Fleet Emissions Testing Compliance Handbook

Updated 11/30/2021

Introduction

This handbook has been developed to assist and inform entities that are eligible to receive a fleet emissions testing permit in Arizona. ADEQ issues two types of fleet emissions testing permits —Government and Non-Government. The procedures and requirements in this handbook apply to both types of permits, unless stated otherwise.

This handbook describes the fleet station permitting process, the types of permits issued by ADEQ, emissions inspector licenses, required inspection equipment, equipment maintenance procedures, inspection procedures, and record keeping procedures. The handbook was developed from laws and regulations found in Arizona Revised Statutes (A.R.S.) Title 49, Chapter 3, Article 5, and Arizona Administrative Code (A.A.C.) Title 18, Chapter 2, Article 10. This handbook is not law and is only meant to assist individuals, governments, and businesses who have received a fleet emissions testing permit pursuant to the previously stated laws and regulations.

A fleet emissions testing permit will allow for the inspection of fleet vehicles by fleet personnel at the fleet's facility. The permits are issued after ADEQ has found that the facility:

1. Maintains an established place of business for the repair and maintenance of the applicant's fleet of vehicles.
2. Has obtained approved machinery, tools and equipment to adequately conduct the required emissions inspections.
3. Employs properly trained and licensed personnel with which to perform the necessary labor.
4. Agrees to provide data as may be prescribed by ADEQ's Director.
5. Will emissions test more than 25 vehicles in a calendar year.

This program may be especially useful for motor vehicle dealers. A.R.S. §49-542 mandates that every non-exempt motor vehicle sold by a dealer is required to pass an emissions inspection prior to delivery to the retail purchaser. The dealer is responsible for the cost of the inspection and any repairs necessary to pass the inspection.

Governments and non-dealer businesses can also take advantage of the program to ensure that the vehicles they operate comply with emissions testing requirements in the state. ADEQ issues government vehicle certificates of inspection (GVCOIs) to government fleet stations so those entities can comply with A.R.S. §49-557. All other entities are issued certificates of inspection (COIs) that can be used to register the vehicle.

ADEQ now offers a new way to meet the requirements of the fleet emissions testing program — the myDEQ web portal. myDEQ allows permittees to order & purchase COIs online, submit testing results online, and enables paper-free management of an emissions

inspecting workforce. For more information about myDEQ and to set up an account, visit **azdeq.gov/myDEQ.**

The improvement of air quality is the goal of Arizona's Emissions Testing Program. Phoenix and Tucson experience serious air pollution problems. The pollution created can obscure vision and cause itchy or burning eyes. Several serious health problems can be attributed to smog. The most common complaints are: headaches, reduced alertness, and breathing problems for those with respiratory and heart ailments. Long-term exposures to some elements of smog are known carcinogens.

The automobile is a major contributor to Arizona's pollution problems in the larger metropolitan areas. The major problem is improper or poor vehicle maintenance.

Arizona's Emissions Testing Program checks for three primary pollutant gases — hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) on vehicles 1967 through 1995 model years with a gross vehicle weight rating (GVWR) of 8500 or less (light-duty), and, on all heavy-duty vehicles (GVWR 8501 and greater). The concern is when these pollutants exceed the Environmental Protection Agency's (EPA's) federal standards.

Note: In Pima County, NOx is not currently measured.

These gases are invisible and are not detectable by simple observation. Special testing devices, such as infra-red exhaust gas analyzers (1/R analyzer) and/or Constant Volume Sampling (CVS) Systems, are used to measure the levels of HC, CO and NOx in a vehicle's exhaust.

Measuring the levels of HC and CO in a vehicle's exhaust not only detects whether the vehicle is emitting excessive pollution, but also serves as a diagnostic tool for troubleshooting problems with certain vehicles when they fail an emissions inspection.

If you have any questions regarding this handbook or the fleet emissions testing program, please call the Vehicle Emissions Inspection and Compliance Unit in Tucson at 520-628-5651 or 602-771-3950 in greater Phoenix.

Table of Contents

Section I

Fleet Station Permit Requirements

A. Fleet Station Facility and Personnel Requirements

Permitted fleet emissions inspection stations must meet the following requirements:

1. The permitted facility must be exclusively owned or leased by the applicant and located inside a non-attainment area, as defined in A.R.S. §49-541(1) & (2).

   Note: Area A is generally the Phoenix metropolitan area. Area B is generally the Tucson metropolitan area. Refer to A.R.S.§49-541(1) & (2) for specifics on the different areas.

   Area A only **–** Motor vehicle dealer fleets located within 50 miles of the outer boundary of Area A may qualify for a fleet permit if they certify to ADEQ that customers who reside in Area A are the primary source of their business.

2. The applicant must own or lease at least 25 non-exempt vehicles.
   - Licensed motor vehicle dealers must have a business inventory of at least 25 non-exempt vehicles held for resale. This may be counted cumulatively over a 12-month period.
   - Newly established motor vehicle dealers must certify that at least 25 non-exempt vehicles will be inspected within each 12-month period.
   - Governments or non-dealer fleets must own and operate 25 non-exempt vehicles.
3. The facility must have a space specifically dedicated to maintaining or repairing at least one fleet vehicle.
4. The applicant must employ a licensed fleet agent who oversees day to day operations of the fleet.
5. The fleet must employ at least one licensed emissions inspector to perform inspections on fleet owned vehicles. The licensed inspector must be certified to inspect for the types of vehicles owned or leased by the fleet. The inspector and the agent can be the same person.
6. The applicant or employee(s) must own or lease equipment necessary to perform all aspects of the required inspections.
7. The applicant must agree to provide data to ADEQ as prescribed by ADEQ's Director.
8. The applicant must create and maintain an account on ADEQ's web portal, myDEQ.

B. Fleet Permit Suspension or Revocation

Fleet station permits do not expire. However, the fleet permit can be suspended, revoked, or civil penalties imposed if the fleet owner or employees:

1. Violate any provision of A.R.S. Title 49, Chapter 3, Article 5 or A.A.C. Title 18, Chapter 2, Article 10;
2. Misrepresent material facts in obtaining a fleet permit;
3. Fail to make, keep and submit pertinent records to ADEQ;
4. Fail to provide a state inspector access to the information required by law.

C. Required Equipment and Different Testing Types

The following list of testing types and required equipment is for permittee guidance only. For official requirements, please visit the laws and regulations found in A.R.S. Title 49, Chapter 3, Article 5, and the A.A.C. Title 18, Chapter 2, Article 10 for binding requirements.

1. **Idle or Idle and 2,500 RPM Unloaded Testing.** Available for all permittees.
   The following test equipment is required:
   - A non-dispersive infra-red CO and HC emissions analyzer that is equipped with a water trap in the sampling system. The analyzer must meet the requirements of A.A.C. R18-2-1006.
   - Pressure test equipment for the functional gas cap test capable of determining that the gas cap leakage does not exceed 60cc per minute at 30 inches of water gauge. The pressure test equipment must comply with the requirements of A.A.C. R18-2-1006.
   - A scan tool.
   - A tachometer
2. **Steady-State Loaded Testing.** Available for all permittees.
   The following test equipment is required:
   - A non-dispersive infra-red CO and HC emissions analyzer that is equipped with a water trap in the sampling system. The analyzer must meet the requirements of A.A.C. R18-2-1006.
   - Pressure test equipment for the functional gas cap test capable of determining that the gas cap leakage does not exceed 60cc per minute at 30 inches of water gauge. The pressure test equipment must comply with the requirements of A.A.C. R18-2-1006.
   - A dynamometer to operate the vehicle under load.
3. **On-Board Diagnostic Testing.** Government/Non-Dealer fleets only.
   The following test equipment is required:
   - A scan tool used to perform the OBD test that conforms to the requirements of "Performing On-Board Diagnostic System Checks as Part of a Vehicle Inspection

and Maintenance Program," EPA420-R-01-015, EPA, June 2001. A copy of this material is available on the ADEQ website at **azdeq.gov/VECS/Rulemaking.**

- The basic functions the OBD scan tool must support are:
  - Automatic hands-off determination of the communications protocol.
  - Obtaining and displaying the status and results of the vehicle on-board diagnostic evaluations (supported and completed readiness test and malfunction indicator lamp (MIL) status).
  - Obtaining and displaying the following:
    - Diagnostic Trouble Codes (DTCs).
    - Emissions-related current data (engine parameters).
    - Emissions-related freeze frame data.
    - Latest test parameters and results.
    - Other emissions-related test parameters and results described in the guidance document.
    - Clearing stored emissions-related DTCs, freeze frame data, and diagnostic test results.
- The scan tool must have the diagnostic test modes for emissions-related diagnostic data as follows:
  - Mode #1 — Request for current power-train diagnostic data including: engine parameters, MIL status, and readiness codes.
  - Mode #2 — Request for power-train freeze frame data.
  - Mode #3 — Request emissions-related power-train DTCs.
  - Mode #4 — Clear/Reset emissions-related diagnostic information including MIL status, DTCs, Freeze Frame, and Readiness Codes.
  - Mode #5 — Request oxygen sensor monitor test results.
  - Mode #6 — Request latest on-board monitoring test results for noncontinuous monitoring systems (i.e., catalyst, EGR, evaporative system, etc.).
  - Mode #7 — Request latest on-board monitoring test results for continuous monitoring systems (i.e., fuel trim, misfire, comprehensive components).
- Pressure test equipment for the functional gas cap test capable of determining that gas cap leakage does not exceed 60cc per minute at 30 inches of water gauge.

4. **SNAP Diesel Testing.** Available for all permittees.
   - The following test equipment is required:
     - An opacity meter that meets the requirements of A.A.C. R18-2-1006(C) (10) and Society of Automotive Engineer Recommended Practice J1667.

5. **Loaded Diesel Testing.** Available for all permittees.
   - The following test equipment is required:
     - An opacity meter that meets the requirements of A.A.C. R18-2-1006(C) (10) and Society of Automotive Engineer Recommended Practice J1667.
     - A dynamometer to operate the vehicle under load.

D. General Fleet Station Requirements

The following requirements apply to all fleet stations:

1. The fleet permit along with licenses of agents and inspectors employed by the fleet must be displayed within the facility.
2. Whenever a licensed inspector is hired, terminated, or resigns, the fleet station must notify ADEQ within 14 days of the change in employment status. Notification can be done by updating the fleet's myDEQ account with the relevant information. Simply remove or add the inspector within your myDEQ account.
3. If the fleet's only licensed inspector leaves the employment of the fleet station, the fleet must immediately cease operating as a fleet inspection station and notify ADEQ of the change in employment status within 7 days. However, the fleet may remove the inspector from the fleet's myDEQ account as appropriate notification.
4. Whenever a fleet agent is hired, terminated, or resigns, the fleet owner must do the following when applicable:
   - When a fleet agent is hired, the fleet must notify ADEQ within 7 days of the designation of a new fleet agent. This will require the fleet owner to update the fleet's myDEQ account.
   - When a fleet agent is terminated or resigns and there is no qualified individual to assume the responsibility of day-to-day operations, the fleet must immediately cease operations as a fleet station and notify ADEQ within 7 days of the change.
   - When a fleet agent is terminated or resigns and there is another licensed individual to assume the responsibility of day-to-day operations, the fleet must notify ADEQ within 7 days of the designation of a new fleet agent.
5. The fleet permit is only applicable to the fleet's inspection facility located at the address on the permit. Additional facilities will require separate permits. A permitted facility that changes its name or address, but retains the same fleet ownership, is required to terminate the permit and submit a new permit application. A new facility audit will be required.

Section II

MyDEQ — Your Portal for Fleet Station Emissions Testing Management

A. Obtaining a myDEQ Account

A myDEQ account can only be obtained by a responsible corporate officer. Visit **azdeq.gov/myDEQ/register** for guidance on setting up an account.

B. Adding Users — myDEQ Roles for Permit Application and Management

After your myDEQ account has been created, you will be able to add other users who are able to perform specific compliance tasks.

Visit **static.azdeq.gov/mydeq/adding_users.pdf** for a guide on how to add users to your myDEQ account.

Your myDEQ account has different levels of permissions available for users. These are called "roles." For a fleet emissions testing station permit, the following roles apply:

1. RCO — Responsible Corporate Officer
   - The RCO is the only role that can set up a myDEQ account and link it to the permitted corporate entity. The RCO can also perform other management-level myDEQ tasks, such as purchasing COIs and modifying inspectors and agents. The RCO will have to create the myDEQ account and add other users to create a functioning fleet permitting ecosystem. After the RCO adds a DRO, the DRO will be able to perform all high-level compliance tasks within the myDEQ account.
2. DRO — Designated Responsible Officer
   - A DRO can perform all the same functions as an RCO, but they must first be designated by an RCO. Some fleets may find it convenient to designate a fleet agent as a DRO.
3. Submitter — Fleet Agent
   - Licensed fleet agents can purchase COIs for their fleets in myDEQ. To become a licensed fleet agent, you must first pass the exam administered by ADEQ. After you pass the exam and obtain your license, an RCO or a DRO may add you to the fleet's myDEQ account.

4. Submitter — Inspector
    - Inspectors can enter emissions testing results in myDEQ. Inspectors can also log in to enter calibration numbers for gas analyzers and opacity meters. Inspectors will not be able to purchase COIs or make changes to the fleets' workforce. An RCO or a DRO may add the inspector to the fleet's myDEQ account.
5. Data Entry
    - Data entry users can log into the fleet's myDEQ account and fill out forms. They will not be able to submit any forms to ADEQ. Data Entry users will be able to prepare forms in myDEQ for a submitter, RCO or DRO to submit. An RCO or a DRO may add the data entry person to the fleet's myDEQ account.

Section III

Fleet Agent & Inspector Licensing

A. Licenses

There are two types of vehicle emissions inspector licenses that pertain to permitted fleet facilities. These licenses are designated as follows:

- "A" Fleet Agent
- "CFD" Non-Diesel and Diesel Vehicle Inspector

To obtain a license, the applicant must take and pass the appropriate examination(s) relating to the inspector license. Applicants must pass all tests with a minimum score of 80 percent.

1. An "A" license requires the applicant to pass a 25-question fleet agent examination. An agent is required to pass and renew the test each year.
2. "CFD" license requires the applicant to pass a 50-question certified technician examination.

B. Inspector/Agent Certification Procedure

1. Schedule a time to sit for the test.
   - Visit the Vehicle Emissions Control Section website **azdeq.gov/VECS/Fleet/testingschedule.** Under the right sidebar heading of "FLEET TESTING SCHEDULE," click the link to "Pick a Testing Date & Time," complete the testing reservation form and submit to ADEQ.
2. Pass a written examination.
   - The written portion of the licensing exam will cover the following subjects:
     - The air pollution problem, its causes and effects;
     - The purpose, function, and goals of the inspection program;
     - State inspection regulations and procedures;
     - Technical details of the test procedures and rationale for their design;
     - Emissions control device function, configuration, and inspection;
     - Test equipment operation, calibration, and maintenance;
     - Quality control procedures and their purpose;
     - Public relations
     - Safety and health issues related to the inspection process.
   - To pass, an applicant must score greater than or equal to 80% on the written portion of the exam.

3. Pass a practical examination.
    - After passing the written exam, the emissions inspector license applicant must pass a practical examination for each type of test they wish to perform.
    - During the practical exam, an inspector applicant must demonstrate the ability to conduct a proper emissions inspection, including the proper use of equipment and procedures.
    - There is no practical examination required to obtain a fleet agent license.
4. Renew license before expiration.
    - Licenses are good for two years. The inspector/agent must renew the license within 90 days before the expiration date. If the inspector license expires, the inspector/agent is required to retake the applicable training, reapply for a license, and repass both the written and practical exams.
5. Notify ADEQ when there's a change in employment status.
    - A vehicle emissions inspector is required to notify ADEQ of any change in employment status due to hiring, retirement, resignation, or termination within 14 days of such a change.

C. Inspector License Revocation

ADEQ may suspend, revoke, and refuse to renew a license if the licensee has violated any provision of A.R.S. Title 49, Chapter 3, Article 5, or A.A.C. Title 18, Chapter 2, Article 10. Gross violations of Arizona law or ADEQ regulations may result in civil penalties. In addition, an inspector license may be suspended, revoked, or refused to be renewed if the inspector fails to demonstrate proficiency to ADEQ regarding vehicle inspection procedures.

Section IV

Fleet Station & Licensed Inspector Auditing

A. Audits

Permitted fleet facilities and inspectors are subject to periodic audits by ADEQ to ensure that emissions inspection and documentation procedures are being followed. Outlined below are the audit types, and the minimum required frequency of each audit.

1. Used motor vehicle sales (dealer only) and compliance with emissions inspection requirements — at least annually
2. A fleet station (non-dealer) and compliance with emissions inspection requirements — at least annually or bi-annually based on type of emissions inspection performed
3. Licensed inspector performance — at least twice annually
4. Fleet station emissions inspection records — monthly as submitted to ADEQ
5. Equipment — at least twice annually

B. Testing Hold

A facility that fails an audit may be placed on a testing hold. While on a testing hold, the facility must not issue any certificates of inspection until the compliance deficiency is remedied. While on a testing hold, the facility must take vehicles to a state station to be emission tested instead of testing them on-site.

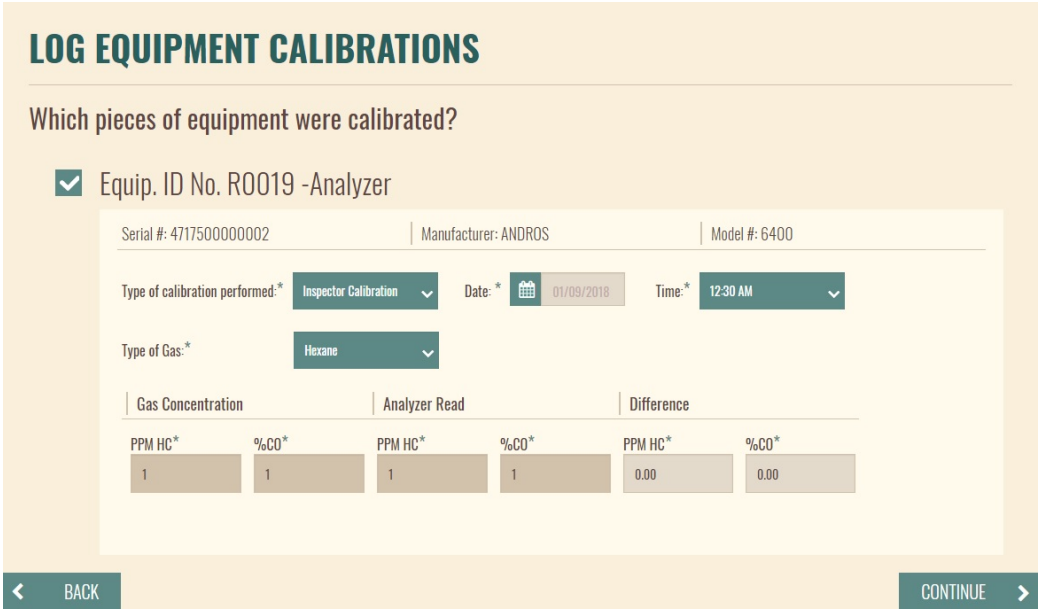
Section V

Equipment Maintenance — Calibration & Auditing Requirements

A. Requirements for Non-Diesel Equipment

1. All equipment and testing instruments must be maintained in accurate working condition as specified by the manufacturer. Instruments that require a periodic calibration must be calibrated according to the instructions and recommendations of the instrument or equipment manufacturer.
2. Non-dispersive infra-red HC and CO analyzers must be checked with approved calibration gases at least monthly. The record of the calibration check and any repairs performed must be documented on the fleet's myDEQ account.
   - The approved calibration gas will contain a blend of hexane (300 parts per million) and carbon monoxide (1.5 percent) or hexane (300 parts per million), carbon monoxide (1.5 percent), and carbon dioxide (5.0 percent), or the manufacturer's recommended calibration gas.
   - The analyzer must read the calibration gas within the following tolerances:
     - CO -0.25% to +0.50 % in the range from 0 to 2% (Low Scale)
     - HC -30 ppm to +60 ppm in the range from 0 to 500 ppm (Low Scale)
   - The monthly calibration check should include an inspection of the analyzer's sampling and filtration systems.
   - An analyzer that does not read within the tolerances specified above or has leaks or restrictions in the sampling or calibration systems, must be removed from service and cannot be used to perform official emissions inspections until repairs are performed and the analyzer passes a calibration check.
   - If calibration gasses are expired, ADEQ may perform an additional audit to ensure that fleet analyzers are reading within range.
   - Using propane as a calibration gas:
     - ADEQ will allow the use of certified propane blends to calibrate some emissions analyzers. To be eligible to use propane, your emission analyzer must include a calibration mode that will automatically use a propane equivalency factor (PEF) to calculate the number of hydrocarbons contained in the calibration gas and display the values as hexane.

3. Enter your calibration results through the myDEQ portal. Under the "mySTUFF" tab, navigate to "Log Equip. Calibration." Ensure that the information presented on the screens is accurate and follow the steps in the myDEQ web portal to report your calibration measurements to ADEQ.
4. Make sure you only select the pieces of equipment you are calibrating when you reach the "LOG EQUIPMENT CALIBRATIONS" screen.



5. ADEQ may conduct an unscheduled state calibration audit. During a state calibration audit, the analyzer must read within following tolerances:
   - CO -0.25% to +0.50 % in the range from 0 to 2% (Low Scale)
   - HC -30 ppm to +60 ppm in the range from 0 to 500 ppm (Low Scale)
6. An analyzer that does not read within the state calibration audit tolerances will be "failed" in myDEQ, and cannot be used by the fleet for official emissions inspections until all the following requirements are met:
   - The analyzer has been properly repaired; and
   - The analyzer has passed a state calibration audit or vendor calibration audit.

B. Requirements for OBD II Scan Tools

1. All equipment and testing instruments must be maintained in accurate working condition as specified by the manufacturer. Instruments that require a periodic software update must be updated according to the instructions and recommendations of the instrument or equipment manufacturer.
2. A scan tool must be updated as per the manufacturer recommendations.

3. A scan tool used to perform the OBD test that conforms to the requirements of "Performing On-Board Diagnostic System Checks as Part of a Vehicle Inspection and Maintenance Program," EPA420-R-01-015, EPA, June 2001. A copy of this material is available on the ADEQ website at **azdeq.gov/VECS/Rulemaking.**
   A scan tool that does not operate properly, or is otherwise outdated for the vehicle year and type requirement must be removed from service and cannot be used to perform official emissions inspection until repairs or upgrades are performed and the scan tool meets J1978 and J1979 requirements.
4. A scan tool that does not read within the parameters of J1978 and J1979 will be "red tagged," and cannot be used by the fleet for official emissions inspection until all the following requirement are met:
   - The scan tool has been properly repaired or upgraded;
   - The scan tool has passed a state audit;
   - The red tag has been removed by a state inspector or an equipment repair technician.

C. Requirements for Opacity Meters

1. All equipment must be maintained in accurate working condition as specified by the manufacturer. Instruments requiring a periodic calibration must be calibrated according to the instructions and recommendations of the instrument or equipment manufacturer.
2. To maintain registration, the calibration of an opacity meter must be checked before performing the first emissions inspection of the month. The record of the calibration check must be documented through myDEQ.
   - The opacity meter must be check using a neutral density filter.
   - The opacity meter must read the filter within ±5 opacity of the filter value.
   - The monthly calibration check should include an inspection of the opacity meter's optics and cables.
   - An opacity meter that does not read within the tolerance specified above must be removed from service and cannot be used to perform emissions inspections until repairs are performed and the meter passes a calibration check.
3. At least twice a year, ADEQ will conduct a state calibration audit. ADEQ may also perform unscheduled audits for opacity meter accuracy. The calibration history log must be kept up-to-date. During a state calibration audit the opacity meter must read the state inspector's filter within ±5 opacity of the filter value.

4. An opacity meter that does not read within the state calibration audit tolerance will be "red tagged," and cannot be used by the fleet for official inspections until all the following requirements are met:
   - The opacity meter has been properly repaired; and
   - The opacity meter has passed a state calibration audit or a vendor calibration audit by an equipment repair technician.

Section VI

Required Inspections, Time of Inspection & Inspection Procedures

A. Required Inspections

Vehicles to be sold by a motor vehicle dealer licensed to sell used motor vehicles, and whose place of business is in "Area A" or "Area B", unless exempt (see Section VII), must be emissions inspected prior to delivery to a retail purchaser. Consignment vehicles offered for sale by a motor vehicle dealer licensed to sell used motor vehicles and whose place of business is in "Area A" or "Area B" must be inspected at an official state station.

B. Time of Inspection

Government and non-dealer fleet vehicles must be inspected in accordance with the registration cycle that has been established.

C. Inspection Procedures

Vehicles must be inspected according to A.A.C. Title 18, Chapter 2, Article 10, which has been adopted pursuant to A.R.S. Title 49, Chapter 3, Article 5. Applicable testing procedures have been reproduced below for convenience. These testing procedures are guidelines. For official law regarding testing, refer to the statutes and regulations listed above.

Following are detailed procedures for each type of inspection/test that is required:

- **Curb Idle Test**
  The curb idle test measures the exhaust emissions with the vehicle stopped and the engine idling at manufacturer's specification ± 100 RPM. The curb idle test is performed with the foot brake applied and a tachometer connected to determine ± 100 RPM's of manufacturer specified idle (if applicable).
  - 1967 through 1980 model year vehicles equipped with an automatic transmission must be tested in park.
  - 1967 through 1980 model year vehicles equipped with a manual transmission must be tested in neutral with the emergency brake engaged.

To perform the curb idle test, insert the exhaust sample probe 8 to 12 inches into the exhaust pipe. Record the HC and CO readings after the readings have stabilized or at the end of 30 seconds, whichever occurs first.

If the vehicle's emissions are above the standard, the engine may be preconditioned by operating it at 2500 RPM ± 300 RPM for up to a maximum of 30 seconds. Use a tachometer to verify the RPM. After preconditioning, return the engine speed to curb idle and perform a second idle test. If the emissions levels are below the standard, the vehicle passes the curb idle test. If the vehicle's emissions levels still exceed the maximum allowable, the vehicle fails inspection and repairs are required.

- 1981 and newer model year vehicles must be tested with the transmission in park.

If a vehicle is equipped with multiple exhaust pipes and the analyzer is not capable of sampling multiple pipes, the test must be performed separately on each pipe. Record the HC and CO readings for each pipe and obtain an average. Compare the average results to the maximum allowable.

- **2,500 RPM Unloaded Fast Idle Test**
  The 2,500 RPM test measures the exhaust emissions with the vehicle stopped, transmission in park, and engine operating at an, unloaded 2,500 RPM ± 300 RPM.

  To perform the 2,500 RPM test, insert the exhaust sample probe 8 to 12 inches into the exhaust pipe. Once sampling has begun, increase the engine speed to 2,500 RPM ± 300 RPM and hold the speed steady. Verify the correct RPM by using ADEQ-approved equipment such as an ignition operated tachometer or scan tool. Record the HC and CO readings after the readings have stabilized or at the end of 30 seconds, whichever comes first.

  If a vehicle is equipped with multiple exhaust tail pipes and the analyzer is not capable of sampling multiple pipes, the test must be performed separately on each pipe. Record the HC and CO readings for each pipe and obtain an average. Compare the average results to the maximum allowable.

  Note: Follow manufacturer recommendations when testing Hybrid vehicles.

- **On-Board Diagnostic (OBD) Test.**
  The OBD test interrogates the vehicle's computer system to determine emission compliance and does not include exhaust sampling.

  The test consists of verifying the operation of the malfunction indicator lamp (MIL), confirming that the appropriate readiness monitors are set, visually inspecting the

diagnostic link connector (DLC), determining if the MIL is commanded "ON," and recording diagnostic trouble codes (DTC).

The OBD Test process is as follows:

- Turn the ignition to the "key on engine off" (KOEO) position and observe the MIL. The MIL must be lit. This portion of the test verifies MIL operation and is commonly referred to as the "bulb check." If the MIL is on, the vehicle passes this portion of the test and the inspector proceeds. MIL off is a fail.
  - Locate the DLC and inspect for tampering. Tampering includes missing, loose, or damaged DLCs. A tampered DLC results in the vehicle failing the test.
  - Connect an SAE J1978 and J1979 compliant scan tool to the DLC. Turn ignition to the "key on engine running" (KOER) position and observe the MIL. The MIL should light and then go out during this part of the test. If the MIL stays off with the vehicle in KOER position, the vehicle passes this portion of the test. If the MIL stays on, the vehicle fails.
  - The scan tool must be used in the generic OBD mode for this portion of the test. Follow the scan tool manufacturer's instructions to determine the following:
    - Readiness monitor status: 1996 – 2000 model year vehicles are allowed two or fewer unset readiness monitors for a valid test. 2001 and newer model year vehicles are allowed one or less unset readiness monitors for a valid test. If monitor requirements are not met, the vehicle must be driven through the appropriate drive cycle(s) until the required monitors are set.
    - Observe the MIL status command on the scan tool to determine if the vehicle computer is commanding the MIL to be on or off. If the MIL is commanded off, the vehicle passes. If the MIL is commanded on, the vehicle fails.
    - Only vehicles that are 8500lbs or less can be OBD tested.
    - Vehicles that receive an OBD II test are valid for 2 years.

- **Diesel Steady State Loaded Mode Test**
  The steady state loaded mode test measures the opacity of the light-duty diesel vehicle's (8500 lbs. GVWR or less) exhaust emissions with the vehicle driven on a dynamometer. A load is applied to the drive tires. When using a full flow opacity meter, center the read head perpendicular to the exhaust pipe. The read head must be no further away from the exhaust pipe than the diameter of the pipe. Accelerate the vehicle and apply load until the proper speed and load is reached (see chart below). The exhaust must be sampled for a period of ten consecutive seconds. If

the vehicle has multiple exhaust pipes, test each pipe and record only the results of the pipe emitting the highest opacity readings. Compare the results to the maximum allowable percentage (see chart in attachments).

Loaded Opacity Test Dynamometer Loading Table

GVWR	Speed (MPH)	Load (HP)
4,000 or less	30	7.4 ± 1 HP (6.4 to 8.4)
4,001 to 8,500	50	30 ± 2 HP (28 to 32)

- **Diesel Snap-Acceleration Test (SAE J1667)**
  Performed on heavy-duty diesels, 8501 GVWR or more.
  Prior to performing the diesel snap-acceleration test on heavy-duty diesel vehicles the following must be checked and verified:
  - The vehicle is safe to test;
  - The governor is operating;
  - The engine is at normal operating temperature;
  - No unusual noises, smoke or other conditions exist that could affect the accuracy of the test or indicate damage to the engine;
  - The engine brake is disabled;
  - The spring brake is deactivated (on some vehicles, activating the spring brake disables the engine puff limiter which can increase opacity readings);
  - Vehicle movement prevented (chock wheels, if necessary).

  The inspection process is as follows:

  - If the vehicle is equipped with multiple exhaust pipes, visually compare the smoke levels and determine which has the highest visual opacity. Once determined, perform the test on only that pipe.
  - Measure and record the exhaust pipe or stack diameter; if not available Engine Horse Power (HP) may be used. Record the ambient temperature, relative humidity and barometric pressure, and if the opacity meter does not have the capabilities to record the information automatically, follow the manufacturers guidance to obtain a correct reading.
  - Perform three clean-out snap accelerations to remove any loose soot that may have accumulated in the vehicle's exhaust system.
  - Within two minutes of performing the clean-out snap accelerations, begin the three official snap accelerations using the same steps as used for clean-out.

Snap acceleration procedure:

- Quickly depress the accelerator pedal to the wide-open throttle position until the engine reaches the maximum governed speed and hold for one to four seconds.
- Release the pedal and allow the engine to return to idle speed for a minimum of five, but no longer than 45 seconds, before starting the next snap acceleration.

Test validation:

- The snap acceleration test must be validated using the following criteria:
  - After completion of all snap accelerations, the opacity meter is removed from the exhaust pipe or stack. The meter must read to within ±2 of zero. This additional step of verification ensures that an opacity meter has not been thrown out of calibration during the snap acceleration test.
  - The mathematical difference between the high and low opacity results from the three snap-acceleration test cycles must be within 5 opacity of each other (see examples below).

Valid Test (Difference 1%)	**Invalid Test (Difference 10%)**
First snap test opacity result – 40%	First snap test opacity result – 35%
Second snap test opacity result – 41%	Second snap test opacity result – 41 %
Third snap test opacity result – 40%	Third snap test opacity result – 45%

Most opacity meters will perform this step and give the results automatically. For additional information, consult the opacity meter user manual.

Correction of Test Results for Ambient Conditions:

- The opacity reading must be corrected for ambient conditions such as air temperature, relative humidity and barometric pressure. The *Red Mountain opacity meter performs this function automatically. In addition, some *Cal-Test units will perform this function for correction, if the ambient conditions are provided. The *Wager and *Bosch units only provide the opacity reading which must be corrected with the formula specified in SAE J1667. A copy of SAE J1667 is on file with the Arizona Secretary of State and may be purchased from SAE on-line at sae.org.[1]

[1] * Non-endorsement of proprietary or other ADEQ reviewed products: The listing by ADEQ of any proprietary product or service is not an endorsement by ADEQ or the State of Arizona. ADEQ does not endorse, represent, guarantee, warranty or defend the use of any of the products or services you voluntarily sign up to provide information on, use, or receive. These product and service providers are a direct source unrelated to ADEQ or the State. Use of any listed product or service is at your risk and the State assumes no liability.

Compare the Test Results to the Maximum Allowable Standards:

- When testing is complete, compare the results to the maximum allowable. The maximum allowable emissions standard for 1990 and older engines is 55% opacity. The maximum allowable emissions standard for 1991 and newer engines is 40% opacity. The engine year is determined by the emissions control label. If the emission control label is missing, illegible, or incorrect, the test standard must be 40%, unless a correct, legible, emissions control label replacement is attached to the vehicle within 30-days of the inspection.

- **Visual Gas Cap Inspection**
  The visual gas cap inspection consists of verifying the vehicle has a properly fitting gas cap. The visual inspection is performed on vehicles that were manufactured without evaporative control systems. This includes most 1970 and older vehicles, and many 1984 and older federal heavy-duty trucks. These vehicles are designed to vent fuel tank vapors into the atmosphere.

- **Functional Gas Cap Test**
  The functional gas cap test determines if the gas cap properly seals, preventing fuel vapor (Hydrocarbons) from escaping into the atmosphere. This test consists of attaching the gas cap to a testing unit that applies pressure and monitors air flow or leakage. The maximum allowable leakage is 60 cubic centimeters of air per minute at 30 inches of water.

  Note: Many 1970 and newer heavy-duty vehicles certified to meet California emission requirements were equipped with evaporative control systems and are subject to a functional gas cap test.

  Note: Some vehicles are manufactured/designed without a gas cap. They usually have a yellow ring around the nozzle that states "NO CAP."

  Note: If the vehicle does not have a fuel cap and the MIL light is not illuminated, select "pass" in the gas cap section for myDEQ.

- **Equipment Tampering**
  An equipment tapering inspection is performed on all 1975 model year and newer vehicles. OBD tested vehicles are exempt from the tampering test requirement. The tampering inspection is based on the original configuration of the vehicle as manufactured and consists of the following:
  - A visual inspection to determine the presence and proper installation of each required Catalytic converter (if applicable as manufactured);
  - A visual inspection to determine the presence of an operational air injection system (if applicable as manufactured);

- *Area A only* — A visual inspection to determine the presence of an operational positive crankcase ventilation system and evaporative control system, if applicable for model year/make.

The above components must be verified by referring to the "VEHICLE EMISSIONS CONTROL INFORMATION" label. The label on many older vehicles may be damaged, missing or unreadable. Refer to an emissions control application guide.

- **Special Requirement for Dealer Fleets**
  Motor vehicle dealers that have been issued a fleet emissions inspection station permit are required to provide some purchasers with a written notice of their right to obtain an emissions inspection at a state station after the sale. The notice must state the following:
  - The purchaser has the right to have the vehicle tested within three days, excluding holidays, after the sale at a state emissions inspection station.
  - If the vehicle fails the emissions inspection, the dealer will do one of the following:
    - Rescind the purchase agreement and refund the purchaser the cost of the emissions inspection.
    - Repair the vehicle to pass the emissions inspection at no cost to the purchaser.
    - Enter into a mutually acceptable alternate agreement with the purchaser.

Section VII

Alternative Fuel Vehicle (AFV) Requirements

A. Definition of Alternative Fuels

1. Alternative Fuels and fuel codes are defined as follows:
   - (L) Liquified petroleum gas (LPG or Propane)
   - (C) Compressed natural gas/liquified natural gas
   - (M) 70/30 minimum blend of alternative fuel and petroleum-based fuel (except alcohol)
   - (A) Alcohol if used in a vehicle prior to Aug. 21, 1998. After that, alcohol is no longer recognized as an alternative fuel by the State of Arizona. This includes M85 and E85 Flex Fuel vehicles.
2. Bi-fuel AFV means a vehicle that can operate on an alternative fuel and gasoline.
3. Dedicated AFV means a vehicle that solely operates on an alternative fuel.

B. Testing Requirements for AFVs

New original equipment manufactured alternative fuel vehicles are required to receive and emission test before the sixth registration year. AFVs must be inspected according to the Time of Inspection, Required Inspections & Inspection Procedures outlined in Section VI, with the following exceptions:

- Bi-fuel vehicles must pass inspection while operating on each fuel. If the vehicle fails on one or both fuels, a complete re-inspection on each fuel must be performed to be sure that repairs to one system did not affect the other.
- An inspection of an AFV vehicle operating on compressed natural gas or liquified natural gas requires the use of a correction factor of 0.61 to calculate the true hydrocarbon (HC) readings, when using an NDIR analyzer. The HC exhaust emissions must be multiplied by 0.61. Example: The HC emissions reading during the exhaust pipe emissions inspection is 100 ppm; the HC emissions recorded on the Fleet Vehicle Inspection Report/Monthly Summary would be .61 ppm (100 x 0.61 = 61).

Section VIII

Reporting the Results of a Fleet Vehicle Inspection

A. Reporting Test Results

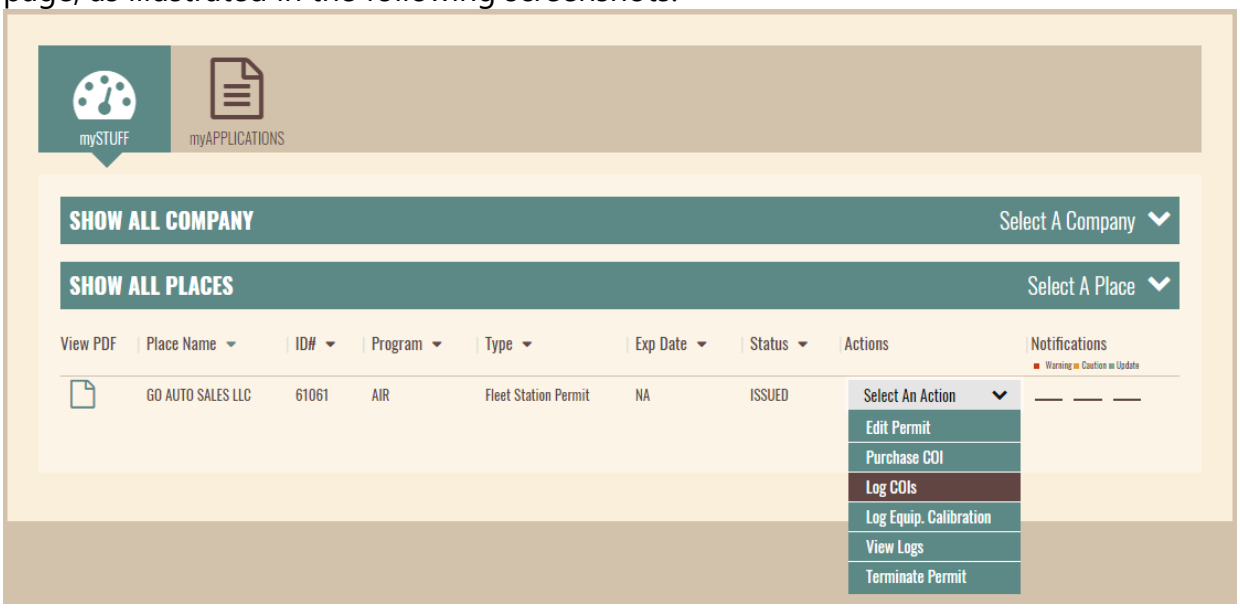
1. All test results performed by a fleet station must be entered in myDEQ.
2. Results of the inspection must be reported on the day the inspection is performed.
3. Results of the inspection must be reported by the inspector who performed the inspection.
4. All relevant data relating to the emissions inspection performed must be reported.

B. Procedure for Reporting Test Results

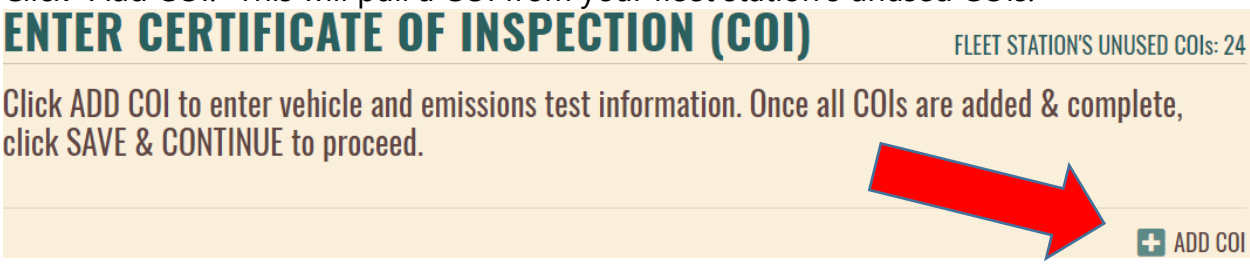
1. After the vehicle has passed the emissions inspection required, log into the myDEQ portal and record the applicable information for the inspection performed. COIs must be logged by on the same day as the test was performed, and must include the following information:
   - Date of the test;
   - Emission test start time;
   - Vehicle Identification Number;
   - License plate number, if applicable;
   - Gross Vehicle Weight Rating;
   - Vehicle model year, make, and type;
   - Number of cylinders or engine displacement;
   - Transmission type;
   - Odometer reading;
   - Fuel type of the vehicle (i.e., gas, diesel)
   - Emission test sequence(s) used;
   - Hydrocarbon emission information
   - Opacity readings (where applicable);
   - Results (Pass/Fail/Not Applicable) of the applicable visual inspections for the catalytic converter, air system, gas cap, evaporative system, positive crankcase ventilation (PCV) valve, fuel inlet restrictor;
   - Total purge flow in liter achieved during the test (where applicable); and
   - Results of the on-board diagnostic test expressed as a pass or fail along with the diagnostic trouble codes revealed (where applicable).

Note: When performing an inspection of a vehicle fueled with either compressed or liquefied natural gas, the hydrocarbon (HC) exhaust emissions are multiplied by 0.61 for the corrected HC results.

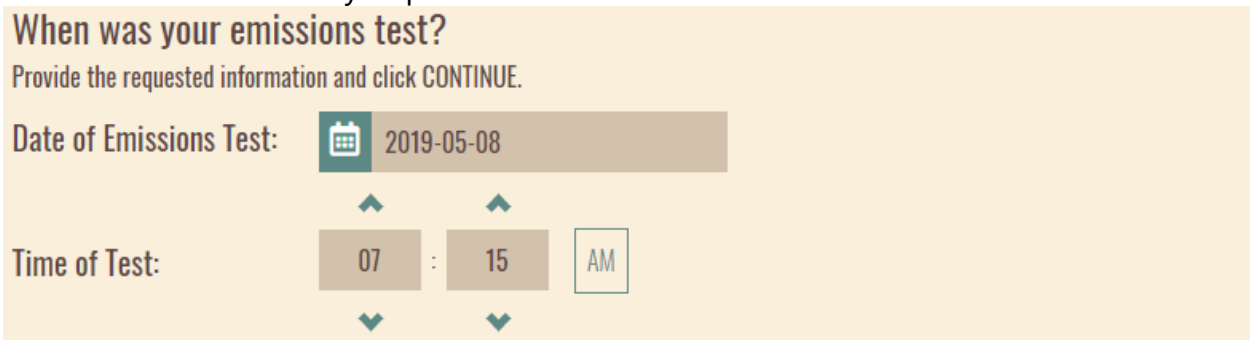
2. To log the COI in myDEQ, navigate to the "Log COIs" action on the "mySTUFF" page, as illustrated in the following screenshots.



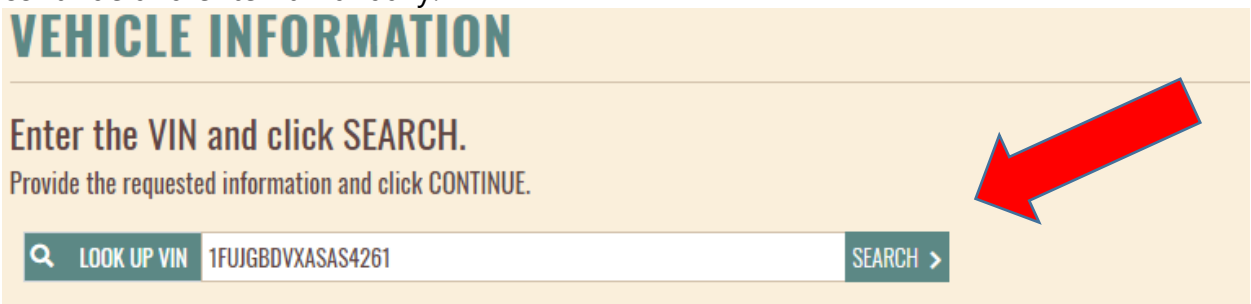
3. Click "Add COI." This will pull a COI from your fleet station's unused COIs.



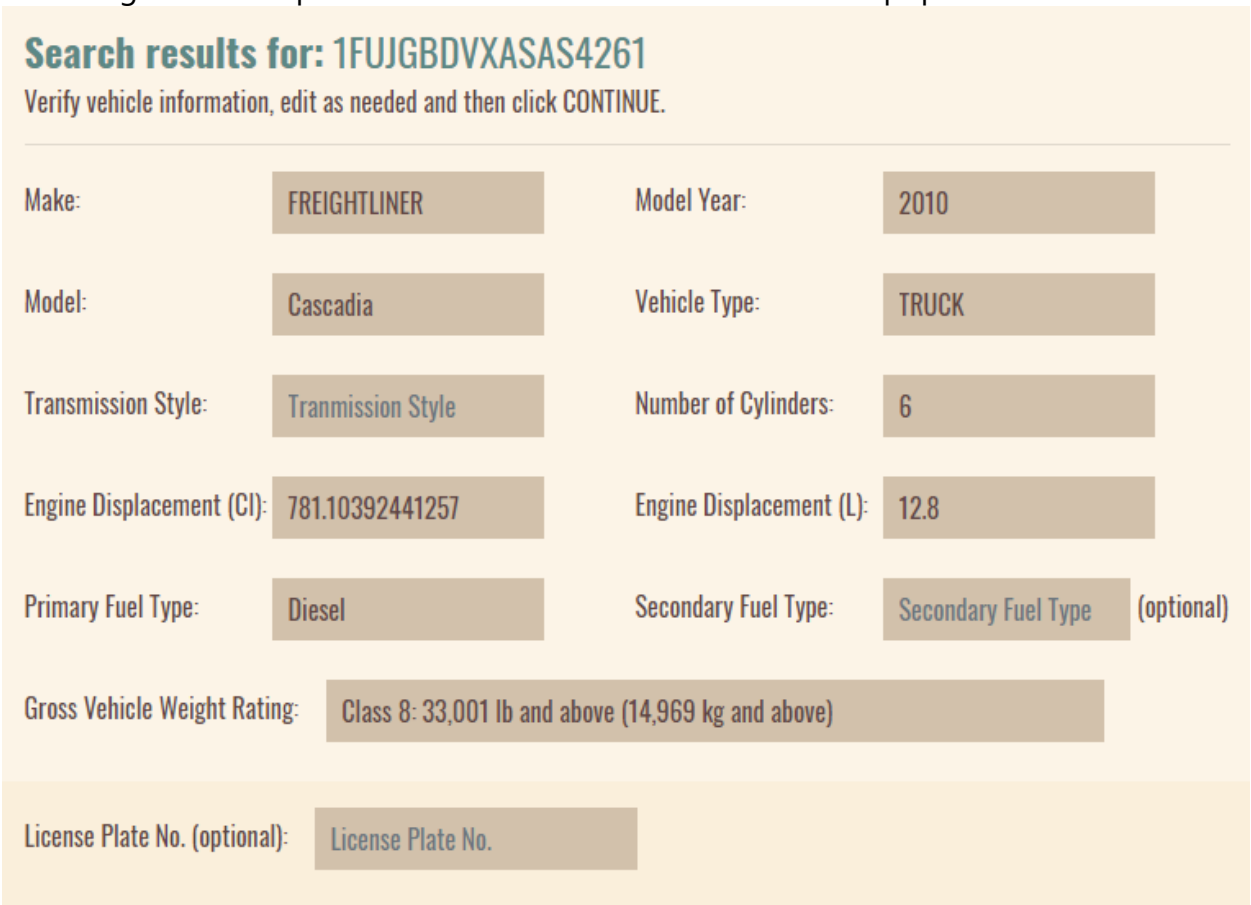
4. Enter the date and time you performed the emissions test.



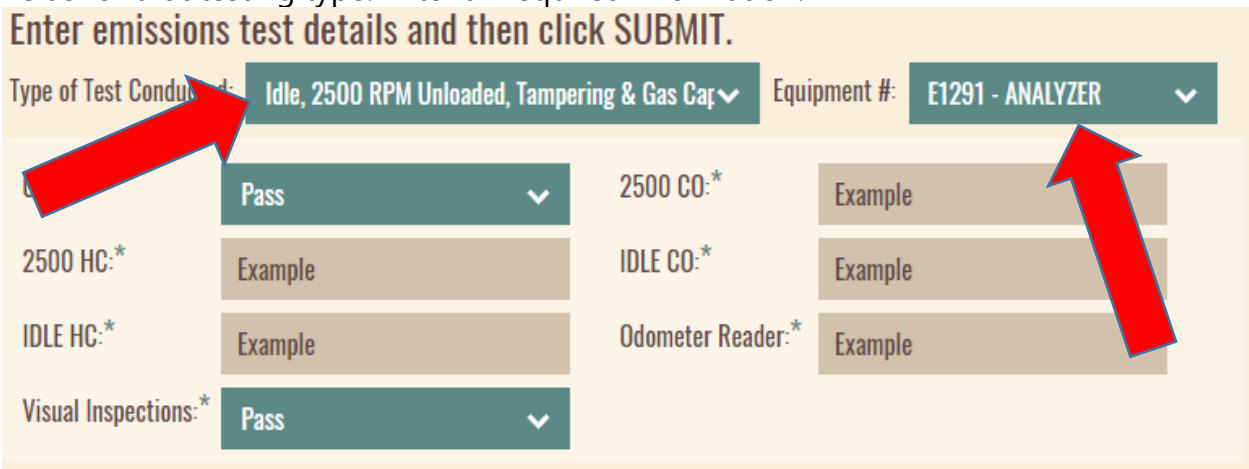
5. myDEQ includes a built in VIN decoder. Enter the vehicles VIN at this screen and myDEQ will pull the information to auto populate the vehicle's information. If the vehicle's information isn't automatically pulled, myDEQ will still allow you to continue and enter it manually.



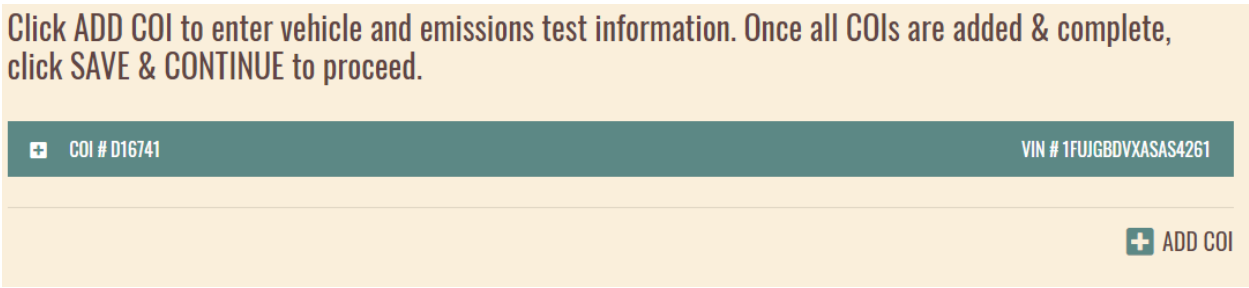
6. Following is an example of what the screen will look like when populated with data.



7. Select the type of test performed and the equipment it was performed on. After you select the testing type, a drawer will drop down that contains all the relevant fields for that testing type. Enter all required information.



On this screen you have the option to either hit continue and submit the test data, or you can click "Add another COI" to continue reporting results. An inspector can submit all the testing results for the day at the same time using the myDEQ reporting system. When an inspector chooses to add another COI, the information entered will drawer up and the inspector must enter the date and time of the next test to start the submission of the next COI.

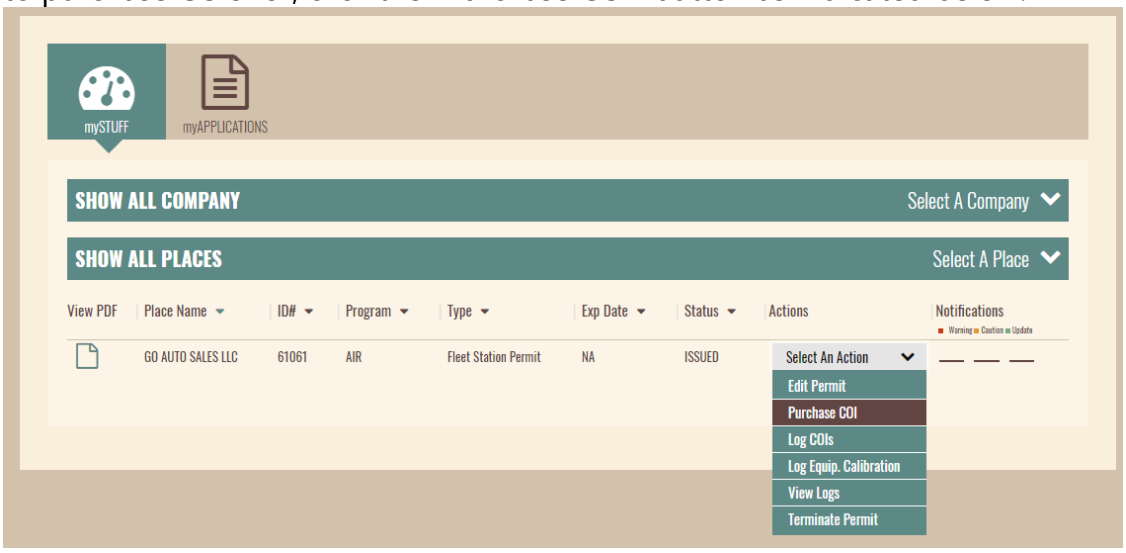


Section IX

Procedures for Certificates of Inspection (COI)

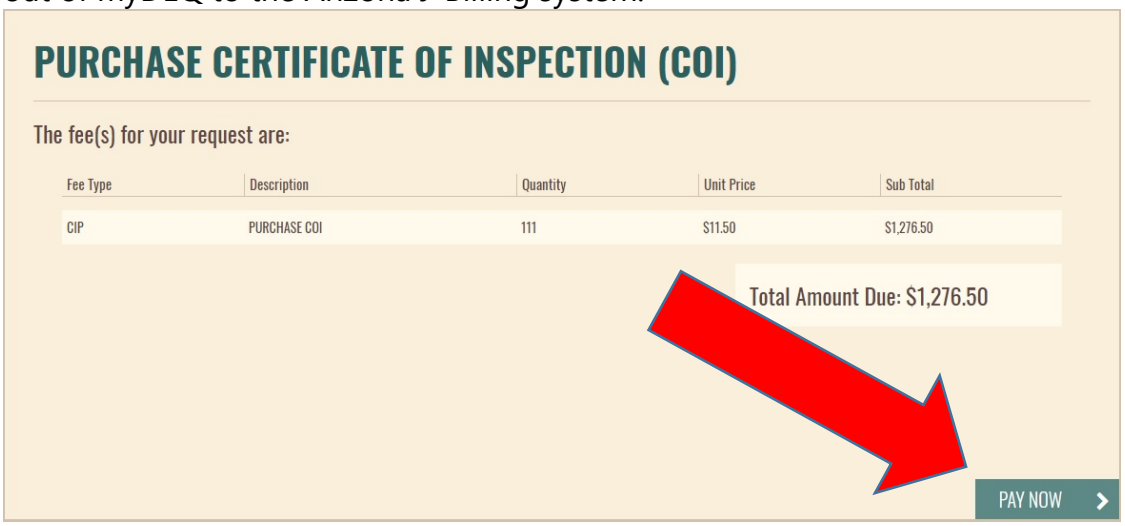
A. Purchasing COIs

1. COIs must be purchased through the myDEQ web portal. COIs can be purchased by a fleet agent, a responsible corporate officer (RCO), or a designated responsible officer (DRO).
2. COIs purchased through the myDEQ portal are digital. There is no longer a need to come to ADEQ and pick up COIs.
3. To purchase COIs, navigate to the "mySTUFF" tab. Under the permit that you wish to purchase COIs for, click the "Purchase COI" button as indicated below.

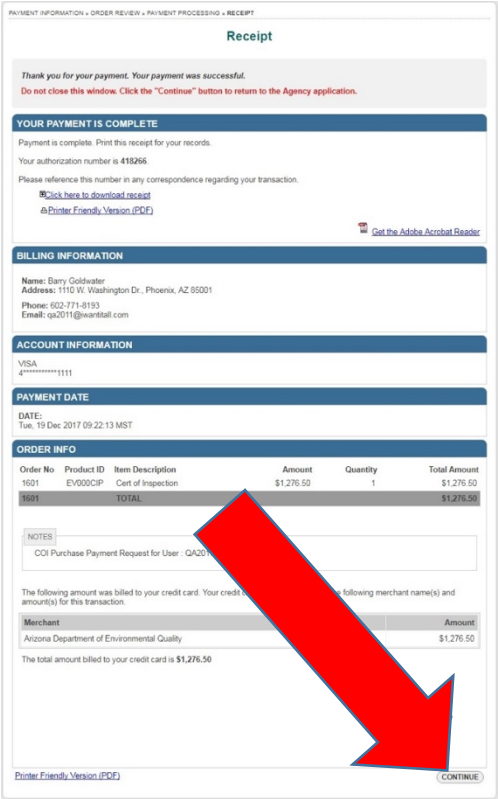


4. COIs can be purchased in any amount from 0 – 500. Enter the quantity you wish you purchase and click continue.

5. Verify that your information is correct on the summary page, click continue, and certify your submission.
6. When you arrive at the following screen and click "PAY NOW," you will be taken out of myDEQ to the Arizona J-Billing system.



7. Complete your payment through the J-Billing system. **You must click continue at the receipt page for your payment to go through and for COIs to be credited to your account. Click the continue button as illustrated below.**



B. General Rules for Issuing a COI

1. A COI must be completed and the results entered into myDEQ by the vehicle emissions inspector performing the inspection **on the day** vehicle passes inspection.
2. A COI can only be issued to vehicles that are owned or leased by the fleet and are held for resale as part of the dealer's business inventory.
3. A COI issued by a dealer fleet is valid for 180 days.
4. A COI cannot be issued after the date of inspection.
5. A COI, complete or incomplete, cannot be transferred or sold to another fleet station.
6. All unused certificates can be returned to ADEQ for refund or used in subsequent years.

Section X

Exempt Vehicles

The following vehicles are exempt from inspection requirements:

- A vehicle registered outside of "Area A" that is not used to commute to the driver's place of employment located inside "Area A."
- A 1966 model year and older vehicle.
- A vehicle sold between motor vehicle dealers (wholesale).
- A purely electric or hydrogen powered vehicle. Hybrid vehicles are not exempt.
- A vehicle with apportioned registration.
- A golf cart.
- A vehicle with an engine displacement of less than 90 cubic centimeters.
- A vehicle registered with a current Director's Certificate.
- Motorcycles.
- Original equipment manufacturers alternative fuel vehicles of the current or four prior registration years.
- A vehicle of the current or four prior registration years, except:
  - A reconstructed vehicle titled as a reconstruct or special construction.
  - A vehicle failing an emissions inspection, whose owner elected to have the vehicle tested rather than opt out.

Abbreviations

4WD	4 (FOUR) WHEEL DRIVE
A	AGENT ONLY LICENSE
A/C	AIR CONDITIONING
A/T	AUTOMATIC TRANSMISSION
A.A.C.	ARIZONA ADMINISTRATIVE CODE
AFV	ALTERNATIVE FUEL VEHICLE
AIS	AIR INJECTION SYSTEM
AREA "A"	METROPOLITAN PHOENIX EMISSIONS CONTROL AREA
AREA "B"	METROPOLITAN TUCSON EMISSIONS AREA
A.R.S.	ARIZONA REVISED STATUTE
C	CERTIFIED TECHNICIAN ONLY
CARB	CALIFORNIA AIR RESOURCES BOARD
CAT	CATALYTIC CONVERTER
CC	CUBIC CENTIMETERS
CF	CERTIFIED NON-DIESEL FLEET INSPECTOR
CFD	CERTIFIED NON-DIESEL AND DIESEL FLEET INSPECTOR
CNG	COMPRESSED NATURAL GAS
CO	CARBON MONOXIDE
COI	CERTIFICATE OF INSPECTION
CYL	CYLINDER
DC	DIRECTOR'S CERTIFICATE
DLC	DIGNOSTIC LINK CONNECTOR
DRO	DESIGNATED RESPONSIBLE OFFICER
DTC	DIAGNOSTIC TROUBLE CODE
EGR	EXHAUST GAS RECIRCULATION
EPA	ENVIRONMENTAL PROTECTION AGANCY
EVAP	EVAPORATIVE EMISSIONS SYTEM
FD	DIESEL FLEET INSPECTOR (CERTIFIED)
FVIR/MS	FLEET VEHICLE INSPECTION REPORT/MONTHLY SUMMARY
GVCOI	GOVERNMENT VEHICLE CERTIFICATE OF INSPECTION
GVWR	GROSS VEHICLE WEIGHT RATING
HC	HYDROCARBON

HDDV	HEAVY DUTY DIESEL VEHICLE (GVWR IS 8501 LBS OR GREATER)
HP	HORSE POWER
IM 147	TRANSIENT LOADED TEST PERFORMED ON 1981 THROUGH 1995 LIGHT DUTY VEHICLES
INSP	INSPECTOR
KOEO	KEY "ON" ENGINE "OFF"
KOER	KEY "ON" ENGINE "RUNNING"
LBS	POUNDS
LNG	LIQUIFIED NATURAL GAS
LPG	LIQUIFIED PETROLEUM GAS
M/T	MANUAL TRANSMISSION
MIL	MALFUNCTION INDICATOR LIGHT
N/A	NOT APPLICABLE
NDIR	NONDISPERSIVE INFRA RED
NOx	OXIDES of NITROGEN
OBD	ON BOARD DIAGNOSTICS
OPAC	OPACITY
P	PASS
PCV	POSITIVE CRANKCASE VENTILATION
PPM	PARTS PER MILLION
PSI	POUNDS PER SQUARE INCH
RPM	REVOLUTIONS PER MINUTE
RCO	RESPONSIBLE CORPORATE OFFICER
SAE J1667	SOCIETY OF AUTOMOTIVE ENGINEERS RECOMMENDED PRACTICE J1667-DESIGNATED TEST FOR HDDV DIESEL VEHICLES
SAE J1978-SAE J1979	SOCIETY OF AUTOMOTIVE ENGINEERS RECOMMENDED PRACTICE-SCAN TOOL REQUIREMENTS
VE-160	STATE DOCUMENT-REPAIR AND HISTORY LOG FOR REGISTERED EQUIPMENT
VEI (P) OR (T)	VEHICLE EMISSIONS INSPECTION (P) PHOENIX OR (T) TUCSON

Appendix

Arizona Non-Diesel Fleet Vehicle Maximum Allowable Emissions Standards

Light-Duty Vehicles

Vehicle Engine Type	Vehicle Model Year	Number of Cylinders	Conditioning Mode		Curb Idle Mode Test		Loaded Cruise Mode Test	
			HC PPM	CO %	HC PPM	CO %	HC PPM	CO %
2-Stroke	All	All	18,000	5.00	18,000	5.00	18,000	5.00
4-Stroke	1967-1971	4 or less	450	3.75	500	5.50	500	4.20
4-Stroke	1967-1971	more than 4	380	3.00	450	5.00	450	3.75
4-Stroke	1972-1974	4 or less	380	3.50	400	5.50	400	4.20
4-Stroke	1972-1974	more than 4	300	3.00	400	5.00	400	3.75
4-Stroke	1975-1978	4 or less	120	1.00	250	2.20	250	1.65
4-Stroke	1975-1978	more than 4	120	1.00	250	2.00	250	1.50
4-Stroke	1979	4 or less	120	1.00	220	2.20	220	1.65
4-Stroke	1979	more than 4	120	1.00	220	2.00	220	1.50
4-Stroke	1980 & newer	All	100	0.50	220	1.20	220	1.20

Light-Duty Truck 1 (0-6000 lbs. GVWR)

Vehicle Engine Type	Vehicle Model Year	Number of Cylinders	Conditioning Mode		Curb Idle Mode Test		Loaded Cruise Mode Test	
			HC PPM	CO %	HC PPM	CO %	HC PPM	CO %
2-Stroke	All	All	18,000	5.00	18,000	5.00	18,000	5.00
4-Stroke	1967-1971	4 or less	450	3.75	500	5.50	500	4.20
4-Stroke	1967-1971	more than 4	380	3.00	450	5.00	450	3.75
4-Stroke	1972-1974	4 or less	380	3.50	400	5.50	400	4.20
4-Stroke	1972-1974	more than 4	300	3.00	400	5.00	400	3.75
4-Stroke	1975-1978	4 or less	120	1.00	250	2.20	250	1.65
4-Stroke	1975-1978	more than 4	120	1.00	250	2.00	250	1.50
4-Stroke	1979	4 or less	120	1.00	220	2.20	220	1.65
4-Stroke	1979	more than 4	120	1.00	220	2.00	220	1.50
4-Stroke	1980 & newer	All	100	0.50	220	1.20	220	1.20

Light-Duty Truck 2 (6001 - 8500 lbs. GVWR)

Vehicle Engine Type	Vehicle Model Year	Number of Cylinders	Conditioning Mode		Curb Idle Mode Test		Loaded Cruise Mode Test	
			HC PPM	CO %	HC PPM	CO %	HC PPM	CO %
2-Stroke	All	All	18,000	5.00	18,000	5.00	18,000	5.00
4-Stroke	1967-1971	4 or less	450	3.75	500	5.50	500	4.20
4-Stroke	1967-1971	more than 4	380	3.00	450	5.00	450	3.75
4-Stroke	1972-1974	4 or less	380	3.50	400	5.50	400	4.20
4-Stroke	1972-1974	more than 4	300	3.00	400	5.00	400	3.75
4-Stroke	1975-1978	All	300	3.00	350	4.00	350	3.00
4-Stroke	1979	4 or less	120	1.00	220	2.20	220	1.65
4-Stroke	1979	more than 4	120	1.00	220	2.00	220	1.50
4-Stroke	1980 & newer	All	100	0.50	220	1.20	220	1.20

Heavy-Duty Truck (8501 lbs. or greater GVWR)

Vehicle Engine Type	Vehicle Model Year	Number of Cylinders	Conditioning Mode		Curb Idle Mode Test		Loaded Cruise Mode Test	
			HC PPM	CO %	HC PPM	CO %	HC PPM	CO %
2-Stroke	All	All	18,000	5.00	18,000	5.00	18,000	5.00
4-Stroke	1967-1971	4 or less	450	3.75	500	5.50	500	4.20
4-Stroke	1967-1971	more than 4	380	3.00	450	5.00	450	3.75
4-Stroke	1972-1974	4 or less	380	3.50	400	5.50	400	4.20
4-Stroke	1972-1974	more than 4	300	3.00	400	5.00	400	3.75
4-Stroke	1975-1978	All	300	3.00	350	4.00	350	3.00
4-Stroke	1979 & newer	All	300	3.00	300	4.00	300	3.00

Maximum Allowable Diesel Opacity Standards (Cut Points)

Model Year	GVWR	Dynamometer Loaded Mode Horsepower	Vehicle Speed	Loaded Mode Opacity (Area A)	Loaded Mode Opacity (Area B)
1967 and newer	4000 or less	6.4-8.4	30 MPH	20%	30%
1967 and newer	4001 to 8500	28-32	50 MPH	20%	30%
Engine Year	**GVWR**				**SAE J-1667 Opacity**
1967-1990	8501 or more	-	-	-	55%
1991 & Newer	8501 or more	-	-	-	40%