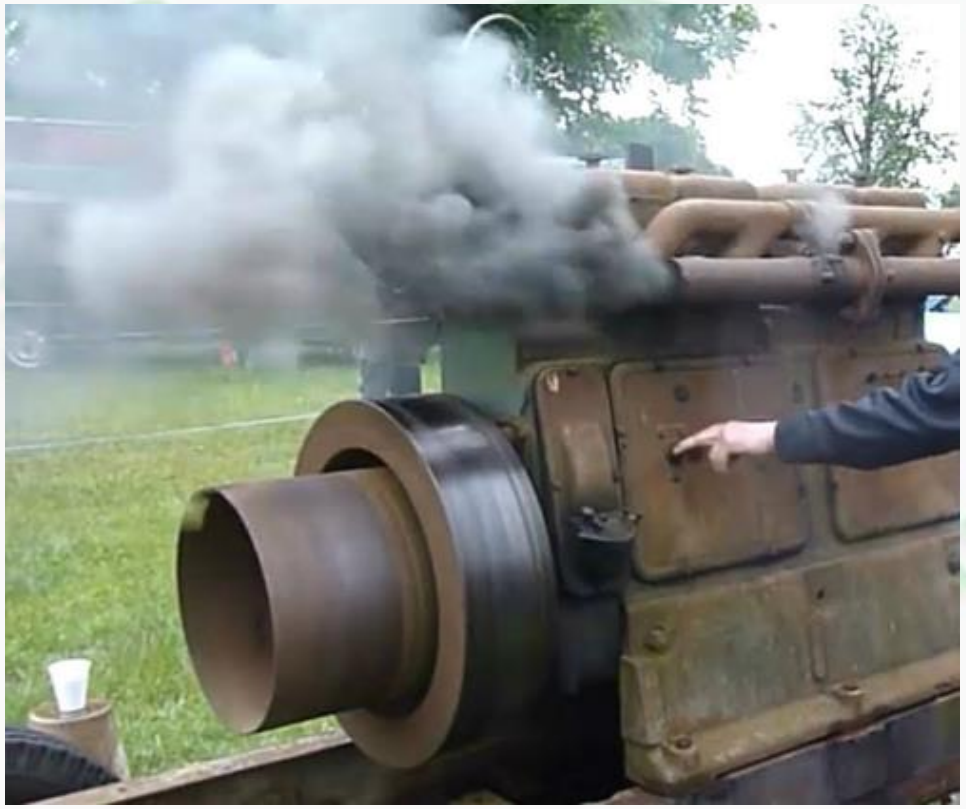
Marine, Large SI, and Heavy Duty SI Overview



Overview

- Organization
- Compliance Process and Common Issues
- Selective Enforcement Audits
- Defect Reporting
- Engine Testing Issues and Laboratory Inspections
- Fuel Issues
- Engine Maps
- Exhaust System Integrity
- Auxiliary Emission Control Devices
- Our Compliance Team

How Do We Fit in the Organization

Compliance Division Director – Byron Bunker

- Gasoline Engine Compliance Center – Cleophas Jackson, Director
  - Gasoline Engine Compliance Audits – Mike Delduca
  - Compliance Analysis, Phil Carlson
  - Small Spark-Ignition Engines, Julia Giuliano, Sector Lead
    - Evaporative Components, Trina Vallion
  - Heavy Duty Highway Spark-Ignition Engines, Marine Spark-Ignition Engines, and Large Spark-Ignition Engines (mobile and stationary), Peter Caffrey, Sector Lead
  - Highway Motorcycles, Recreational Vehicles and Snowmobiles, Mike Delduca, Sector Lead

Compliance Process

- Application Review
- Corroboration tests
  - In-use, production line, confirmatory, selective enforcement audits
- Laboratory inspection and audit
- Review requests for special test procedures
- Ensure manufacturers are adhering to the regulations
- Ensure a level playing field for all manufactures
- Assist manufacturers in the process of achieving compliance with the regulations

Common Compliance Issues

- Warranty
  - Pay close attention to 40 CFR 1068.115
  - Prohibitions on denial of warranty claims by manufacturers
- Defeat devices
  - Examination of off-cycle emissions 40 CFR 1068.101(b)(2)
  - EPA is ramping up testing for defeat devices
- Exemptions
  - Test engines, display, manufacturer owned, national security, export, competition
- Hardship provisions
  - Governed under 40 CFR 1068 subpart C
  - This is a high bar – In the past brought up to the Office Director level

Selective Enforcement Audits

- Selective Enforcement Audits
  - 40 CFR 1068 Subpart E contains the rules for Selective Enforcement Audits (SEAs)
  - EPA will utilize SEAs as part of its overall compliance process
  - Process
    - EPA will randomly select up to 30 engines from the particular family
    - Engines will be locked down in a secure location
    - They will be tested at EPA directed location
    - Rules for pass or fail are in Appendix A to Subpart E

Emission Defect reporting

- Defect reporting (whole center)
  - When is a defect a defect? 40 CFR 1068.501(e)
- Explanations of components covered 40 CFR 1068.501(a)
- Items to consider
  - Thresholds for conducting an investigation
  - Thresholds for filling a report
  - Future production
    - Once a design or defect is identified
    - Defect must be corrected as soon as possible
    - This applies regardless of any requirement to conduct an investigation or submit a report

Engine tesing – Issues we have seen

- Improper test equipment
- Improper calibration of equipment
- Improper record keeping
- Expired gas bottles
- Improper fuel used for test
  - Aged, etc.
  - EPA will take fuel samples for evaluation
- Pre and post catalyst exhaust leaks
- If tests are performed at a laboratory independent of the manufacturer and an issue with testing arises then the manufacturer is still responsible the ramifications of the improper or incorrect test

Laboratory Inspections

- EPA will provide suggestions for best practices
- In egregious cases EPA will take more appropriate steps
  - Review of past certification tests
  - Additional testing at an alternate location
  - Not allowing certification data from that laboratory

Fuel Issues

- 40 CFR 1065 Subpart H governs the fuels to be used as referenced by the standard setting part
- California Air Resources Board (CARB) has mandated the use of an E10 fuel (LEV3) for all testing
- EPA requires E0 test fuel and has also defined an E10 (Tier3) fuel - both specifications are in 40 CFR 1065.710
- As a result of an examination of the regulations EPA will accept test performed for MSI, LSI, and HDSI on either EPA E10 or CARB E10
  - EPA reserves the right to conduct its own testing on E0 fuel as defined in 40 CFR 1065.710(c)

Fuel Issues

- What is coming up regarding fuels?
- Technical amendment process is examining the technical basis behind altering the standards for oxygenated fuels depending upon the technology used
- The purpose is to maintain the stringency of the standards when using an E10 fuel as opposed to E0
- At this point nothing has been set
- EPA's tests will continue to be performed on E0 for the foreseeable future

Confirmatory Tests

- These are tests performed by EPA on new engines
  - 40 CFR 1068.27 LSI and MSI
  - 40 CFR 86.091-29 HDSI
- These can be done at an EPA laboratory or upon EPA's discretion we may test at a manufacturer's test facility
- The results of this test will replace the manufacturer's own certification test in EV-CIS and thus become the official certification test for that engine

Confirmatory Tests

- Manufacturer must make a test engine available within a reasonable amount of time.
- The certificate will not be awarded until the testing is complete and the new test information is placed into EV-CIS and reviewed
- It is critical that any special issues related to testing the particular engine need to be communicated beforehand
  - EPA will have pretesting meetings to allow for this type of communication
  - Manufacturer is provided with an engine information sheet to begin the process
- EPA will pay for the initial tests performed at its own contract laboratories
- Manufacturer will upon, an initial failed test, be allowed to make reasonable alterations
  - EPA will then pay for the second test
  - All subsequent tests are the manufacturer's responsibility

Engine Maps

- Engine maps are required under 40 CFR1065.510
- EPA has requested copies of the Engine Maps be included in each application
  - Most manufacturers are providing these maps
  - Engine Maps assist in EPA's efforts to ensure that the testing is performed on the correct basis
  - Follow the process of 40 CFR 1065.510 for the map generation
  - Follow 40 CFR 1065.610 for duty cycle generation
  - SAE corrected maps are not permitted

Exhaust System Integrity

- EPA is concentrating on exhaust system integrity
  - During an emission test – Perform a chemical balance of fuel, air intake and exhaust, or some other proof
  - Test configuration must be consistent with production systems
  - Engine manufacturers must ensure that equipment manufacturers build in a manner consistent with the test equipment
  - Will be investigating this during confirmatory tests and checks on equipment in midlife
- 40 CFR 1065.130(e) informs the manufacturer to “Minimize leaks sufficiently to ensure your ability to demonstrate compliance with the applicable standards.”

Auxiliary Emission Control Devices

- EPA is taking a closer look at AECD algorithms
- To facilitate this EPA has created a new template that will standardize the process of submitting AECDs
- The template will allow for a faster and more thorough review process
- We expect the new template to be available soon
- For HDSI families
  - Part 85 certifications need not have access to all the AECDs of the OEM
  - Part 86 certification must provide information on all AECDs

Your Compliance Representatives

- Peter Caffrey caffrey.peter@epa.gov
- Deb Adler Reed adlerreed.deborah@epa.gov
- Eiji Mori mori.eiji@epa.gov