2009 EMA Certification Workshop

- 2010 General Certification Topics
- 2010 On-Road Certification and Implementation Topics
- 2010 Off-Road Certification Topics
2010 Certification

General Topics

• New Certification Section Created

• Diesel Engine Durability Program

• 2010+ Durability Program

• Certification Application Issues
New Certification Section Created

Compression Ignition and Heavy-Duty Certification (CIHD Cert-Section)

Responsibilities:

• On-Road HD (Diesel + Otto) Engines
• On-Road Heavy-Duty Vehicles
• California Medium-Duty Vehicle Engines
• Off-Road Compression Ignition Engines
Compression-Ignition and Heavy-Duty Certification

Manager: Kim Pryor

Tom Chang  Michael Pham
Zachary Evans  Babak Pazokifard
Paul Adnani  Tsatsu Nukunya
James Pang
Off-Road Spark-Ignited Engine Certification
Manager: Kumar Muthukumar

Joseph Jegede  Geeta Osborn
Alan Chow     Kevin Curley
Byron Ng      Michael Lin
Janie Han     Sophia Mahmood
David Pino
Diesel Engine Durability Program

- New durability testing required for
  - MY2010 = on-road HD diesel engines
  - MY2011 = Interim Tier-4 new technology engine
  - MY2014 = Tier-4 new technology engine

- ARB and EPA work closely to have common requirements
Certification

MY2010+ Durability Program For On-Road HDDEs

- ARB wants 50% UL in-use representative DF testing
- Alternative DF testing and stable DFs through 2012 for Mfrs participating in co-op test program
- Must account for in-use DPF regeneration (frequency, duration, and emission deterioration) and critical ECS maintenance (e.g., DPF ash cleaning, EGR valve/cooler)
- ARB is still engaged in the DF discussion
Certification

Typical Certification Issues

• Streamline Review Process Timing

• Expedited Application Processing
Certification
Streamline Processing Time

- Avoid submitting all applications in Oct.-Dec. timeframe (submit carryover family early)

- Submit AECD documents early (at least 90-days before application)

- Submit and discuss durability plan early (before service accumulation begins) with ARB and EPA simultaneously

- Discuss DPF, SCR strategies and other new technology information early
Certification

Expedited Application Processing

• Plan ahead - submit applications early in the year (Mar.-Aug.)

• Provide certification staff with priority list

• If requested, certification staff will try to expedite processing of 1-2 applications per MY

• Certification staff cannot expedite processing of all applications for a manufacturer
2010 Certification

On-Road Topics

- OBD
- SCR Concerns
- Hybrid HD Vehicle Certification
- Idle Emission Reduction 2010+
- OCR Engine Family
- Service Information
- Warranty Reporting
On-Road Heavy-Duty
On-Board Diagnostics

- MY2010-2012, one engine family with OBD per non SVM (except alternative fueled engines)
  - Parent rating (highest sales) – full OBD
  - Child ratings (others) – extrapolated OBD
    (malfunction criteria per engineering evaluation approved by ARB)

- OBD documents to MSCD directly

- OBD approval letter from MSCD to Mfr to DMS
On-Road Heavy-Duty

SCR Concerns

- **Deterioration:**
  - Linear vs. non-linear deterioration
  - Interaction w/ upstream DPF

- **Ammonia:**
  - Ammonia storage and related durability concerns
  - Ammonia slip (@ 25 ppm as “smell-able”, for certification 10ppm limit??)

- **Cu-based SCR, TAC formation not finalized**
On-Road Heavy-Duty

Hybrid Certification

Under current procedures, two cert options

• Option 1: Using Certified Engines within the proper vehicle class
  • Re-cert not needed if no change to engine calibrations and AECD limits

• Option 2: Chassis Certification (engine + hybrid system + vehicle)

• No changes planned
On-Road Heavy-Duty
Hybrid Certification

CA transit agencies seeking Hybrid Electric Buses (HEBs) to meet Urban Bus fleet rules

MHDD engine use in HEBs allowed provided:

- No change in engine calibration and engine operates within AECD limits
- Engine MFRs to demonstrate 435K-miles emission compliance
- Acceptable demonstration – MHDD engine in HEB
  - Engine change-out at 185K and 370K miles
  - Open to other demo approaches
On-Road Heavy-Duty

Idle Emission Reduction 2010+

Engine Shutdown System (ESS) - MAC 07-03

- ESS required for all CA-only and all 50-state-labeled engines not in exempt vehicles

- A complete reflash to “no ESS” for exempt vehicles is required for MY2010+; Mfrs may no longer disable ESS software toggle

- Armored Truck added to exempt vehicle list
On-Road Heavy-Duty
OCR Engine Family

- Engines with OCR must certify the entire family to worst-case emission adjustment factors

- Must follow CHC-2006-007-1 guidance letter

- Same FEL applies to ALL engines with or without OCR in an engine family

- Existing 2007+ engines can have OCR under an approved field fixes
Heavy-Duty Service Information

Annual Website Reports

• Website reports are mandatory
  – ARB has received few submittals from HDDE Mfrs in the past two years
  – Received submittals from only 38% of EMA members – the remaining 62% have not submitted
  – Possible penalties for non-submittal

• ARB needs Mfrs’ reports to create the required annual report to the state legislature on the effectiveness of the service information regulation.
Service Information

Contact Information

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Heavy-Duty EWIR Reporting

2008Q4 EWIR Data

- 11 HD Manufacturers Reporting
- ~1000 Components Reported by HD Mfrs
- 380 Parts >10%, 29 Parts > 100%
- FIRs and EIRs are being submitted
- EIRs Contain No Emission Data
- No Corrective Actions From Reporting
- ARB Will Meet with Each Mfr
• Regulations Approved by OAL in Dec ’07
• ARB Sued Jan ’08 by EMA & Aft Mkt Industry
• Court Ruled Against ARB in Dec ’08
• ARB to Repeal Reg in Jun ’09
• ARB Continues Under Existing EWIR Regs
• ARB Will Pursue EWIR Amendments
Warranty Reporting

Contact Information

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2010 Certification

OFCI Topics

• Diesel Particulate Filters (DPFs)

• Selective Catalytic Reduction (SCR)
Diesel Particulate Filters

- Diesel Particulate Filters (DPFs) are considered as a new technology, i.e. 50% of UL deterioration period testing is required.
- Operator Commanded Regeneration (OCR) is allowed under safe harbor provisions (CHC-2006-007-1)
2010 Certification - OFCI

Selective Catalytic Reduction (SCR)

- Similar concerns addressed by On-Road guidance
- Final inducement must be engine shuts-down
- Early warnings and inducements are encouraged
- Recommended minimum fuel : DEF tank (2:1)
- SCR tamper resistance is required
Compression-Ignition and Heavy-Duty Certification

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