

### **EMA Certification Workshop**

April 15, 2008

California Environmental Protection Agency

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### Certification Workshop Topics

- Electronic Certification
- Confirmatory Testing
- Heavy Duty Hybrid Certification
- Stationary Engine Certification
- 2010 Heavy-duty On-highway Certification
- Tier IV Nonroad Certification
- 1068 Changes and Customs Forms

### **Electronic Certification**

### **Electronic Certification**

- What is the latest schedule for implementing electronic certification by category (on-highway, nonroad, marine, locomotive, LSI, SSI, etc.)?
  - For verify, there is no schedule currently for most of the industries listed. The locomotive certification is in verify, the locomotive equipment mfrs for new rule will be expected to submit an MS excel template through the verify documents module.
- When will the XML file schema be provided for on-highway, nonroad, and marine submittals?
  - Not scheduled yet.

- Can both agencies avoid the last two quarters of any given calendar year, so as not to disrupt the annual re-certification process?
  - This can be discussed but EPA takes peak certification period in consideration for their scheduling of verify.
- Can EPA share feedback from light-duty manufacturers beta testing the VERIFY 4B release and identify changes that may be incorporated in future releases?
  - Yes, however, EPA has not deployed fully release 4b, but we have feedback from release 4a (also light-duty) and testing from release 4b IUVP module.

- Will manufacturers be able to view batch-load files in the same way that the cert rep. Will see it, before it's permanently loaded into EPA's and ARB's database?
  - No, EPA's assumption is if manufacturers choose the option to submit batch and do not use the web form or template provided then they will know how to view their data prior to submission.
- Will VERIFY allow alias file names as is allowed in ARB's DMS system?
  - Yes, you will be able to use the CARB naming scheme, verify renames files properly for our use according to the metadata (selected options on the verify document module).

- Will manufacturers be allowed to submit a single common document to EPA that spans several families (AECD's, warranty document, etc.)?
  - Currently, no, however we do have a change request for that pending.
- Have the agencies considered automatic metadata assignment for each document, based on attributes already inherent to their profiles, directories, and file names to avoid a redundant and cumbersome work.
  - EPA has considered that function, there is a pending change request that will allow you to save the metadata xml data file on your desktop and load again as needed, you will be given the opportunity to make the changes.
  - Secondly, you can create your own batch file for submission of documents using the EPA provided XML schema. These changes are also pending.

- What carryover features will be included to minimize data entry for carryover families?
  - Each industry has unique data migration, this will be decided on an industry by industry basis.
- How have the agencies allocated resources for supporting manufacturer's transition to electronic submissions?
  - Additional clarification is needed, however general support and Qs and as can be addressed.
  - EPA does not plan to provide extensive support of all of a given manufacturer's transition issues.
- What is Cromerr?
  - This is a new requirement for how the agency collects information.
  - New guidance will soon be available, however the locomotive and HD in-use that already use verify, have growing familiarity with the process.
  - It will require high level corporate sign-offs to help ensure information security.

# Using EPA's Verify Information System

**EPA Office of Transportation and Air Quality** 

EMA Certification Workshop April 15, 2008



#### Presentation Overview

 Steps for Doing Business with EPA's Office of Transportation and Air Quality

Request a Manufacturer Code

Information Systems for Certifying Engines,
 Vehicles, and Equipment

Using the Verify Information System

### Steps for Doing Business with OTAQ

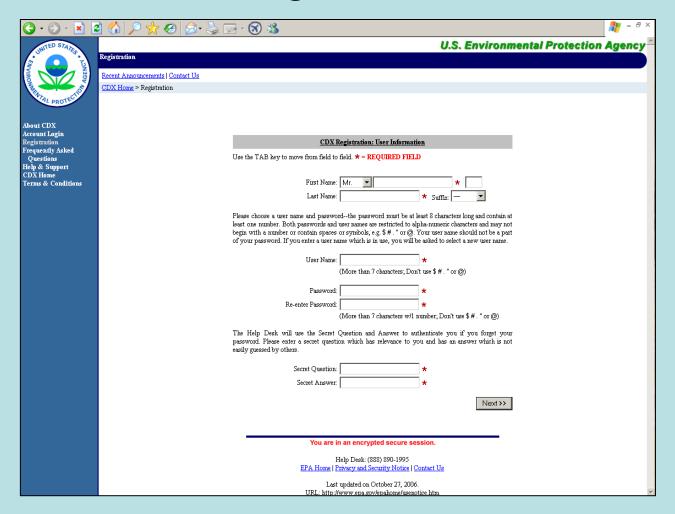
- 1. Request and obtain a manufacturer code
- 2. Determine which compliance information system your industry currently uses
  - Verify
  - Engine Information Management System (IMS)
- 3. If Verify, register users / obtain user accounts
- Submit information
  - Nonroad compression-ignition and small spark-ignition confirmatory test data submission is the focus of the presentation



### Request a Manufacturer Code

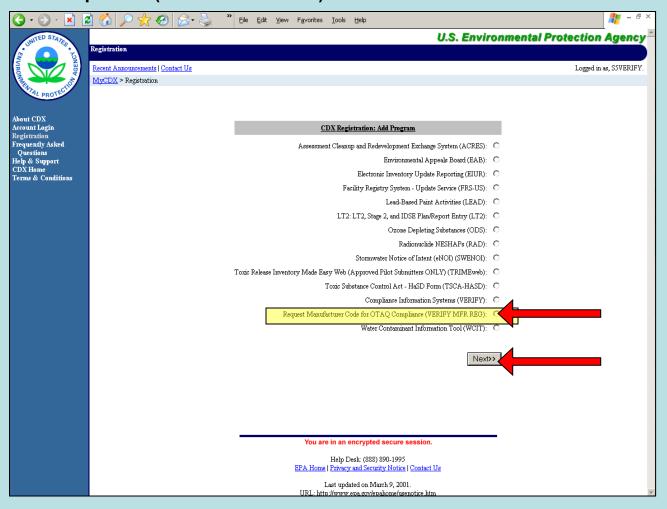
- What is an EPA manufacturer code?
  - It's a three character sequence that's used in each certified engine family name
  - All companies that plan to certify vehicles or engines with EPA must have one
  - Only one manufacturer code is assigned to each company, even if that company plans to certify products within multiple industries
- How to get one:
  - One person from your company must register and create a temporary user account with the Agency's Central Data Exchange (CDX)
  - This account is only used for obtaining a manufacturer code

# Request a Manufacturer Code: CDX User Registration Screens



# Request a Manufacturer Code: CDX User Registration Screens

At the "CDX Registration: Add Program screen", select "Request Manufacturer Code for OTAQ Compliance (VERIFY MFR REG)"



# Request a Manufacturer Code: CDX User Registration Screens

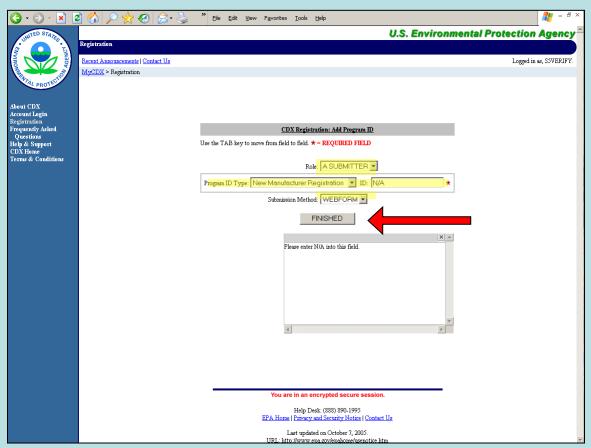
At the "CDX Registration: Add Program ID screen", enter the value specified below.

Role = "A SUBMITTER"

Program ID Type = "New Manufacturer Registration"

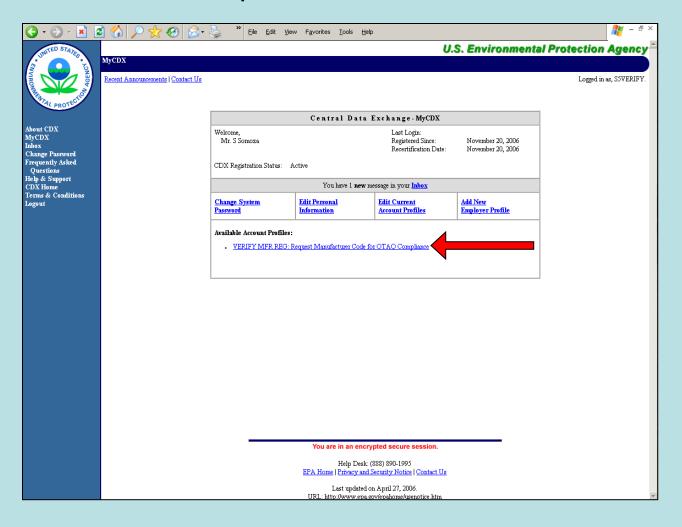
ID = "N/A"

Submission Method = "WEBFORM"



# Request a Manufacturer Code: MyCDX

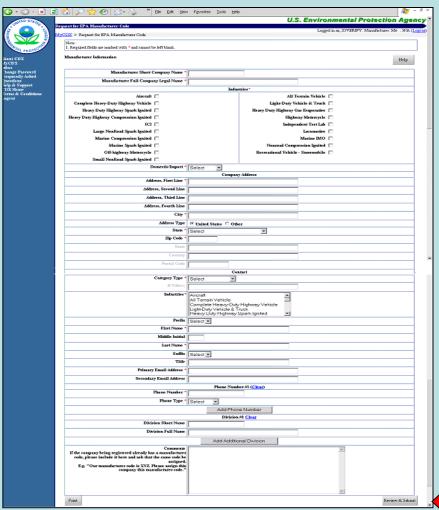
From your MyCDX home page, click on the "VERIFY MFR REG: Request Manufacturer Code for OTAQ Compliance"



# Request a Manufacturer Code: Manufacturer Information Screen

On the Manufacturer Information screen, fill in all applicable fields about your

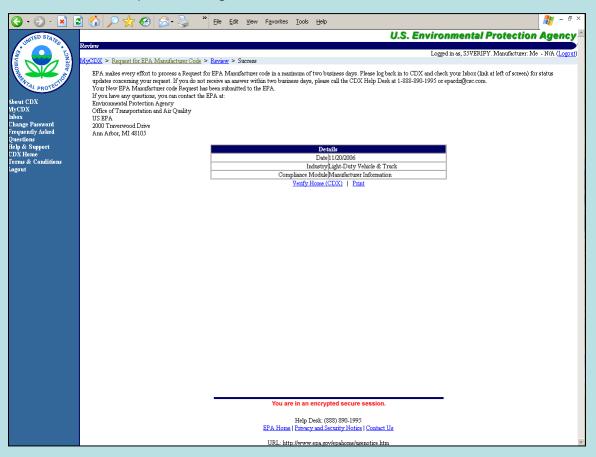
company.



# Request a Manufacturer Code: Confirmation of Your Request

The confirmation page will summarize your request that was submitted to EPA for processing. You can print this page for your records.

You will receive a notification in your MyCDX Inbox stating that your submission was sent to EPA for processing.





# OTAQ Compliance Information Systems for Engines, Vehicles, and Equipment

- Verify information system
  - Covers the following industries and processes:
    - Motorcycle/ATV certification
    - · Locomotive certification
    - Heavy-duty highway engines in-use
    - Light-duty (certification, confirmatory test, in-use, and fuel economy all under development)
  - Information collected via web forms, batch file upload, or machine-tomachine
- Engine Information Management System (IMS)
  - Covers all other industries not in Verify
  - Information collected via FileMaker Pro templates
- Both systems handle small spark-ignition and nonroad compressionignition industries
  - Verify for confirmatory testing
  - IMS for certification

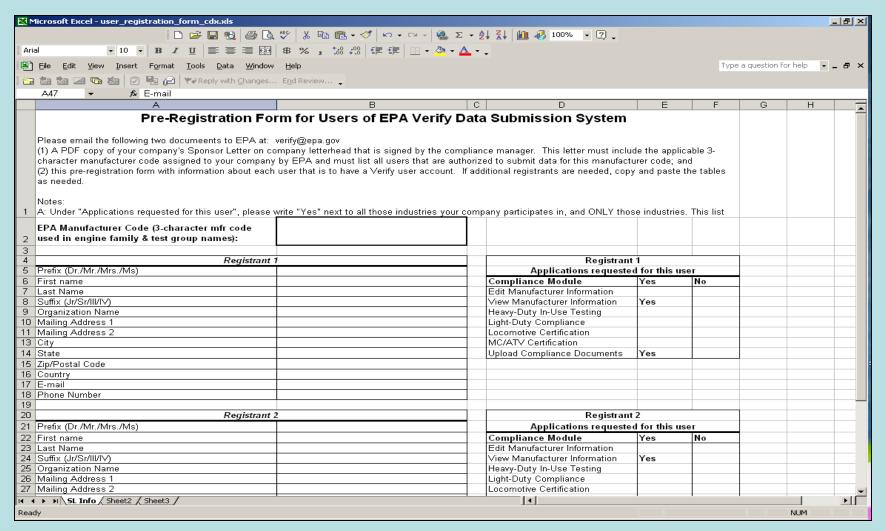
### Using the Verify Information System

- Once your company has requested and received its EPA manufacturer code, it must then register individual users to submit information to the Agency
- Note that new requirements for all Verify users will soon apply
  - Requirements are part of the Agency's Cross Media Electronic Reporting Rule (CROMERR) (70 FR 59848, October 13, 2005)
  - Implementation by October for those industries already using Verify for certification and in-use
  - Later as industries transition to the Verify system
  - More information will soon be available via guidance and our web site

## Using Verify: Creating Verify User Accounts via CDX

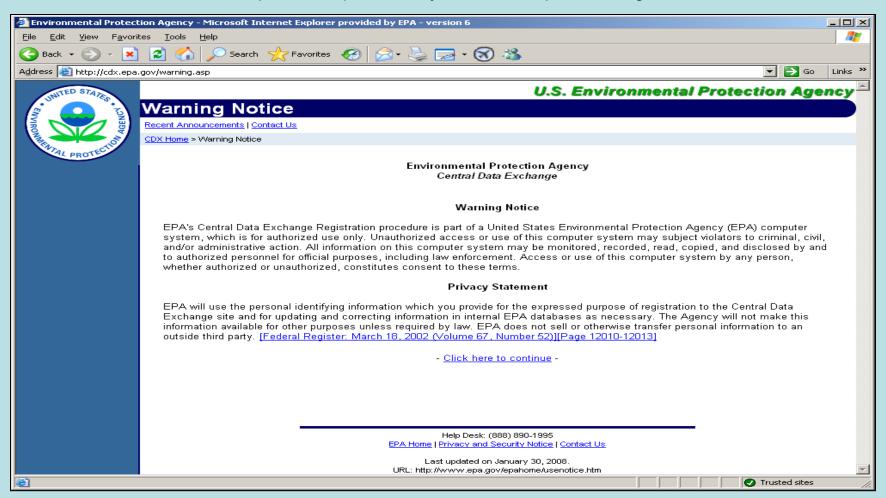
- An approving official from your company must
  - Send a Sponsor letter to EPA that identifies all users who are authorized to submit information to the Verify system for your company. For security reasons, this letter must
    - · Be on company letterhead;
    - State the 3-character manufacturer code that EPA assigned to your company;
    - · Be signed by a manager or other company-authorized representative that can be authenticated
    - · Be saved in PDF format (.pdf).
    - · List industries you are requesting;
    - Send a Completed Pre-Registration User Information Form
  - The sponsor letter and Pre-Registration form must be e-mailed to <u>verify@epa.gov</u>
- Each user that will submit compliance information to Verify for your company must have his/her own (CDX) Verify
  user account.
- Each (CDX) Verify user account will only be allowed to submit information for one manufacturer code.
- EPA will review the Sponsor letter and list of users and will forward the information for all approved users to the CDX helpdesk.
- Each approved user will receive an email from CDX that will instruct the user to call the CDX Help Desk at the phone number provided in the email (i.e., (888) 890-1995).
- The CDX helpdesk will provide each user with a customer retrieval key (CRK) needed in order to finish the user account registration process.

# Using Verify: Pre-Registration User Information Form



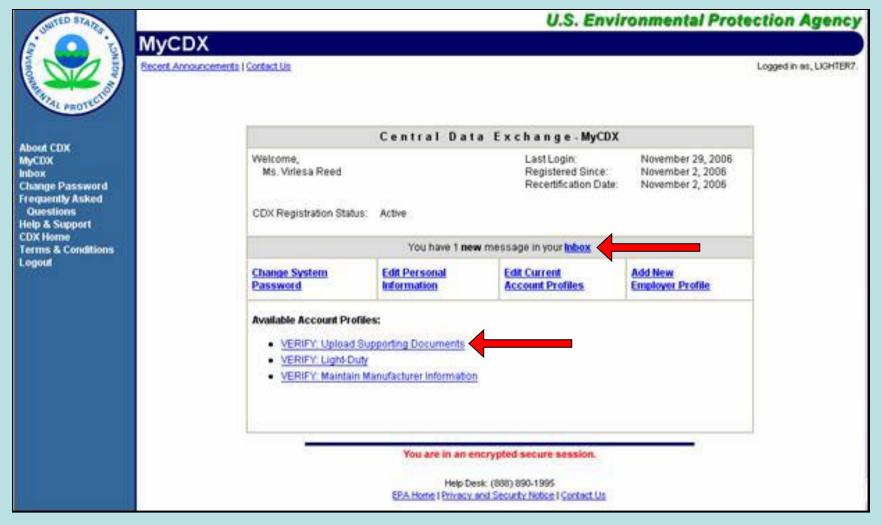
### Using Verify: CDX Login

- To submit your documents go to <a href="http://cdx.epa.gov">http://cdx.epa.gov</a>
- Use the userid and password provided by the CDX helpdesk to log in.

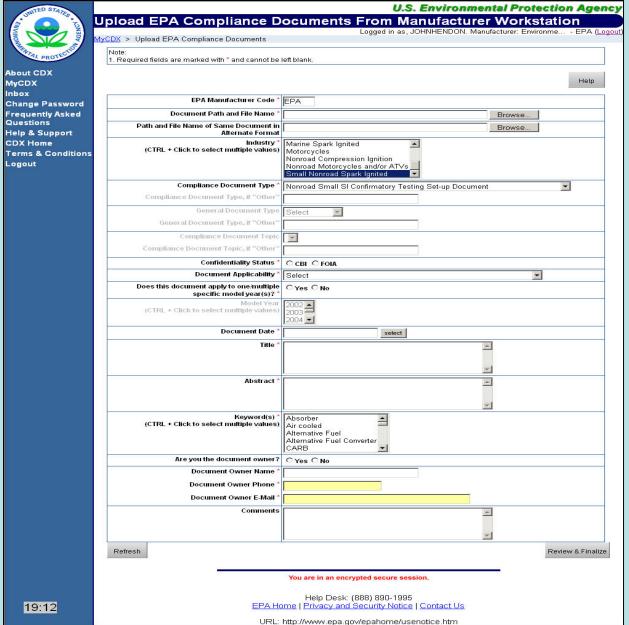


### **Using Verify: MyCDX**

- To submit your documents click on Verify: Upload Supporting Documents
- To retrieve transaction information or test results click on Inbox



### Using Verify: Document Submission



### Support

- Telephone (888) 890-1995
  - Option 4 for technical questions regarding data or uploading your documents
  - Option 5 for help with your CDX registration (user ID/password) questions

#### E-mail

- verifyhelp@csc.com for technical questions regarding data or uploading your documents
- epacdx@csc.com for help with your CDX registration (user ID/password) questions
- Questions regarding the Small SI or CI Confirmatory Test Engine Information set-up documents
  - contact your Certification Representative

#### Websites

- Nonroad Confirmatory Testing
  - http://epa.gov/otaq/cert/eng-cert/confirmatory/

- Verify
  - http://epa.gov/otaq/verify/

- CDX
  - <a href="http://cdx.epa.gov">http://cdx.epa.gov</a>

# ARB's Electronic Certification System

#### 2008 EMA Certification Workshop April 15, 2008



California Environmental Protection Agency



# ARB's Document Management System (DMS)

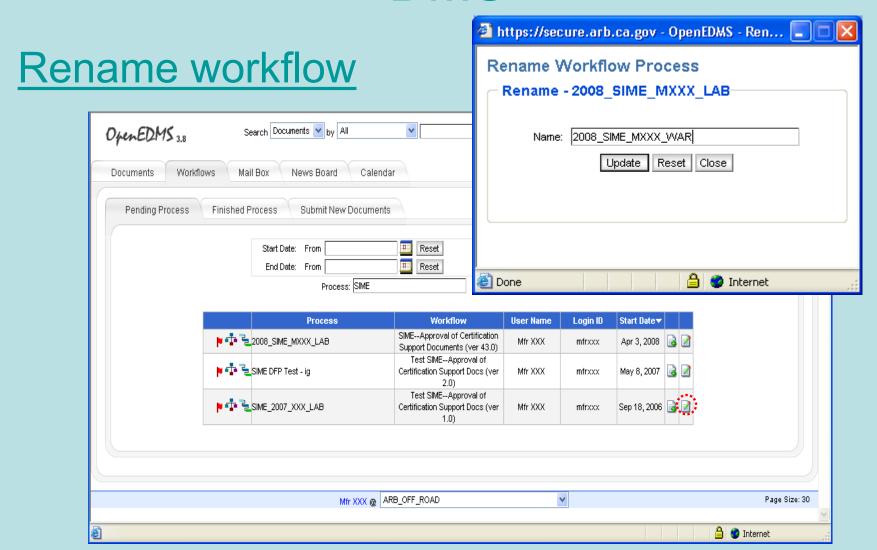
#### **AGENDA**

- What has changed?
- What is next?
  - Manufacturers
  - ARB

### DMS - What has changed?

Faster DMS access

	2007	2008
DMS Users	749	1,100
Directories	534	615
Documents	7,199	21,296





#### **Document Status**

- Reduced status values
- System enforce final status change
- Perform timely status change



### **Metadata Entry**

 Set default document type in the folder properties and provide metadata

2. Modify document metadata where needed

### Metadata entry

 Metadata is not required for new document versions that use the same name

Metadata cannot be obtained from directory structure or file name



#### DMS – What is next?

#### Manufacturers

- Upload documents in correct folder
- Follow naming convention
- Select correct document type
- Provide Metadata & use ARB mfr. code
- Submit documents to work-flow



### DMS -- What is next?

### ARB Staff

- Maintain document status current
- Testing new version
- Preparing DMS guideline
- DMS Training
- Carry-Over

### DMS -- What is next?

### Expedited Processing of Carry-Over EFs

- Requirements to Qualify as Carry-Over
- Carry-Over Applications
- Submit Carry-Over Application Ahead of Peak Season
- Follow DMS File and Process Name Identification Format

#### On-Road and Off-Road Diesels

#### **Electronic Certification**

- DMS = Documents only (e.g., word, graphics)
- E-Cert = Database (in lieu of FileMaker Pro)
- DMS + E-Cert = complete application

#### What is E-Cert?

- Electronic database
- Engine family data
- Similar to current FileMaker Pro
- MFR to submit data electronically via XML schema.
- Currently in development On-Road HDDE and Off-Road CI

#### **Tentative Schedule**

- Workshop in January 2009
- Voluntary E-Cert test :May 2009
- Database ready October 2009??
- MY2010=E-Cert optional
- MY2011=E-Cert required

#### Support for Manufacturers' Transition to Electronic Submission

- Coordinate schedule
- XML File Schema
- Parallel systems during phase-in
- Microsoft InfoPath form for data entry
- Staff available for training and questions



### Thank you







# **Confirmatory Testing**

# **Confirmatory Testing**

- 11 Nonroad Diesel Engines Testing in 2006 and 2007
- 1 family had an FEL Change
- New Changes to the Process including:
  - Smart Spreadsheets
  - CDX On-Line Process
- Small SI Testing started in March 2008

### **Certification Statistics**

### Certificates Issued in 2007

- Heavy Duty Gasoline Engines 38
- Heavy Duty Diesel Engines 58
  - Heavy Duty Diesel Engines California Only 1
  - Heavy Duty Gasoline Engines California Only 1
- Nonroad Compression Ignition including stationary 675
  - Stationary Only -5,
  - Combined nonroad and stationary 4

# Certificates Issued in 2007 (continued)

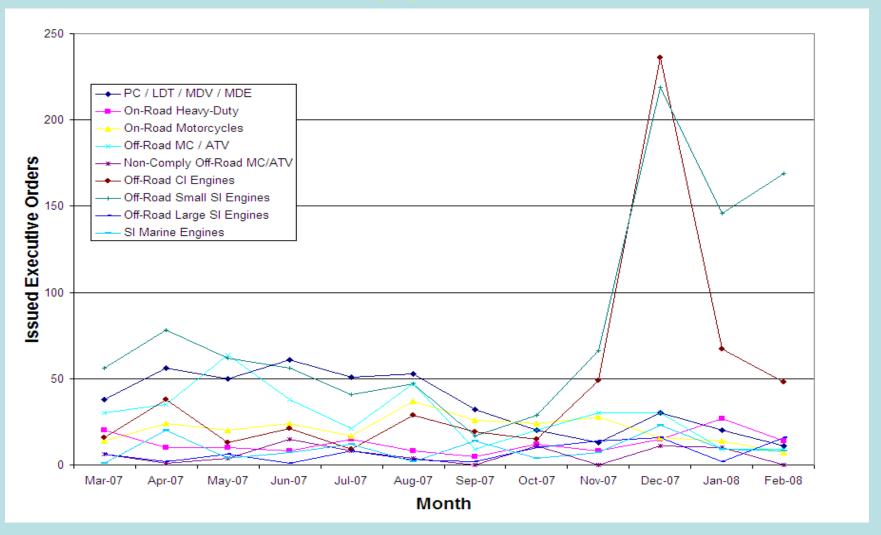
- Nonroad Compression Ignition California Only 1
- Marine Spark Ignition 112
- Small Spark Ignition 1,084
- Evaporative Emissions 19
- Marine Compression Ignition and IMO 148
   3 IMO
- Snowmobile 37
- Large Spark Ignition 34
- Locomotive 60

### Certification Statistics

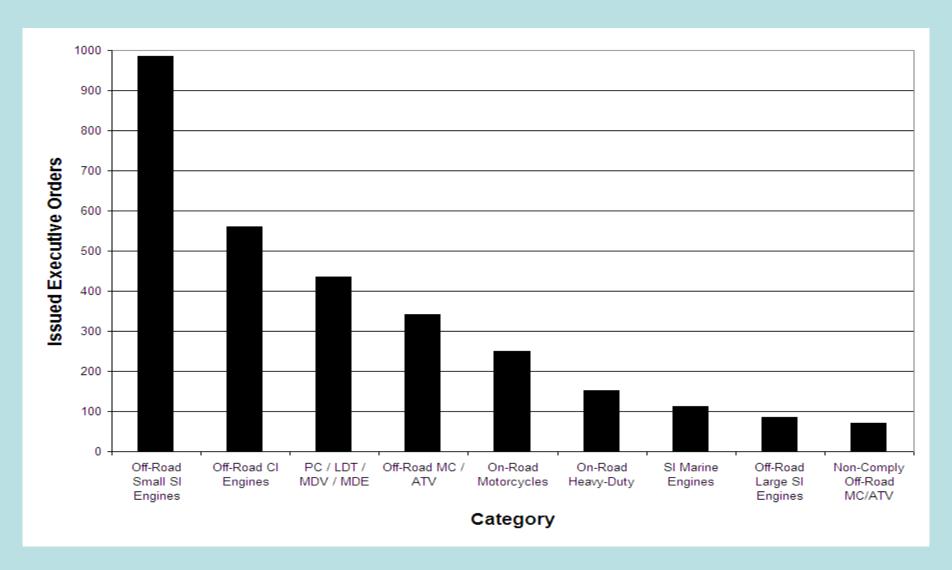
Q/A and Update

# 2008 EMA Certification Workshop April 15, 2008

### Certification Application Statistics



### ARB's 2007 Cert Volume



# 2008 EMA Certification Workshop April 15, 2008

### **Topics**

- What's New For MY2009-2010
- SCR Certification
- Durability Testing DF Determination for MY2010
- Hybrid Vehicle Certification
- Idle Emission Reduction
- New Engine Family Naming
- Service Information

#### What's New For MY2009-2010

#### Certification:

 0.20 g/bhp-hr NOx STD for MY2010 HDDE – expect SCR usage with concomitant issues of durability testing, DF determination, and AECD evaluation

What's New For MY2010+

Certification: (continued)

- OBD 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)

#### SCR Driver Inducement

# Concerns for continued proper SCR operation:

- Empty tank
- Improper refill (different or dilute reagent)
- No injection / no reagent usage

#### **SCR Driver Inducement**

### **Empty Reagent Tank**

- Initial early warning for low level (1/2 Full)
- Second warning of near empty tank (1/4 Full)
- Third warning at empty tank
- Driver inducement = no start; can be preceded by progressive derating

#### SCR Driver Inducement

### Improper Refill

(e.g., different or dilute reagent)

- Must detect improper refill
- Immediate alert to driver
- Driver inducement = no start; can be preceded by progressive derating

#### SCR Driver Inducement

### No Reagent Usage

(e.g., disabled injector, blocked feed line)

- Must detect no reagent usage
- Immediate alert to driver
- Driver inducement = no start ???

### MY2010 Durability

 Bench aging of after-treatment devices (e.g., DOC, SCR, DPF) may be considered with prior approval

Base engine must have stable engine-out emissions

### MY2010 Durability

 Must account for in-use regeneration effects (e.g., increased frequency and/or duration)

Minimum service accumulation:
 whole engine durability - ½ useful life
 bench aging - full useful life

### **Hybrid Certification**

Under current procedures, two cert options

- Option 1: Using Certified Engines
- Option 2: Chassis Certification (engine + hybrid system + vehicle)
- No changes planned



### **Hybrid Certification**

#### Contact ARB for hybrid certification plans

- Durability and DF plan
- Emission Factor determination plan
- Warranty and Maintenance
- Other related discussions:
  - Special test conditions/procedures
  - Test vehicle configuration

### **Hybrid Certification**

Hybrid Electric Buses (HEBs)

- CA transit agencies (TAs) seeking HEBs to meet fleet rules
- TAs hoping to use MHDD engines in hybrids:
  - needs to work with engine MFRs to certify MHDDE to 220K-mi alternative UL
  - only 1 engine change-out during 435K-mi urban bus UL

#### Idle Emission Reduction

#### MY2008+ HDDEs

- Requirements:
  - Five-minute engine shutdown (ESS), or
  - 30 g/hr NOx (clean idle), or
  - Approved alternatives (APS or Heaters).
- Part of AECD review process
- http://www.arb.ca.gov/regact/idling/idling.htm

#### Idle Emission Reduction

Engine Shutdown System (ESS) - MAC 07-03

- ESS required for all CA-only and all 50-state-labeled engines not in exempt vehicles
- ESS disablement for exempt vehicles must be under strict manufacturer control
- ESS disablement using a software toggle is allowed for MY2008-2009. A complete reflash is required for MY2010+

#### Idle Emission Reduction

#### 30 g/hr NOx Clean Idle

- ARB approval of "Certified Clean Idle" vehicle label is integral to clean idle certification
- Engine MFR to provide a label to all CA-onlylabeled and all 50-state-labeled engines not in exempt vehicles

#### Idle Emission Reduction

Engines with ESS recertified to 30 g/hr NOx Clean Idle

- allowed for MY2007 and 2008 engines
- approved via running changes (MY2008 still in production) and field fixes (MY2007-2008 already produced)
- within an engine family, ESS-equipped engines and clean idle engines must be in separate model or engine code designations

#### Idle Emission Reduction

MFR-Sanctioned Ducting of Certified APU Engine to Main Engine Exhaust System Upstream of DPF

- ARB approval of "Verified Clean APS" vehicle label is integral to this certification
- Engine MFR to provide a label to all CA-onlylabeled and all 50-state-labeled engines not in exempt vehicles
- Regen. of main engine DPF with APU added is part of main engine AECD review

#### Idle Emission Reduction

ARB staff considerations for approving "Certified Clean Idle" and "Verified Clean APS" vehicle label

- color, contrast, and holographic effects of CA state outline and background "Clean Skies" lettering
- self destructiveness of label upon removing, e.g., deformation of the removed label and leaving a "VOID", blank, or some other pattern on the vehicle that bear no resemblance to a valid label from a distance

#### Idle Emission Reduction

#### MY2008 Idle Emission Compliance Status

- 27 families with ESS
- 14 families with clean idle
- 3 families with clean idle plus APU exhausting into main engine exhaust system upstream of DPF

### MY2009+ Engine Family Names

- Use EPA CISD-07-03 for naming EFs.
- Unique ARB requirements indicated at the 10th position by special codes.
- ARB has not specified any such special codes.
- When special codes are needed, guidance letter will be issued in advance.



### Heavy-Duty Service Information

#### **Annual Website Reports**

- ALL heavy-duty engine manufacturers must submit annual reports pursuant to 13 CCR 1969(f)(6) that:
  - Show compliance with minimum website content and criteria in (f)(2)
  - Indicate the website's performance and effectiveness using Internet metrics
- Reports must be submitted no later than 30 days after the end of each calendar year

### On-Road Heavy-Duty

#### **Contact Information**

Certification

Tom Chang, <a href="mailto:ychang@arb.ca.gov">ychang@arb.ca.gov</a>

Duc Nguyen, Manager, <a href="mailto:dnguyen@arb.ca.gov">dnguyen@arb.ca.gov</a>

Service Information

Dean Hermano, ehermano@arb.ca.gov

OBD

Mike McCarthy, mmcarthy@arb.ca.gov

# Heavy Duty Hybrid Certification

### **HD Hybrid Certification**

- Does 86.131-90 apply to diesel vehicles?
  - No, this is a light duty procedure
- Can a truck mfr use modeling simulation in lieu of testing?
  - Topic is still under discussion
- Can mfrs apply recognized chassis dyno drive cycles to vehicle applications not defined by Smartway?
  - Drive cycles in Smartway protocol will be used for the HD hybrid certification procedures. A mfr offering their own unique fleet cycle will probably not be accepted. A cycle in the particular vocation (e.g., EPA accepted utility cycle, transit bus cycle, etc.) will be used.

#### HD Hybrid Certification (continued)

- Do manufacturers have the option of creating their own application specific drive cycles?
  - The reason for this is so that every utility truck will be evaluated based on the same utility drive cycle. Each application based on a single, application specific drive cycle.
- Does EPA have a procedure for comparing a hybrid vehicle to a non-hybrid vehicle, similar to CARB?
  - Eventually, when the HD hybrid certification procedure is written, a single vehicle test will be required.
  - The percent improvement over a conventional vehicle will be available, but the purpose
    of the procedure is to require the certifier to test a single vehicle.
- Has EPA developed a Smartway protocol for charge depleting plug in hybrids?
  - No we have not.

# 1068 Changes and Customs Forms

## 1068 Changes

- What is the current timeline for publication of these part 1068 changes?
  - Targeting signature in June 2008; Publication in July 2008.
- What would be the effect date of these changes?
  - Sixty days after publication, ~September 2008. We intend to add a provision like §1065.10(c)(6) to allow a 12-month grace period for reg changes.
- How does CISD intend to implement changes that are required due to some of these definition changes? Will additional rulemakings be required or guidance documents?
  - Not anticipating the need for further rulemaking or guidance.
     CISD will monitor compliance and respond as appropriate.

## 1068 Changes (Continued)

- What will be the final draft language for labeling and controlling the sale of short blocks as service replacement? What considerations has EPA made regarding labeling size and content?
  - Updated draft text being provided by EPA on an on-going basis from ASD.
- How will EPA address the language in 1068.230(b) that voids a manufacturer export exemption in the case of a third party offering an export engine for sale in the US?
  - Waiting for EMA feedback on changes to export exemption.

## 1068 Changes (Continued)

- Has EPA determined their authority to require permanent labeling of engines required by the destination country in cases where the destination country has standards identical to the US?
  - See CAA 203(b)(3).

#### **Customs Forms**

- What is the process for implementing changes resulting from part 1068 SSI rule changes?
  - We plan to release an updated 3520-21 form in conjunction with the Nonroad SI rulemaking.
  - There will be opportunity for EMA review of the revised form.

## Off-Road Compression-Ignition Engines

Q/A and Update

2008 EMA Certification Workshop April 15, 2008

#### OFCI - DETERIORATION FACTORS

- Submit the durability plan to ARB prior to conducting any durability tests
- Durability testing is required to calculate the deterioration factor (DF) for each engine family
- Within each engine family, manufacturers may choose the worst case model for durability test to minimize their testing burden

#### OFCI - DETERIORATION FACTORS

- Worst case model is defined as the model with the highest emissions deterioration
  - Factors to consider include highest fueling rate, aftertreatment technology etc.
  - "Sales-weighted" model is not the worst case model
- DFs can be additive or multiplicative
  - Aftertreatment device multiplicative
  - No Aftertreatment device additive

#### OFCI - DETERIORATION FACTORS

- For established emission control technology
  - Use minimum 1,000 hours of durability testing and extrapolate to useful life
- For new emission control technologies, such as DPFs and catalysts
  - Age the engine to at least half of the useful life and extrapolate the results to useful life
- Manufacturers may carry-across DFs to other engine families subject to ARB approval
- DF carry-over to subsequent model years is allowed, if no change