24 hours) if the calibration gas valve(s) is/are not shut off. Manufacturers shall provide an evaluation of this capability, consisting of at least four (4) analyzers, with their certification application materials and shall demonstrate this feature during certification.

The analyzer shall be equipped with a gas calibration port for the purpose of performing a probe to calibration port comparison for audit purposes. Gas auditing shall be accomplished by introducing standard gases into the analyzer either through the calibration port or through the probe. Span gases utilized for calibration shall be within two percent (2%) of the following points: Ambient air may be used to calibrate the O₂ sensor.

(HC)	300	ppm propane
	1.0	% carbon monoxide (CO)
	6.0	% carbon monoxide (CO ₂)
	Bal.	Nitrogen (N ₂)
(HC)	1200	ppm propane
	4.0	% carbon monoxide (CO)
	12.0	% carbon monoxide (CO ₂)
	Bal.	Nitrogen (N ₂)

The standard gases used to calibrate, and audit the analyzers shall satisfy the criteria included in the Federal Clean Air Act, Section 207 (b) and described in Subpart W of Part 85 of Chapter I, Title 40 of the Code of Federal Regulations. In order to ensure that the quality of the standard gases used in the program meet these specifications, all standard gases purchased by the inspection facility for use in the analyzer must conform to the requirements established in 1990 by the California BAR for Test Analyzer System Calibration Gases. Calibration gases must be purchased from a vendor that is approved by the Division,. These requirements include the testing and certification of the concentration, accuracy, precision, and purity of the standard gases to within the referenced limits and the labeling of individual gas canisters describing these and other specified parameters.

Automatic EVAP Pressure Calibration

The pressure test system is to be calibrated every 24 or 72 hours and zero/span checked before each inspection. Pressure calibration checks should be performed simultaneously with the gas calibration procedure. Calibration and/or zero span checks must pass or the analyzer must lockout from further testing until the discrepancies are corrected. All calibrations will be stored to the Cal.Dat file. Pressure system calibrations shall be performed in a maximum time period of 5 minutes, calculated independently from the gas calibration and leak check. The optional 24-hour option shall be selectable and defaulted to 72 hours.

A. Automatic Leak Check

An automatic leak checking system shall be provided that will allow the vacuum side of the system to be checked for leakage. Appropriate valves lines, and switches shall be installed to permit this operation. Minimal activity by the inspector, such as setting the probe in a holder or capping the probe, is permitted, provided errors resulting from improper inspector action would be identified by the computer and would require corrective actions. Improper action would cause the system to fail a leak check, and automatically lockout. User-friendly prompts shall be provided to the inspector to indicate every step needed to properly perform the required leak check (including when it is necessary to turn the gas cylinder valve on and off).

A system leak check shall be accomplished every 4 or 24 hours and in conjunction with the gas calibration performed every 24/72 hours, activated by the internal clock. The 4-hour option shall be software selectable with the 24 hours as the default value. Four-hour leak checks are required only for those facilities performing more than 4000 inspections per year. The analyzer shall not allow an error of more than $\pm 3\%$ of reading using mid-range Colorado certified span gas to perform the leak check. Fittings and connectors used on the sample hose and probe shall be constructed to inhibit the bypass of the leak check. A maximum of two liters of calibration gas may be used to perform the leak check. If the system is not leak checked, or the system fails a leak check, an error message or fault indication shall be displayed, and the analyzer will be locked out to prevent the performance of an emission inspection, until the system is properly leak checked and passes.

B. Automatic HC Hang-Up Check

The analyzer shall be designed for using ambient air induced through the sample probe, prior to each test sequence. The analyzer shall have a CRT prompt/indicator. "Hang-up" activation shall cause the analyzer to automatically sample ambient air through the sample line and probe. The system shall continue to sample room air for a maximum of **150** seconds or until the HC response is below 20-ppm hexane.

If the HC hang-up does not drop below 20 ppm within **150** seconds, a message shall be displayed indicating possible dirty filters or sample line. If after **150** seconds HC levels are not below specified values, the test shall be discontinued until HC hang-up is corrected. When the level stabilizes below this value, an indication that testing may begin shall be displayed. The analyzer shall be locked out from operating until the HC level is met.

C. Vehicle Diagnostics

During analyzer warm-up, emissions diagnostics and other gas reading functions shall be prohibited. After successful warm-up and for the purpose of vehicle diagnosis or repairs, the analyzer shall have a menu selection that will allow the analyzer to continuously monitor the vehicle exhaust.

The automatic data collection system shall be prevented from operating anytime the analyzer is not being used in the official emissions inspection mode.

D. Dilution

The analyzer manufacturer shall document to the satisfaction of the Colorado Department of Public Health and Environment that the flow rate on the analyzer shall not cause more than 10% dilution during sampling of the exhaust at normal idle (10% dilution defined as sample of 90% exhaust and 10% ambient air). Manufacturers shall utilize the procedures specified by the BAR for demonstrating this dilution criterion. The analyzer shall be equipped with a feature to identify vehicle exhaust system leaks and sample dilution. The preferred method for identifying leaks is monitoring the CO & CO₂ levels in the exhaust. Other additional techniques that can demonstrate improved sensitivity to leaks may also be used.

DILUTION VALUES:

All light duty vehicles: 6%

All heavy-duty vehicles: 5%

If the CO + CO₂ reading is less than the limit, the inspector shall be prompted to check the exhaust system for leaks and to make sure that the sample probe is all the way into the tailpipe. If the excessive dilution is detected after the initiation of the test sequence, the analyzer output shall display "SAMPLE DILUTION". If dilution continues the inspector shall be required to "Abort Test". The system shall store the "Abort Test" indication.

E. Engine Tachometer

A digital display tachometer shall be CRT displayed for the purpose of measuring engine speed. The tachometer operation shall be by two means; (1) radio frequencies "RF" type transmitter/receiver that requires no direct vehicle connection and can detect engine RPM on vehicles utilizing "DIS" systems. (2) a cable type connection capable of detecting engine RPM from all forms of current O.E.M. ignition technology. Tachometer performance shall be no less than; RPM with a 0.5 second response time and an accuracy of $\pm 3.0\%$ of actual RPM. During an official inspection process, the software will prompt the inspector to shut the engine off while connecting the RPM probe (only if a cable connection is being made). A software "HELP" screen will be available to assist the inspector in locating an RPM signal. This information may be supplied or reviewed by the Colorado Department of Public Health and Environment. Based on the vehicle identification information available to the inspector, the analyzer will prompt the inspector as to which vehicles require a specific type or method of connection of the tachometer pick-up. Analyzers shall be provided with all the software and hardware that is necessary to make them capable of reading engine RPM from all O.E.M. ignition technologies in use at the time of certification. Possible updates may be required to enable future ignition systems to be monitored for engine RPM.

F. Analytical Bench Accuracy

Each analyzer shall meet the following analytical accuracy requirement:

<u>Channel</u>	<u>Range</u>	<u>Accuracy</u>
HC ppm	0-400	$\pm 12\text{ppm}$
	401-1000	$\pm 30\text{ppm}$
	1001-2000	$\pm 80\text{ppm}$
CO%	0-2.00	$\pm 0.15\%$
	2.01-5.00	$\pm 0.040\%$
CO ₂ %	0-4.0%	± 0.6
	4.1-14.0	$\pm 0.5\%$
	14.1-16.0	$\pm 0.6\%$
O ₂ %	0-10.0	$\pm 0.5\%$
	0-10	$\pm 1.3\%$

The analyzer display resolution electronics shall have sufficient resolution and accuracy to achieve the following:

HC	1 ppm	HC
CO	0.01%	CO
CO ₂	0.1%	CO ₂
O ₂	0.1%	O ₂

G. Drift

If zero and/or calibration drift cause the infrared signal levels to move beyond the adjustment range of the analyzer, the inspector shall be locked out from testing and instructed to call for service.

H. Warm-Up

The analyzer shall reach stabilized operation in an inspection station environment within 15 minutes at ° 41 degrees Fahrenheit from “power on”. The instrument shall be considered “warmed-up” when the zero and span readings for HC, CO, and CO₂ have stabilized, within ± 3% of full range of low scale, for five minutes without adjustment.

Functional operation of the gas-sampling unit shall remain disabled through a system lockout until the instrument meets stability and warm-up requirements. If the analyzer does not achieve stability with 15 minutes, from “power-on” , it shall be locked out from I/M testing and a message shall be displayed instructing the inspector to call for service.

During the warm-up, the Main Menu shall be displayed unless an optional functional menu or menus are offered. The analyzer system shall lock out all bench related functions during warm-up. During warm-up, a message under the main menu shall be prominently displayed as follows: “Warm-up in progress - checking for stability”. During the initial entry into the “warm-up” period, and before any other menu can be selected, the software will automatically enter a “bulletin display” function and display any messages or bulletins forwarded from the AIR Program host system via modem transfer in the past 72 hours. This screen will reference the inspector.dat file and require each inspector to enter their access code as verification of receipt, before allowing that inspector to Proceed with an inspection. No inspector can enter into an official inspection without having “logged on” as having seen the Bulletin screen. When stability is achieved and the warm-up requirements are satisfied, access to gas bench functions shall be permitted.

I. System Response Time Requirements

The response time from the probe to the display shall not exceed eight (8) seconds to 90% of a step change in input, nor will it exceed 12 seconds to 95% of a step change in input. For the O₂ sensor, the response time shall be no more than fifteen (15) seconds to 90% of full scale.

J. Optical Correction Factors

The hexane/propane equivalency factor (PEF) shall be limited to values between 0.49 and 0.52. If an optical bench is used that can demonstrate accuracy of propane/hexane identification within specification, using a range greater or lesser than indicated, it will be considered. Factor confirmation shall be made on each analyzer assembly by measuring both N-hexane and propane on assembly line quality checks. The PEF shall be permanently stored in non-volatile memory. The PEF shall be displayed on the monitor on request by inquiry through the menu system. The optical bench shall be marked with a permanent “stamped” type tag identifying its PEF.

The signal strength from the source to the detector for all channels shall be monitored such that when the signal degrades beyond the adjustment range of the analyzer, the analyzer shall be locked out from operation, i.e. fail calibration.

K. Interference Effects

The effect of extraneous gas interference on the HC, CO, and CO₂ analyzers shall not exceed ±10 ppm HC, ± 0.05% CO, and ±0.20% for CO₂.

The instrument design shall insure that readings do not vary as a result of electromagnetic radiation and induction devices normally found in the inspection environment (including high energy vehicle ignition systems, RF transmission radiation sources, and building electrical systems). In addition, the manufacturer shall ensure that the analyzer processor and memory components are sufficiently protected to prevent the loss of programs and test records.

2.12 Gas Calibration File

At the conclusion of each gas calibration the required data shall be placed in the CAL.DAT file.

2.13 Microcomputer Specifications

A. A standard microcomputer must be included in the analyzer and is to be used to control all analyzer functions. Each vendor is to develop DOS executable programs for each required function. These programs shall:

1. control each of the analyzer functions and time of function;
2. examine and obtain values from all of the analyzer sensors;
3. read and write information to diskette in standard DOS format; and
4. copy the analyzer, inspection station identification information from the hard disk onto each new floppy diskette when formatted.

The Colorado Department of Public Health and Environment reserves the right to add additional programs and functional performance requirements, up to the technical limits of the hardware, to improve the I/M program.

Sufficient flexibility shall be provided in the design of the microcomputer system to allow expansion of the analyzer to include, but not be limited to, the following additional capabilities:

1. connect and recover data from vehicle on-board diagnostic systems (OBD) meeting SAE specifications when they become available;
2. monitor vehicle recall data; identify, record and process data as required when an official EPA/SAE format is identified.
3. accommodate additional input channels in both analog and digital form. Two free slots, 16 bit capability.

The manufacturer may offer additional features that utilize the microcomputer as a stand-alone personal computer by providing optional software to perform various non-I/M functions. Such offerings must not interfere with the inspection requirements, or in any manner affect or allow the inspector to tamper with the inspection-related computer programming or data files.

The analyzer shall be equipped with an internal clock that operates independently from the power source and will provide accurate and automatic date and time information for the following functions:

- a. each test performed;

- b. automatic gas calibration and pressure test check (72 hours); (24 hour) optional
- c. automatic leak check (4 or 24 hours and every 24/72 hours for automatic gas calibration), and leak check combination.
- d. audit sequence:

All equipment and software submitted for Colorado certification must be the full and current configuration proposed for sale. Partial, dated, or incomplete models are not acceptable.

Acceptance of the microcomputer portion of the Colorado 94 Analyzer system will be dependent upon the satisfactory performance of the full-proposed configuration meeting all the requirements of this specification.

The proposed hardware configuration must be fully supported by all software and/or operating systems listed in the acceptance requirements or elsewhere in these specifications. Performance tests to prove compatibility will be conducted. The vendor will bear all shipping and equipment preparation charges for the certification testing.

2.14 Standard Hardware: Minimum Required Configuration

1. Operating System

DOS Version 6.2 or most current

2. Processor

The microprocessor must be fully compatible with the Intel 80486 microprocessor. Upgradable to Pentium technology.

3. RAM Memory

The system must contain at least 2 MB of user available RAM. (expandable to 16 MB)

4. Power Up Sequence

The system must include a power up sequence that provides a self-diagnostic routine to check the on-line presence of critical PC components (including, at a minimum, the processor, firmware ROM, hard disk controller, keyboard, clock, modem, printers, bar code reader I/O ports, setup RAM and memory).

5. Video

The CRT display must be at least 12" in diagonal measure and operate in a VGA mode.

The software shall automatically blank the screen or use a screen saver mode, if no keyboard entry is made for 10 minutes. The display shall return when the inspector strikes any key.

6. Floppy Disk

Each unit must come with an IBM compatible floppy disk drive that will permit full usage of 2sHD 1.44 Mb 3.5" removable media. The drive must be located in a secured area accessible only to authorized AIR Program Service representatives. That secured drive must also include an approved method to limit logical access. Colorado Department of Public Health and Environment will test the system for drive security and it should not provide access to the secured floppy except through the approved security procedure. The secured floppy drive shall be designated the "A" drive.

7. Hard Disk

Each unit must come with at least 120 megabytes of hard disk storage. The vendor may use up to 40 megabytes for their programs and data provided at least a full 80 megabytes of usable storage is available for Colorado Department of Public Health and Environment and user information. The hard disk is to be self-parking (where applicable), shock mounted, and able to operate reliably in the inspection environment. The hard disk must also include a Colorado Department of Public Health and Environment approved method of limiting access to data and programs. The hard disk containing programs and data files shall be designated the "C" drive.

8. I/O Ports

The unit must include sufficient I/O ports of proper configuration to allow the connection of all required options and the capability to add additional I/O boards.

9. Keyboard

The Colorado 94 Analyzer keyboard must be fully interfaced with the microcomputer and have all of the necessary normal, numeric, cursor, control, shift, alternate, and function keys needed to operate a standard IBM PC compatible microcomputer, preferably 101 keys should be provided.

10. Bar Code Scanner

The bar code scanner shall be equivalent to the PDF 1000 "HV" (High Visibility) Scanner from Symbol Technologies. Performance specifications are included in Technical Specification Appendix A. The PDF 1000 "HV" is a scanner capable of reading both 1-D and PDF-417(2-D) bar codes.

11. Hard Disk Expansion

System must include a hard disk interface that will fully support a second internal disk drive of the same type as the original type drive or a functional equivalent approved by the Colorado Department of Public Health and Environment that does not compromise tamper-resistance.

12. Additional Storage

3.5" 1.44 Mb Floppy Disk Drive IBM Optical disk drive, floptical, CD ROM reader etc., these options would be for manufacturer offered look up tables, service information or other options requiring additional storage capability.

13. Communications

Hayes compatible modem at 14,400B, M.N.P. Level 5. Error correction: Microcom networking protocol (M.N.P.) levels 1-4 and V.42 data compression: M.N.P. level 5 and V.32BIS/V.42BIS. Protocol will be provided within the operational software package. Modem communications will be necessary during the inspection process for V.I.N. verification, multiple "I" Test Control, vehicle recall etc., from the Network System Host Computer.

2.15 Required Printers

A. Diagnostic printer:

A 24 pin impact printer shall be supplied which is dedicated to the task of printing designated information on a VEHICLE DIAGNOSTIC FORM, or other repair type information. Continuous, fanfold, preprinted (ghost printed certificates) will be used. The printer shall print information on the certificate using 12 characters per inch and 80 characters per line.

B. Certificate Printer:

The certificate printer is to be a "thermal transfer" technology printer, capable of producing PDF 417, two dimensional bar code and Code 39, one-dimensional bar code. As of date, Standard Register produces a model of printer that meets or exceeds all requirements necessary to print upon the required certificate. This model is a PT650 Thermal/Thermal Transfer Printer. Specifications of the certificate printer shall be Standard Register FT650 or equivalent. With equivalency being defined as successful completion of printing, security, storing and dispensing of the required certificate. Final acceptance of alternative printers lies with written State approval.

Standard Register PT650 technical specifications are included in the Technical Specification Appendix B.

PHYSICAL SPECIFICATIONS OF CERTIFICATE:

Physical specifications of the certificate, to include print fields, physical design, materials and sizing are to be determined by the Department of Revenue.

C. Certificate Security:

The inspection certificate printer and certificate storage area shall be located in a secured area. Access to the area securing the printer and certificates shall be available only to the licensed inspector at the station. The certificate storage area shall have a redundant security system utilizing both a hardware lock and a software lock that meets Colorado Department of Public Health and Environment approval. Certificates will be prevented from being "pulled" through the printer. A form of printer locking must be utilized. The secured area containing certificates and the certificate printer, shall be designed so that the same key can be used to open any access doors that secure any optional storage media. If any of these doors are opened, a microswitch (or equivalent) shall be used which prevents the printing of certificates and records each event with time and date to an entry.dat file.

The purpose of the software lock is to restrict access to the printer with the following exceptions: loading and aligning certificates prior to printing, clearing paper misfeed or jam problems, etc., and to provide a record of the personnel performing those functions.

The area containing the certificates shall be located so that proper routing is maintained on the certificates as they are fed through the printer.

If tampering occurs, a software lockout algorithm shall be activated which aborts any existing test sequence and prevents further emission testing until an AIR Program official clears the lockout.

There shall be easy access to the vehicle diagnostic report printer so that the inspector can easily replace paper, clear paper jams and change ribbons.

2.16 Clock/Calendar

The analyzer unit shall have a real time clock/calendar which shall make available the current date and time. Date will be in month, day, year format and time will be in 24-hour format. The AIR Program system host computer shall update both time and date during each transfer of data via the system modem.

The date/time, along with the time the test started and when it ended, is to be included on the test record. The start time is when the inspector's access code is entered and the end time is when the analyzer data is written to the test file.

If the clock/calendar fails or becomes unstable (as referenced to the program host system during modem data transfer), the analyzer unit shall be locked out from I/M testing and a message shall be displayed indicating that service is required.

Resetting of the clock, independent of the host updating, shall require controlled access.

2.17 Lockout Notification

The analyzer shall alert the inspector of any lockout situation by prominently displaying a message on the CRT. Any lockout condition will be stored to file.

2.18 Vehicle Diagnosis

The analyzer shall be capable of menu selection that will allow the analyzer to be used as an ordinary garage type emissions analyzer for general automotive repair work and diagnostics.

2.19 Software Loading

The inspector shall not have to load the microcomputer's operating or applications software to operate the analyzer. On each POWER ON of the analyzer, the analyzer shall automatically do all microcomputer component self-diagnostics, memory checking, and loading of all necessary operating software without inspector intervention. Upon satisfactory computer component check out, the applications software is to present a menu of available analyzer operations. All offered features are to be menu-driven. For each feature, a context sensitive, on-line help facility is to be provided which can be accessed preferably with a single keystroke.

3.0 DISPLAY PROMPTS AND PROGRAMMING CRITERIA REQUIREMENTS

Operational software requirements will be available from the Division upon request.

ATTACHMENT I PDF 1000 Scanner

This document is contained in the Air Pollution Control Division's Emissions Technical Center Procedures Manual and is incorporated by reference.

ATTACHMENT II Thermal Transfer Printer

This document is contained in the Air Pollution Control Division's Emissions Technical Center Procedures Manual and is incorporated by reference.

ATTACHMENT III Colorado Automobile Dealers Transient Mode Test Analyzer System

This document is contained in the Air Pollution Control Division's Emissions Technical Center Procedures Manual and is incorporated by reference.

ATTACHMENT IV Specifications for Colorado 97 Analyzer

INTRODUCTION

Colorado's current enhanced I/M program contains a two-speed idle (TSI) emissions testing component, the Colorado 94 Test Analyzer System that is based upon BAR 90 technology. The TSI program utilizes a decentralized, independent inspection only format encompassing the nine Front Range counties. The DMA program is expanding to the North Front Range counties of Weld and Larimer in 2010. This inspection only population of independent inspectors will conduct inspections utilizing a new Colorado 97 emissions analyzer.

The demands for more accurate analytical information as well as a more automated inspection process with real-time data transfer has superseded the capabilities of BAR 90 (Colorado 94) technology. System enhancements are necessary to meet Colorado's inspection needs. These enhancements and other technical details are described in this document.

1.0 GENERAL

It is expected that the Colorado 97 software will be Colorado 94 software upgraded to BAR 97 and SAE J1978 and J1979 compliance.

1.1 Design Goals

The specifications that have been developed are designed utilizing a personal computer system. The analyzer system must be capable of performing uniform and consistent emission tests for Colorado's Automotive Inspection and Readjustment (AIR) Program. Features of the analyzer include: vehicle emissions measurements of hydrocarbon (HC), carbon monoxide (CO), carbon dioxide (CO₂) and oxygen (O₂); engine RPM measurements, exhaust dilution determinations, pressure test system for EVAP; OBD II monitor readiness and diagnostic trouble code retrieval; data entry; data retrieval tables; a dedicated printer (for vehicle inspection certificates; data recording on hard drive or removable media; modem for "on-line real time" data transmission; monitor information display to the inspector; bar code reader and printing capabilities; and fully menu driven, interactive simple microprocessor controlled operation.

Additional, automatic features required include: gas calibrations, zero and span checks, pressure calibrations, gas auditing procedure; leak checks, HC hang-up checks, audit menus (i.e., data read system), test sequencing, and low-flow checks. The analyzer shall be designed and constructed to provide reliable and accurate service in the automotive environment. The software used in the analyzer shall consist of a process control system as well as data look-up files. Security shall be provided to prevent unauthorized modifications to the software or test data and recording unauthorized entry (tampering) and locking out of the inspection process when detected.

The emissions analyzer software shall be designed for maximum operational simplicity.

It shall also be capable of providing emission-reading characteristics, independent of the inspection function, which can be used for vehicle diagnostic.

1.2 Useful Life

The useful life of the analyzer shall be a minimum of five years.

1.3 Nameplate Data

A nameplate including the following information shall be permanently affixed to the housing of the analyzer:

Name and Address of Manufacturer

Model Description

Serial Number

Date of Assembly

The manufacturer shall affix a stick-on type label to the analyzer that contains a toll-free telephone number for customer service. This number can also be included in a service software message.

1.4 Manuals

Each analyzer shall be delivered with the following manuals:

- A. Reference Operating Instructions
- B. Operation Instruction Manual
- C. Maintenance Instruction Manual (limited)
- D. Initial Start-up Instructions

Colorado 97 Analyzer manufacturers may consolidate manuals. The manuals shall be constructed of durable materials and shall not deteriorate as a result of normal use over a five-year period. The analyzer housing shall provide convenient storage for each manual in a manner that will:

- E. Allow easy use.
- F. Prevent accidental loss or destruction.

1.5 Certification Documentation

The analyzer software shall be fully documented. Two copies of the documentation listed below shall be submitted to Colorado Department of Public Health and Environment as part of the certification application.

- A. Complete program listings. Program listings may be on disk. They are not required to be submitted with the application for certification.
- B. Functional specifications.

- C. Functional flowcharts of the software.
- D. Example inputs and outputs from all processes.
- E. Detailed interface information on system components including the identification of protocol and output specifications.
- F. All file layouts with file names, file types, file security, field names, field types, field sizes, and field editing criteria.

Documentation provided by the vendor to meet this requirement will be treated as proprietary information by Colorado Department of Public Health and Environment.

Prior to certification of any Colorado 97 emissions analyzer for sale in Colorado, the manufacturer of such analyzer shall provide the Division with software source codes and all other technical information (including, but not limited to all working codes, schematics and drawings) necessary to operate, maintain, calibrate and repair such analyzer in the event that the manufacturer or its agent ceases providing adequate maintenance, calibration and repair services in Colorado. The manufacturer shall keep such information current, and will provide the Division with copies of any and all changes. So long as such maintenance, calibration and repair, services are available from the manufacturer or its agent, the Division shall protect such information as confidential commercial data if it is clearly marked as such. In the event that the manufacturer becomes insolvent or stops providing adequate maintenance, repair or calibration services in Colorado all such information shall be the property of the Division and may be released to a third party as necessary to repair, calibrate and maintain the analyzers.

1.6 Warranty Coverage/Service Contract

A written warranty coverage agreement, signed by an authorized representative of the equipment manufacturer and the vehicle inspection station owner, which provides a complete description of coverage for all systems and components and all manufacturer provided services listed in Section 1.8, must accompany the sale or lease of each Colorado 97 emissions analyzer.

An extended service contract shall be available upon the expiration of the manufacturers original warranty period. Original manufacturer's warranty shall be a minimum of one year from the date of purchase. The "service contract" shall be offered in one-year increments. The "service contract" agreement shall include the inspection station owner's name, inspection station address, telephone number, inspection station identification number, analyzer serial number and detailed terms of the agreement. The agreement must extend for at least one year and if purchased, the expiration date must be entered to software file and monitored by the system clock. Approaching expiration messages must be displayed at daily system start-up beginning thirty days prior to expiration and messaging "30 days until expiration, 29 days etc." Renewals shall be offered at the inspection station owner's request and governed by "good business" practices between the parties involved. Service contract agreements must be available by the manufacturer for the mandated life of Colorado AIR Program. Cost disclosures and detailed descriptions of coverage's must be available in printed form and distributed to all Colorado 97 users. Cost disclosure shall also be made for "consumable" inventory items 1.8B. This information would most appropriately be presented with the original manufactures warranty.

1.7 Tampering Resistance

Controlled access design shall be the responsibility of the manufacturer and is subject to approval by Colorado Department of Public Health and Environment. Analyzer service personnel, inspectors or others shall be prohibited, to Colorado Department of Public Health and Environment satisfaction, from creating or changing any test results, programs or data files contained in the analyzer. Manufacturers shall utilize special BIOS partitions, or other appropriate software and hardware provisions, deemed necessary to protect the I/M files and programs. The protection features shall prevent access to the secured floppy disk drive and those portions of the hard disk containing I/M programs and test data or files.

The emission analyzer and the sampling system shall be made tamper-resistant to the Colorado Department of Public Health and Environment satisfaction. At a minimum, the manufacturer shall develop tamper-resistant features to prevent unauthorized access through the cabinet. Microswitches, keyed locks, or software algorithms requiring the use of a password which can be changed by the Colorado Department of Public Health and Environment would all be acceptable provided the physical or logical design effectively prevents unauthorized access.

Manufacturers may offer analyzers with additional disk drives that can run optional software application programs.

If tampering occurs, a software lockout algorithm shall be activated which aborts any existing test sequence and prevents further inspections until an authorized AIR Program official clears the lockout.

The lockout system shall be designed so that an AIR Program official from the audit menu can activate it. Only AIR Program Auditors may remove lockouts put in place from the audit menu. Manufacturers shall develop a system by which their service technicians shall be prevented from clearing "tamper" lockouts.

Optional software packages shall not interfere with the normal operation of the I/M inspection and testing software, and shall not compromise the tamper-resistant features of the analyzer.

Manufacturer field service representatives will not have access to DOS, unless assurances acceptable to Colorado Department of Public Health and Environment have been provided that insure, integrity of the system will not be jeopardized.

1.8 Manufacturer Provided Services

The manufacturer shall agree to provide the following services to the inspection station as part of the manufacturer's original warranty and thereafter as a portion of the service contract agreement. The cost of a service agreement is to be listed on a year-by-year basis. Future charges cannot exceed the amount published.

- A. Delivery, installation, calibration, and verification of the proper operating condition of a Colorado 97 emissions analyzer.
- B. Quarterly (90 days) examination, calibration, and routine maintenance of the analyzer and sampling systems. Full systems support and repair, including loaner units. Upon initial sale or loan, provide "extra" printer medium (1 ea.) sample filter(s) (2), sample hose (1) and sample probes (1). Maintain the "extra" consumable inventory upon examination and provide a software history file for the replacement of consumables accessible to AIR Program officials. Consumables and the cost(s) thereof must be disclosed in the service agreement.

- C. Instruct all certified inspectors employed by the inspection station at the time of installation in the proper use, maintenance, and operation of the analyzer. The analyzer shall contain a feature that will allow an inspector to go through the complete inspection procedure without generating an official inspection record. This function will be used for evaluating inspector performance, by AIR Program officials, or by the manufacturer for demonstration purposes. The "training mode" shall not require the use of an inspector's access code or allow access to secured areas of hardware or software. The display shall show a message throughout the inspection that this is not an official inspection. Vehicle inspection reports shall indicate to the satisfaction of Colorado Department of Public Health and Environment that they are for training only. No official Certificate of Compliance will be generated during the training exercise.
- D. On-site service response by a qualified repair technician within two (2) business days, (48 hours) excluding Sundays and national holidays, of a request from the inspection station. The names, toll-free telephone numbers, and service facility addresses of all manufacturer representatives responsible for equipment service shall be provided to the inspection station. A service representative shall be available at all times during normal working hours. Sundays and national holidays are not included. All system repairs, component replacements, and/or analyzer adjustments, shall be accomplished on-site within 48 hours after a service request has been initiated. If the completion of this work is not possible within this time period, a Colorado 97 loaner unit shall be provided until the malfunctioning unit is properly repaired and returned to service. Service representatives shall have a software driven menu option that allows the transfer of inspection station, inspector information and other applicable data files from one analyzer to another without manual inputs and without transfer of previous test files.
- E. Updates of the "Functional" software will be limited to once per year at no cost.

Updates of operational software, i.e., file based information will be on an "as required" basis. All forms of software updating will utilize modem technology for the updating process. File updates are at no cost and every effort will be made to minimize them.
- F. The analyzer software shall be designed so that AIR Program officials can insert a disk, prepared by the manufacturer, into the Program system host, and update the existing software version, via modem. A system of manual updating by program officials utilizing the auditor's menu shall also be available. Look-up tables and message screens shall be designed sufficiently separate from the main operations software so that it is not possible, to interfere in any way with the operations of the analyzer.

Colorado Department of Public Health and Environment will require the manufacturer to render updates as necessary in the first year of the program to ensure the program meets all design criteria. Thereafter software updates will be limited to once per year at no cost. Since modem software updating will be utilized, there are no costs to the analyzer owner. A software version number, consisting of a four character alpha-numeric code made up of the last two digits of the year followed by a two character version number, shall be recorded in the analyzer and included on each vehicle test record. The analyzer manufacturer shall not modify any existing software version without obtaining written approval from Colorado Department of Public Health and Environment.

Colorado Department of Public Health and Environment may require the manufacturers to conduct on-site or laboratory testing of in-use analyzers in order to document continued compliance. When an analyzer is removed from the field, for repair or testing, manufacturers shall supply the inspection station from which it was removed with a temporary replacement unit meeting all program requirements. Manufacturers shall pay for all necessary shipping and transfer costs for the replacement of the analyzer selected for compliance testing. Manufacturers shall also pay for any required testing performed by their personnel or by an independent company.

The manufacturers shall provide training to AIR Program officials on all operational, maintenance, and quality control features of the analyzers, including full access to and use of inspection menus, audit menus and calibration menus, as well as optional programs offered to inspectors. Such training shall be conducted at the manufacturer's expense as a condition of certification and thereafter at reasonable intervals upon written request by Colorado Department of Public Health and Environment

1.9 Certification Requirements

The manufacturer shall submit a formal certificate to Colorado Department, of Public Health and Environment that states that any analyzer sold or leased by the manufacturer or its authorized representatives for use in Colorado AIR Program will satisfy all design and performance criteria described in these specifications. The manufacturer shall also provide sufficient documentation to demonstrate conformance with these criteria including a complete description of all hardware components, the results of appropriate performance testing, and a point-by-point response to specific requirements. Previous certification by the California Bureau of Automotive Repair (BAR) is necessary for the analytical bench.

In addition, a full description of the company's service procedures and policies, as well as sample contracts, warranties, and extended service agreements, shall be provided as part of the certification application to ensure proper maintenance of all analyzers throughout their useful life. One fully functional analyzer shall be presented for evaluation and one additional fully functional analyzer for the certification process. If certified these units will remain in AIR Program possession for continued in-use evaluation for the life of the AIR Program. In the event that 1 % of overall unit sales exceed this two-unit base, in-use evaluation will require 1 % of overall unit sales for in use evaluation.

2.0 HARDWARE SPECIFICATIONS

2.1 General

Colorado 97 hardware shall be compliant with the BAR 97 Section 2 specification, the August 2008 revision available at: <http://www.bar.ca.gov/pdf/Industry/GasBlenderSpecifications.pdf>

And/or current SAE on-board diagnostic "J" standards including but not limited to J1978 and J1979 available from SAE.

NOTE: The Colorado 97 is not an ASM system. ASM hardware, i.e. the dynamometer and NOx sensor, are not needed. By extension, ASM software is also unnecessary.

2.2 Span Gases

The Colorado 97 shall use two tri-blend span gas blends meeting the current California BAR97 calibration span gas low (blend 31) and high (blend 34) specifications, bearing an official "Colorado Approved Calibration Gas" label as shown in Attachment VI of this Appendix A, and supplied by a vendor approved by the Division.

2.3 Audit Gases

Audit gases shall meet California BAR97 audit gas specifications for low range and mid range #2 audit gases without NO, as approved by the Division.

3.0 SOFTWARE COMPONENTS

3.1 Communication and Data Field Specification

Operational software requirements at a minimum must support the existing Colorado 94 Communication Protocol and Data Field Specification. For inquiries referencing the Communication and Data Field Specification, please contact the Colorado Air Pollution Control Division

3.2 Society of Automotive Engineers (SAE) "J" Standards

The Colorado 97 shall be compliant with current SAE on-board diagnostic "J" standards including but not limited to J1978 and J1979.

3.3 OBD II

The Colorado 97 must be capable of accessing OBD II readiness monitors and diagnostic trouble codes. The operational software requirements will be available from the Division upon request.

3.4 Forms


The Colorado 97 shall be capable of completing the current, print on demand Vehicle Inspection Report (VIR) form. Examples of the VIR are following this Section 3.0.

3.5 Upgrades

Software shall be updated/upgraded per Section 1.8 of this Attachment IV.

Vehicle Inspection Report – Passing Form

DR 2071A (01/31/12)




VEHICLE INSPECTION REPORT

STATE OF COLORADO

RESULTS

A2510FEL9H



Overall Result	Emissions	Equipment Inspection	On Board Diagnostics	Smoke	Total Amount Paid
PASS	PASS	PASS	PASS	PASS	0.00


VEHICLE INFORMATION				OFFICIAL USE ONLY	
DATE: 26-OCT-2011 11:29:41	YEAR: 2007	STATION: 5025E	TEST: 2		
VIN:	MAKE: CHR	LANE: 01	TVFY: B8B6		
PLATE:	MODEL: PT CRUISER	ODOMETER: 22000	VVFY: E7BA		

EMISSIONS TEST INFORMATION				EQUIPMENT INSPECTION	
	READINGS	LIMITS	RESULTS		
HC GPM	0.0099	4.0000	PASS	Catalytic Converter Presence:	PASS
CO GPM	0.0011	20.0000	PASS	Air Injection System Presence:	PASS
CO2 GPM	204.1342			Oxygen Sensor Presence:	PASS
NOx GPM	0.0002	9.0000	PASS	Gas Cap Presence:	PASS
				Gas Cap Integrity:	

ON BOARD DIAGNOSTICS	
Check Engine Light: PASS	Check Engine Light Command Status: Off
Diagnostic Trouble Codes:	P0190, Mass or Volume Air Flow Circuit Malfunction
	P0200, Injector Circuit Malfunction
	P0201, Injector Circuit Malfunction - Cylinder 1
	P0300, Random/Multiple Cylinder Misfire Detected
	P0308, Cylinder 2 Misfire Detected

CONSUMER INFORMATION
<p>Congratulations, your vehicle has passed the emissions inspection. If you are renewing your registration by mail, follow the instructions regarding the renewal process located on the back side of your renewal notice. If you are renewing your registration in person, the Certificate of Emissions Control, located below, must accompany all supporting documents at the time of registration. After 24 hours, you may renew your registration online at www.colorado.gov/renewplates. If the Certificate of Emission Control is lost, a new inspection is required at the owner's/operator's expense. For questions, comments and complaints contact Air Care Colorado at 303-456-7090 or the Department of Revenue at 303-205-5603 and if located outside the Denver Metro Area, call 888-200-8827. Retain this document in the vehicle as proof of emission compliance.</p>
<p>PLEASE REMOVE THE "CERTIFICATE OF EMISSIONS CONTROL", LOCATED BELOW, AND INCLUDE IT WITH YOUR RENEWAL CARD AND REGISTRATION PAYMENT. DO NOT STAPLE THIS DOCUMENT OR PAYMENT TO YOUR RENEWAL CARD.</p>

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State of Colorado

A2510FEL9H

VOID

DATE 26-OCT-2011

YEAR 2007

PLATE


VIN

MAKE



FACILITY 5025E

INSPECTOR 55555

PT CRUISER



Vehicle Inspection Report – Failing Form

DR 2071B (01/10/12) 	<h2 style="margin: 0;">VEHICLE INSPECTION REPORT</h2> <h3 style="margin: 0;">STATE OF COLORADO</h3> <h2 style="margin: 0;">RESULTS</h2>	<div style="border: 1px solid black; padding: 2px; display: inline-block;">B1610DLP91</div> 			
Overall Result	Emissions	Equipment Inspection	On Board Diagnostics	Smoke	Total Amount Paid
FAIL	FAIL	FAIL	ADVISE	FAIL	0.00

VEHICLE INFORMATION	OFFICIAL USE ONLY
DATE: 20-SEP-2012 10:32:06	TEST: 1
VIN:	TVFY: F161
PLATE: TEST1	VVIFY:
YEAR: 2001	STATION: 5016E
MAKE: FORD	LANE: 01
MODEL: FOCUS	ODOMETER: 12345

EMISSIONS TEST INFORMATION	EQUIPMENT INSPECTION																									
<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 25%;">READINGS</th> <th style="width: 25%;">LIMITS</th> <th style="width: 50%;">RESULTS</th> </tr> <tr> <td>HC GPM</td> <td>3.8625</td> <td>FAIL</td> </tr> <tr> <td>CO GPM</td> <td>27.1893</td> <td>FAIL</td> </tr> <tr> <td>CO2 GPM</td> <td>433.8854</td> <td></td> </tr> <tr> <td>NOx GPM</td> <td>2.9067</td> <td>FAIL</td> </tr> </table>	READINGS	LIMITS	RESULTS	HC GPM	3.8625	FAIL	CO GPM	27.1893	FAIL	CO2 GPM	433.8854		NOx GPM	2.9067	FAIL	<table style="width: 100%; border-collapse: collapse;"> <tr> <td>Catalytic Converter Presence:</td> <td>FAIL</td> </tr> <tr> <td>Air Injection System Presence:</td> <td>FAIL</td> </tr> <tr> <td>Oxygen Sensor Presence:</td> <td>FAIL</td> </tr> <tr> <td>Gas Cap Presence:</td> <td>PASS</td> </tr> <tr> <td>Gas Cap Integrity:</td> <td>FAIL</td> </tr> </table>	Catalytic Converter Presence:	FAIL	Air Injection System Presence:	FAIL	Oxygen Sensor Presence:	FAIL	Gas Cap Presence:	PASS	Gas Cap Integrity:	FAIL
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Oxygen Sensor Presence:	FAIL																									
Gas Cap Presence:	PASS																									
Gas Cap Integrity:	FAIL																									

ON BOARD DIAGNOSTICS
Check Engine Light: FAIL Check Engine Light Command Status: On Diagnostic Trouble Codes: 0113, Engine Coolant Temperature Circuit Malfunction 0130, O2 Sensor Circuit Malfunction (Bank 1 Sensor 1) 0172, System too Rich (Bank 1)

CONSUMER INFORMATION
Your vehicle has failed to comply with required State regulations for emissions inspection. All items listed as failure must be addressed prior to your next inspection. For questions, comments and complaints contact Air Care Colorado at 303-456-7090 or the Department of Revenue at 303-205-5603 and if located outside the Denver Metro Area, call 888-200-8827. You are entitled to one free reinspection within 10 calendar days, the reinspection can be performed at any one of Air Care Colorado's centers. The information recorded on this report is extremely valuable to a repair technician when having your vehicle repaired. If your vehicle fails the reinspection, you may be entitled to a waiver. Waiver eligibility information, to include hardship waivers, is available at the inspection station or by calling the Department of Revenue at 303-205-5603.

HIGH HC READINGS	HIGH CO READINGS	HIGH NOx READINGS
HIGH HC READINGS ARE A RESULT OF UNBURNED OR PARTIALLY BURNED FUEL.	HIGH CO READINGS OCCUR WHEN THE AIR/FUEL MIXTURE IS TOO RICH.	HIGH NOx READINGS ARE THE RESULT OF HIGH COMBUSTION TEMPERATURES AND/OR PRESSURES.

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VEHICLE REPAIR FORM		
This form must be completed by the person performing the repairs AND accompany the vehicle at the time of reinspection.		
Mark here if some or all repairs were warranty or recall related: <input type="checkbox"/>	Parts Costs:	\$
Repaired by Vehicle Owner: <input type="checkbox"/> Repaired by Repair Facility: <input type="checkbox"/>	Labor costs:	\$
Repair Date:	Miscellaneous Costs:	\$
Name of Repair Facility:	Diagnostic Costs:	\$
Name of Person Filling Out Form:	Total Repair Costs:	\$
Technician Number:		
Facility Number:		
Signature:		
VIN:		

ATTACHMENT V Specifications for Colorado On-Board Diagnostic (OBD) Stand-Alone Analyzer

INTRODUCTION

This document contains specifications for manufacturers to design a Colorado (CO) Onboard Diagnostic (OBD) Test Analyzer System (CO-OBD-TAS) for use in the Colorado Automobile Inspection and Readjustment (AIR) program. The CO-OBD-TAS certified for use shall be capable of conducting OBD emissions inspections, malfunction indicator lamp/check engine light (MIL) visual inspections, gas cap visual and pressure tests and a visual opacity check.

Changes to Regulation 11 allow for OBD Inspections as of January 1st 2015. Light-duty vehicles in their eighth through eleventh (8th-11th) model years will receive a mandatory (i.e., pass/fail determination) OBD inspection.

The OBD, MIL, gas cap and opacity inspections shall be conducted in accordance with the procedures set forth in AQCC Regulation No. 11, 40 C.F.R. Part 51, and EPA guidance document 420-R-01-015, *Performing Onboard Diagnostic System Checks as Part of a Vehicles Inspection and Maintenance Program*.

Design Goals

The CO-OBD-TAS must be designed and constructed to provide reliable and accurate service in the automotive service environment and have a useful life of at least five years. The software used in the CO-OBD-TAS must consist of a process control system capable of using reference data. The software also must be designed for maximum operational simplicity and be capable of providing testing information that can be used for vehicle diagnostics. In addition, the CO-OBD-TAS must include security measures that will prevent unauthorized modifications to the software or inspection data, record unauthorized entry, also known as tampering, and prevent subsequent inspections when tampering is detected.

The CO-OBD-TAS specifications contain the minimum requirements for CO-OBD-TAS used to perform emissions inspections in the AIR Program. Manufacturers may include additional items with approval from the Colorado Department of Public Health and Environment (CDPHE).

It is expected that the CO-OBD-TAS software will be SAE 1978 and J1979 compliant. The OBD inspection will include a visual and functional (bulb) check of the Malfunction Indicator Light (MIL) and an electronic examination of the vehicle's OBD computer. As outlined in the EPA guidance document, there are seven steps in this OBD inspection:

- Initiate the inspection by collecting and entering the vehicle identification information;
- Perform a visual inspection of the MIL and perform a key-on, engine-off inspection;
- Locate the vehicle's data link connector (DLC) and connect the OBD test equipment;
- Start and run the vehicle;
- With the OBD test equipment connected, determine the following:
 - The status of the vehicle's non-continuous readiness monitors;
 - The status of the MIL (commanded on or off);
 - The Diagnostic Trouble Codes (DTCs);

- Electronically record the results of the OBD inspection; and
- Turn off the vehicle and disconnect the scan tool.

Pass/Fail Requirement

The CO-OBD-TAS shall fail vehicles for the following reasons:

- Gas Cap visual fails; or
- Gas Cap integrity does not meet the standards; or
- Visual opacity greater than 5%; or
- The MIL does not illuminate at all during the Bulb check (Fail); or
- The MIL stays illuminated when the vehicle is running (Fail); or
- MIL status is commanded on; regardless of whether or not the MIL is actually illuminated (Fail).

The CO-OBD-TAS shall pass vehicles for the following reasons:

- Gas Cap visual inspection passes;
- Gas Cap integrity is within standards;
- Visual opacity less than 5%;
- The readiness requirements in Section 4 are met;
- The MIL visual bulb check passes;
- The MIL is not commanded on; and
- No Fraud is detected, as per Section 7.

Readiness Monitors

As part of the OBD inspection, the status of the vehicle's non-continuous readiness monitors is to be queried. The OBD TAS Manufacturer will implement EPA's listing of "Manufacturers Known to Have OBD Readiness Issues" and apply corrections to the readiness monitor requirements for those vehicles.

If the readiness evaluation indicates that a vehicle has more than one unset (not ready) readiness monitor, and the malfunction indicator light (MIL) is commanded off, then the inspection shall be automatically aborted with the reason printed out on the vehicle Inspection Report (VIR).

If a vehicle is unable to receive an OBD inspection (i.e. unable to communicate, DLC or readiness monitor issues), then the inspection will be aborted and the reason printed out the vehicle Inspection Report (VIR).

Keyless Ignitions

If a vehicle has a keyless ignition, then the OBD TAS software shall bypass the MIL bulb check. The software shall determine keyless ignition systems electronically, by way of an OBD test information look-up table. The software shall provide for an override (changes the default, from the table, for the keyless ignition data field) in case the keyless ignition vehicle is not listed in the table.

OBD Retest Requirements

The same readiness monitor requirements in Section 4 shall apply to OBD re-tests.

OBD Fraud Prevention

The contractor will build an OBD inspection fraud detection module as approved by the CDPHE in the CO-OBD-TAS software.

OBD Equipment Requirements

The CO-OBD-TAS must include hardware and software necessary to access the on-board computer systems on all model-year 1996 and newer vehicles. The equipment design and operation of the CO-OBD-TAS must meet the federal requirements contained in Title 40 of the Code of Federal Regulations (CFR), Chapters 85.2207-2231 and the recommended practices regarding OBD inspections contained in the J1962, J1978 and J1979 published by the Society of Automotive Engineers (SAE). The CO-OBD-TAS must be able to connect to the vehicle's OBD connector and access, at a minimum, the following OBD data:

- The engine revolutions per minute (RPM);
- The readiness monitor status;
- The malfunction indicator light (MIL) status;
- The OBD communications protocol;
- The electronic VIN; and
- The diagnostic trouble codes (DTCs).

At a minimum, the CO-OBD-TAS must also be capable of communicating with all OBD vehicles that use the following communications protocols:

- International Organization for Standardization (ISO) 9141;
- Variable pulse width (VPW) as defined in the SAE's J1850;
- Pulse width modulation (PWM) as defined in the SAE's J1850;
- Keyword protocol 2000 (KWP); and
- Controller area network (CAN) as defined in the ISO 15765-4.3:2001.

The OBD interrogation process must be fully integrated into the CO-OBD-TAS, automated, and require no inspector intervention to collect and record the OBD data retrieved via the OBD connector link. No separate interface may be used.

The CO-OBD-TAS shall meet the design and performance specifications in the Air Quality Control Commission's (AQCC) Regulation Number 11.

Gas Cap Tester

The gas cap tester must be able to supply air pressure significant enough to produce and measure a leak rate of 60 cubic centimeters per min (cc/min) of air at 30 inches of water pressure. The tester must be tamper resistant; control the air supply pressure and prevent over pressurization; provide a visual or digital signal that the required air supply pressure is within the acceptable range and a flow comparison test is ready to be conducted; be supplied with a reference passing gas cap, or equivalent, with a nominal 52-56 cc/min leak rate; and be supplied with a reference failing gas cap, or equivalent, with a nominal 64-68 cc/min leak rate.

The tester may use: a squared edged circular orifice to generate the required leak rate; and ambient air or any convenient low pressure source.

The gas cap tester connector must be a minimum length of 20 feet so that it can reach gas caps that are attached to vehicles.

The CO-OBD-TAS must prevent all inspections if the gas cap tester calibration has not passed in the last 24 hours.

Gas Cap adapters must be available for at least 95 percent of the gas caps used for the most recent 12 model-year light-duty vehicles and trucks. Varying internal volumes of the gas caps and adapter assemblies must not affect the accuracy of the inspection results. Adapters must be made available the first day of each year upon the introduction of new model-year vehicles.

Opacity

The CO-OBD-TAS software shall require an entry for a visual opacity inspection.

Recording of Test Results/Documentation

The CO-OBD-TAS shall automatically record the date, start time, station, and inspector ID for each test. Required data for each element of the inspection shall be collected and entered into the CO-OBD-TAS. A data specification is available from CDPHE upon request. Due to possible systems changes or new requirements, the required data list may be changed.

The CO-OBD-TAS shall print the test results in the form of a state-approved Vehicle Inspection Report (VIR, Form DR2071). The CO-OBD-TAS shall print these forms from plain security paper or some other paper as approved by CDPHE. The VIR shall contain at a minimum the OBD test results. VIRs for vehicles with a passing OBD test shall include a Certificate of Emissions Compliance (CEC) printed on the VIR.

Computers and Peripheral Requirements

The CO-OBD-TAS functions must be controlled by a personal computer (PC), or functional equivalent, and include the hardware and software needed to perform the functions required by this specification.

The CDPHE reserves the right to add additional programs and performance requirements, up to the technical limits of the hardware, to improve the AIR program.

The manufacturer may offer a CO-OBD-TAS with additional disk drives that can run optional software hardware application programs, however, the computer must not be bootable from any additional drive, nor must any program run from one of these drives have access to the computer's operating system. Additional drives must be located in a limited access secured area within the CO-OBD-TAS cabinet. The peripheral equipment, such as bar code readers, OBD scanners, and keyboards may use wireless communication to interact with the CO-OBD-TAS.

VID Communications Overview

A required component of the AIR program is the electronic transmission of inspection data. The

Centralized Emissions Testing Contractor for the Colorado AIR program has an electronic network that enables the CO-OBD-TAS to automatically connect to a centralized vehicle identification database (VID). The CO-OBD-TAS must demonstrate the ability to receive, install, use, and transmit data to and receive data from the VID using the communications protocol. The communications protocol will be provided by the CDPHE.

Each inspection station must obtain and maintain VID communication services. The CO-OBD-TAS must use the communications protocol to access the features of the VID communications services in order to conduct vehicle inspections.

Printer

A laser printer or a CDPHE approved equivalent printer must be supplied with each CO-OBD-TAS purchased, leased, or upgraded. The CO-OBD-TAS's printer must be interchangeable with a locally purchased off-the-shelf laser printer.

Power and Telephone Cord

The modem must be, at a minimum, designed to connect to the CO-OBD-TAS with a modular telephone connector that has a standard wiring configuration. The connector must be located on the back of the CO-OBD-TAS cabinet. Alternatives to this requirement may be proposed to the CDPHE for evaluation.

The telephone and power cords must be at least 25 feet long and enclosed in a protective cable meeting the Underwriter's Laboratory approval. Alternative methods to protect the telephone and power cords may be submitted to the CDPHE for approval. The manufacturer shall design the cabinet so that convenient storage is provided for the excess telephone and power cords.

Power Requirements

The CO-OBD-TAS must operate on an alternating current (AC) and must not be powered by a portable AC generating unit. Input power must be 115 volts of alternating current (VAC) with 60 hertz. The instruments must meet the specified requirements over an input voltage variation of at least +/- 12 volts.

Construction

The CO-OBD-TAS must be designed and constructed to provide reliable and accurate service in the automotive service environment. The CO-OBD-TAS must be supplied with a cabinet that is equipped with a storage area large enough to secure all accessories and operating manuals.

Materials

The materials used in construction of the CO-OBD-TAS must be resistant to corrosive substances found in the automotive service environment and be designed to last for at least five years. The exterior and interior finish of the entire cabinet and console must be sufficiently durable to withstand the chemicals and environmental conditions normally encountered in the automotive service environment for the period of the warranty.

Mobility

The CO-OBD-TAS may be permanently mounted or mobile with the use of wheels. Wheels must be at least five inches in diameter and have a locking mechanism capable of preventing movement on a 15 degree incline.

The CO-OBD-TAS must be designed to move over rough surfaces, through three-inch deep holes, and on 15 degree inclines without tipping over. The CO-OBD-TAS must not tip over when placed at the center of an inclined plane and rotated 360 degrees stopping in the position where it is most likely to tip over. The incline plane must make an angle of 10 degrees with the horizontal floor. In addition, the CO-OBD-TAS must not become unstable or tip over when rolled straight off the edge of a two-inch high platform or when one wheel is rolled over a drain, two inches below the surface, or inside an 18-inch diameter depression.

Electrical Design

Fuses or circuit breakers must be used to protect individual electrical circuits in the CO-OBD-TAS. The main circuit breaker and fuses must be readily accessible from the exterior of the cabinet. CO-OBD-TAS operation must be unaffected by electrical line noise and voltage surges. The CO-OBD-TAS must be protected from voltage surges to prevent damage to the internal components from a simultaneous start up of a 220 volt compressor, an arc welder, hydraulic controls, and other equipment commonly found in the typical automotive service environment.

Bar Code Scanner

The bar code scanner must be able to read a one-dimensional (1-D) and a two-dimensional (2-D) bar code through a windshield and use visible laser diode technology or an equivalent approved by the CDPHE. The bar code scanner must not be able to read Universal Product Code (UPC) 1-D bar codes. The bar code scanner must be able to withstand multiple drops to concrete covering a distance of at least 4 feet and be environmentally sealed to withstand the normal operating conditions of an automotive service environment.

Additional Specifications

The useful life of the CO-OBD-TAS shall be a minimum of five years.

A nameplate including the following information shall be permanently affixed to the housing of the CO-OBD-TAS: Name and Address of Manufacturer, Model Description, Serial Number, and Date of Assembly.

Each CO-OBD-TAS shall be delivered with the following manuals: Reference Operating Instructions,

Operation Instruction Manual, Maintenance Instruction Manual (limited), and Initial Start-up Instructions

CO-OBD-TAS manufacturers may consolidate manuals. The manuals shall be constructed of durable materials and shall not deteriorate as a result of normal use over a five-year period. The CO-OBD-TAS housing shall provide convenient storage for each manual in a manner that will allow easy use and prevent accidental loss or destruction.

The CO-OBD-TAS software shall be fully documented. Two copies of the documentation listed below shall be submitted to CDPHE as part of the Certification application.

Functional Specifications

CO-OBD-TAS manufacturers shall provide for use during the Acceptance Testing Process:

- Functional flowcharts of the software;
- Example inputs and outputs from all processes;
- Detailed interface information on system components including the identification of protocol and output specifications; and
- All file layouts with file names, file types, file security, field names, field types, field sizes, and field editing criteria.

Documentation provided by the vendor to meet this requirement will be treated as proprietary information by Colorado Department of Public Health and Environment.

Prior to certification of any CO-OBD-TAS for sale in Colorado, the manufacturer shall provide the CDPHE technical information (including, but not limited to all working codes, schematics and drawings) necessary to operate, maintain and repair such CO-OBD-TAS in the event that the manufacturer ceases providing adequate maintenance, and repair services in Colorado.

The CO-OBD-TAS manufacturer shall keep such information current, and will provide CDPHE with copies of any and all changes. So long as such maintenance and repair services are available from the manufacturer or its agent, the CDPHE shall protect such information as confidential commercial data if it is clearly marked as such. In the event that the manufacturer becomes insolvent or stops providing adequate maintenance or repair services in Colorado all such information shall be the property of the CDPHE and may be released to a third party as necessary to repair and maintain the CO-OBD-TAS.

Warranty Coverage

A written warranty coverage agreement, signed by an authorized representative of the equipment manufacturer and the vehicle inspection station owner, which provides a complete description of coverage for all systems and components and all manufacturer provided services must accompany the sale or lease of each CO-OBD-TAS. Original manufacturer's warranty shall be a minimum of one year from the date of purchase. An extended service contract shall be available upon the expiration of the manufacturer's original warranty period.

Tampering Resistance

Controlled access design shall be the responsibility of the manufacturer and is subject to approval by CDPHE. CO-OBD-TAS service personnel, inspectors or others shall be prohibited, to satisfaction of CDPHE, from creating or changing any test results, programs or data files contained in the CO-OBD-TAS. The CO-OBD-TAS shall be made tamper-resistant to the satisfaction of CDPHE and DOR.

If tampering occurs, a software lockout algorithm shall be activated which aborts any existing test sequence and prevents further inspections until an authorized AIR Program official clears the lockout.

Auditing Requirements

Title 42, Article 4, Part 3, C.R.S. establishes the I/M Program-based authority of the Colorado Department of Revenue (DOR). As such, DOR is responsible for emissions inspector and station licensing as prescribed by C.R.S., AQCC Regulation 11, and DOR Regulation 1. In order to maintain the integrity of the I/M Program, DOR conducts various quality assurance audits of the CO-CO-OBD-TAS units. The specification for this audit will be provided by CDPHE and DOR.

Manufacturer Provided Services

The CO-OBD-TAS manufacturer shall agree to provide the following services to the inspection station as part of the manufacturer's original warranty:

The delivery, installation, calibration, and verification of the proper operating condition of a CO-OBD-TAS.

Instruction of all certified inspectors employed by the inspection station, at the time of installation, in the proper use, maintenance, and operation of the CO-OBD-TAS.

On-site service response by a qualified repair technician within two (2) business days, (48 hours) excluding Sundays and national holidays, of a request from the inspection station.

CDPHE will require the manufacturer to render updates as necessary in the first year of the program to ensure the program meets all design criteria. Thereafter software updates will be limited to once per year at no cost. Since modem software updating will be utilized, there are no costs to the CO-OBD-TAS owner. A software version number, consisting of a four character alpha-numeric code made up of the last two digits of the year followed by a two character version number, shall be recorded in the CO-OBD-TAS and included on each vehicle test record. The CO-OBD-TAS manufacturer shall not modify any existing software version without obtaining written approval from CDPHE.

CO-OBD-TAS manufacturers shall provide training to AIR Program officials on all operational, maintenance, and quality control features of the CO-OBD-TAS units, including full access to and use of inspection menus and audit menus. Such training shall be conducted at the manufacturer's expense as a condition of certification.

Certification Requirements

The CO-OBD-TAS manufacturer shall submit a formal certificate to CDPHE that states that any CO-OBD TAS sold or leased by the manufacturer or its authorized representatives for use in Colorado AIR Program will satisfy all design and performance criteria described in these specifications. The manufacturer shall also provide sufficient documentation to demonstrate conformance with these criteria including a complete description of all hardware components, the results of appropriate performance testing, and a point-by-point response to specific requirements.

In addition, a full description of the company's service procedures and policies, as well as sample contracts, warranties, and extended service agreements, shall be provided as part of the certification application to ensure proper maintenance of all CO-OBD-TAS throughout their useful life. One fully functional CO-CO-OBD-TAS shall be presented for evaluation and certification process.

The Acceptance Testing Procedure (ATP) for CO-OBD-TAS will include a verification that the unit meets all requirements in this specification and federal requirements contained in 40 CFR §§85.2207 - 85.2231 and the recommended practices contained in the J1962, J1978, and J1979 published by the SAE. The ATP procedures and acceptance criteria are contained in the EPA's guidance document, "*Performing Onboard Diagnostic System Checks as Part of a Vehicle Inspection and Maintenance Program*" (EPA, 2001) or EPA's applicable update to this document.

ATTACHMENT VI “Colorado Approved” Calibration Span Gas Label Samples

	Colorado Approved Calibration Gas <u>AIR94 LOW</u> BLENDER AIR LIQUIDE LOT # 031820131 FILL DATE 03/18/2013 EXPIRES 05/13/2016 AIR # CO13L00001		Colorado Approved Calibration Gas <u>AIR94 MID</u> BLENDER AIR LIQUIDE LOT # 031820132 FILL DATE 03/18/2013 EXPIRES 05/13/2016 AIR # CO13M00001
 *CO13L00001*		 *CO13M00001*	

APPENDIX B Standards and Specifications for Calibration/Span Gas Suppliers [Repealed eff. 11/30/2014]

Editor's Notes

History

Entire rule eff. 08/30/2007.

Part G, Part H (XX), Delete Part A (IV.F) eff. 11/30/2007.

Part F (I-V); Part G (VI.B), (VIII.B) (IX); Part H (XXI) eff. 04/30/2008.

Parts A – G, Part H (XXII) eff. 11/30/2008.

Part A I, II, IV, V; Part B I, VII; Part C II, VIII; Part F III; Part G; Part H I, II, III, IV, V, VI, VII, VIII, XI, XII, XIII, XV, XVI, XVII, XVIII, XIX, XXI, XXII, XXIII; Appendix A 1.6, 2.11; Attachment III to Append A; Appendix B; Attachment II to Append B Eff. 01/30/2009.

Entire rule eff. 05/15/2010.

Part F (VI.A), Part H (XXV) eff. 09/30/2010.

Part F (III.C-E); Part H (XXVI) emer. rule eff. 11/01/2010; expired 02/18/2011.

Part F (III.C-D); Part H (XXVII) eff. 03/02/2011.

Part A (V.A), Part H (XXVIII) eff. 10/30/2011.

Entire rule eff. 06/30/2012.

Parts A-G, H (XXX) eff. 02/15/2013.

Entire rule eff. 12/30/2013.

Part A (II), Part B (IV.B), Part C (II.B.4, II.C, III.A, VIII-X, XII.A.3, XII.E.2), Part D (IV.E), Part F (VI.B), Part H (XXXII), Appendix A eff. 11/30/2014. Appendix B repealed eff. 11/30/2014.

Part A (II.43), (V.A.), Part H (XXXIII) eff. 01/14/2017.

Part C (II.C), Part D (I.B), Part F (VI-VII), Part H (XXXIV), Appendix A Attachment V eff. 09/30/2017.