California Air Resources Board

CERTIFICATION & COMPLIANCE ASSISTANCE WORKSHOP

HIGHWAY MOTORCYCLE (HMC), OFF-HIGHWAY RECREATIONAL VEHICLE (OHRV), AND SMALL OFF-ROAD ENGINE (SORE)

February 20, 2008
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California Environmental Protection Agency
Air Resources Board

Presentation Outline

- Overview
- HMC & OHRV Emissions Certification
- SORE Emissions Certification
- Other Requirements (Labels, Warranties, etc.)
- Post Certification Requirements
- Compliance Requirements
- Electronic Certification Submission

Overview

HMC/OHRV/SORE

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What is an HMC & OHRV?

- Highway Motorcycle (HMC) [Ref. CA HSC § 39041 & CA VC §400]
  - Seat or saddle for rider
  - 3 or fewer wheels (4 wheels if 2 wheels are part of sidecar)
  - Curb weight **< 1,500 lbs.** (< 2,500 lbs. for electric HMC)
- On-road motor scooters that meet the definition of a HMC are certified for emissions compliance as a HMC.
- Off-Highway Recreational Vehicle (OHRV) [Ref. 13 CCR §2411]
  - All-Terrain Vehicle (ATV), width ≤ **50",** 4 or more low pressure tires, 1 **operator-straddled seat**, or 1 operator-straddled seat + 1 passenger seat, **handlebar,** IC engine
  - Off-Road Motorcycle (OFMC), a.k.a., "trail bike" or "dirt bike"
- Other OHRV Classifications, Off-Road Sport Vehicle (SV), Off-Road Utility Vehicle (UV), Sand Car (SCAR), Golf Cart

What is a SORE?

"Small off-road engine" is defined in 13 CCR, §2401:

- Any spark-ignited engine that produces gross horsepower < 25HP (19kW)
- Is not used to propel an on-road vehicle, off-road motorcycle, all-terrain vehicle, sand car, or marine vessel
- Examples: lawn mowers, weed trimmers, chainsaws, generators, specialty vehicles

Major Certification Steps

1. (New Mfrs.) Register with U.S. EPA and ARB.
2. Group vehicles/engines/equipment into exhaust & evaporative/permeation families.
3. Demonstrate durability & emissions compliance for each family.
4. Submit Applications to U.S. EPA and ARB via the Internet.

Major Certification Steps
(cont'd)

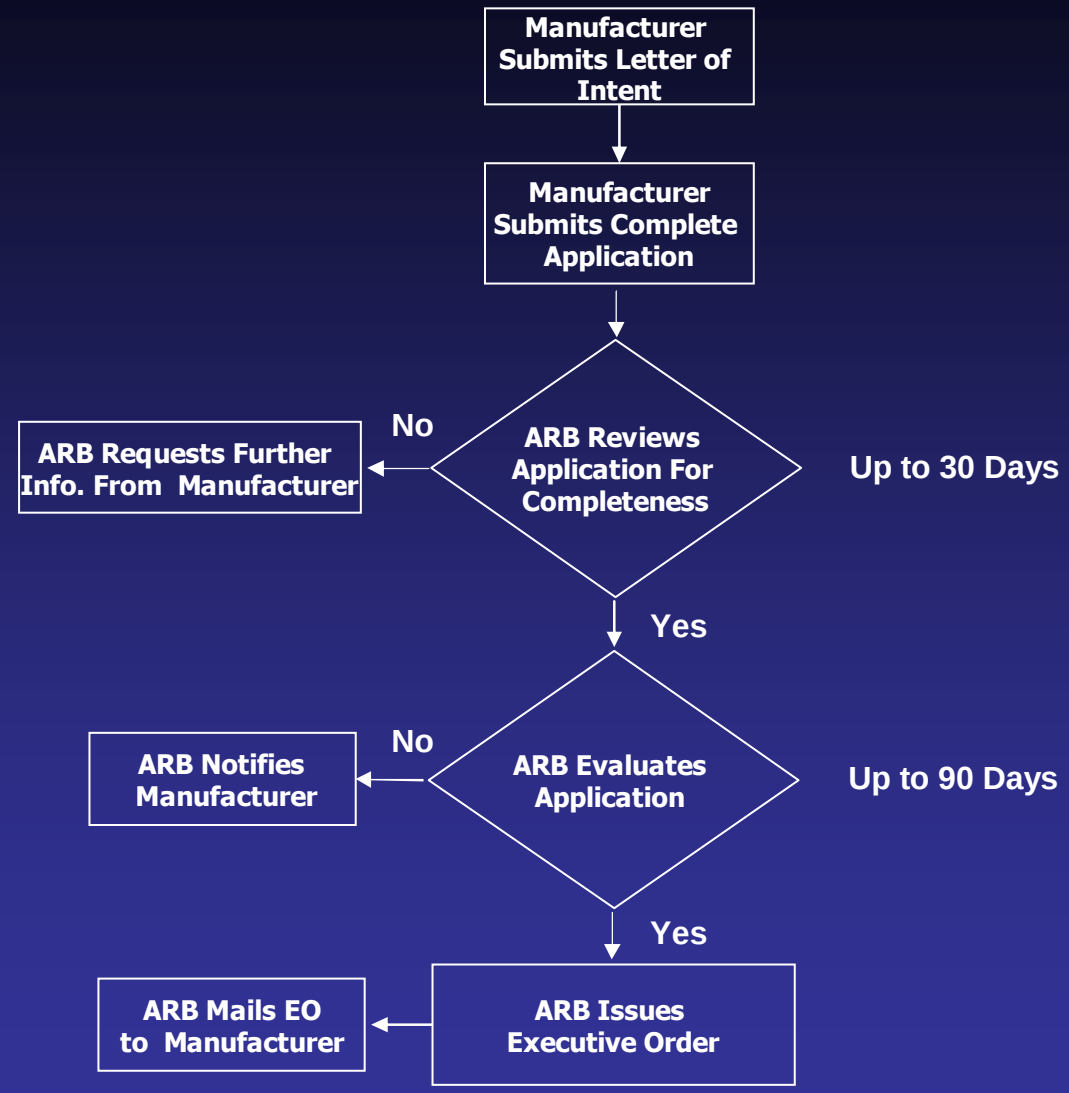
5. Receive Certificate of Conformity from U.S. EPA and Executive Order from ARB.

6. Produce and label each vehicle/engine/ equipment according to specifications described in applications.

7. Do not introduce vehicles/engines/equipment into commerce in CA until certified.

8. Receive U.S. EPA and ARB approval for any emissions-related production running changes.

Certification Process Flowchart



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New MFR Getting Registered

- Register with U.S. EPA as a Mfr.
- Submit to ARB via regular mail a hard copy “Letter of Intent” to certify vehicles in CA.
  - Name, address, e-mail, MFR’s name, EPA-assigned MFR’s. code, types of vehicles/engines/equipment to be certified.
- ARB assigns unique ARB Mfr.’s code to enable access to DMS and data transfer from U.S. EPA’s VERIFY (HMC & OHRV only).
- ARB issues its Executive Orders (EOs) to the vehicle/ engine/equipment Mfr. ARB does not issue EOs to importers or dealers.

Electronic Document Submission Rqmts.

- All Certifiers. Submit to ARB via regular mail a hard copy "Electronic Signature Authorization Letter".
  - Provides names, titles, and actual signatures **(blue ink preferred)** of personnel who are authorized to sign documents for submittal to ARB.
  - See MAC 07-01.
- Third Party Certifiers, e.g., Consultants. Submit to ARB "DMS Authorization Access Letter".
  - Allows DMS access by persons outside the mfr, e.g., consultants.
  - Include at least one signatory representing mfr., and all signatories representing the third party for certification.

Group Vehicles/Engines into Exhaust Families

- Characteristics of Exhaust Families
  - Displacement, number of cylinders, cylinder configuration
  - Emission Controls, i.e., catalytic converter number & location
  - Fuel System, i.e., carburetor, TBI, MFI, SFI
  - Cooling Mechanism, i.e., liquid vs. air

Group Vehicles/Equipment into Evaporative/Permeation Families

- Characteristics of Evaporative Families
  - Vapor Storage Device design, i.e., canister housing material & working capacity
  - Fuel Tank design, i.e., metal vs. plastic, vented vs. unvented
  - Fuel System, i.e., carburetor, TBI, MFI, SFI
  - Purge strategy, i.e., uncontrolled vs. controlled
- Characteristics of Permeation Evaporative Families
  - Material Types (e.g., metal, plastic, elastomeric)
  - Construction Types (e.g., extrusion, blow molding, layered)
  - Wall Thickness

Carryover Applications

- Must submit carryover application for each model year
- May carryover emission data from the previous model year
  - No changes to emission control system
- May carryacross emission data from one engine family to another
  - Must be representative of new family
- Subject to ARB Approval

Highway Motorcycle (HMC) and Off-Highway Recreational Vehicle (OHRV) Certification

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Certification 101

A new HMC or OHRV must comply with exhaust and evaporative standards. The whole vehicle, not the engine by itself, is certified.

- Chassis dyno. testing for exhaust emissions (engine dyno testing option permitted for all-terrain vehicle, off-road utility vehicle, off-road sport vehicle, and sand car).
- **S**ealed **H**ousing for **E**vaporative **D**etermination (SHED) testing for evaporative emissions.
- Permeation testing of fuel tank & fuel hoses for OHRVs.

Certification Options

Option 1:

Vehicle original equipment manufacturer (OEM) **A** produces the engine and chassis:

A is the certifying MFR carrying all compliance obligations and liabilities.

Certification Options
(cont'd)

Option 2:

Vehicle OEM **B** buys complete engines and evaporative emission control components from Engine OEM **C** and builds own chassis:

B is the certifying MFR carrying all compliance obligations and liabilities.

(Mfr. **C** can support Mfr. **B** by providing durability data, AECD and adjustable parameter information, production running change information and test data, and by implementing any required corrective action for in-use noncompliance.)

Certification Options
(cont'd)

Option 3:

Engine OEM **D** has a close business relationship with, and supplies complete engines and evaporative emission control components to, vehicle OEMs **E, F** and **G:**

D is the certifying Mfr. carrying all compliance obligations and liabilities.

D must include a comprehensive list of all vehicles produced by Mfrs. **E, F** and **G** using its engines.

D provides assembly instructions to **E, F,** and **G.**

E, F, and **G** do not need to recertify.

Demonstrate UL Durability & Emissions Compliance

HMC durability used here for illustration. OHRV durability follows similar requirements.

1. a. Durability Demonstration

- Accumulate mileage on a prototype test vehicle.
- Mileage or service accumulation cycle is set forth in Appendix IV of 40 CFR, §86.426-78.
- Conduct periodic exhaust & evaporative emission tests during mileage accumulation per restrictions in 40 CFR, §86.428-80.

Demonstrate UL Durability & Emissions Compliance (cont'd)

1. b. Durability Demonstration – Evaporative System
   - Evaporative emission control system component bench aging, See MAC 81-002, or
   - Request assigned deterioration factor. See MAC 86-06.

1. c. Test vehicle = worst case configuration in engine family having greatest probability of exceeding the standards.

1. d. Unscheduled maintenance must be approved by ARB.

1. e. All test data and projected emissions must be below applicable standard.

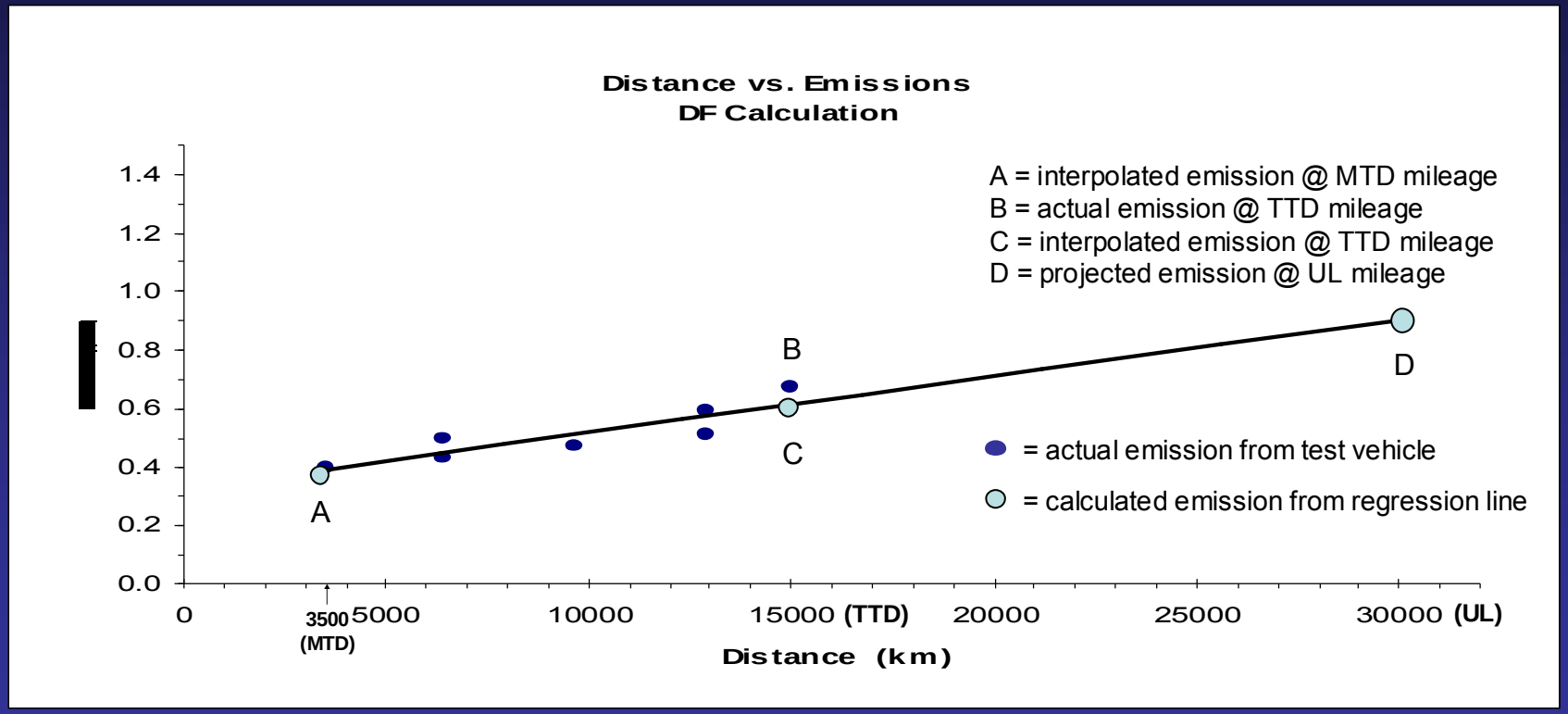
Demonstrate UL Durability & Emissions Compliance (cont'd)

1. f. Useful Life (UL), Minimum Test Distance (MTD), Total Test Distance (TTD)

Class	Eng. Disp. (cc)	UL (km.)	MTD (km.)	TTD (km.)
I	[50-170)	12,000	2,500	6,000
II	[170-280)	18,000	2,500	9,000
III	[280+]	30,000	3,500	15,000

Demonstrate UL Durability & Emissions Compliance (cont'd)

2. a. DF calculated from **least squares linear regression** of emission test data. Plot separate regression lines for HC, NO_X, CO, PM, and evap. as applicable.



Demonstrate UL Durability & Emissions Compliance (cont'd)

2. b. Determine UL multiplicative DFs.

$$DF = \frac{D}{C} = \frac{\text{projected emissions @ UL mileage}}{\text{interpolated emissions @ TTD mileage}}$$

Determine UL modified DF when the emission data vehicle (EDV) is different from the durability data vehicle (DDV).

$$DF_{modified} = \frac{D}{A} = \frac{\text{projected emissions @ UL mileage}}{\text{interpolated emissions @ MTD mileage}}$$

Determine UL additive DFs: $DF = D - C$

$DF_{modified} = D - A$

Demonstrate UL Durability & Emissions Compliance (cont'd)

3. Determine certification level for all pollutants. All certification levels must be ≤ the applicable certification standard.

4. Assigned evaporative DF allowance of 0.5 grams/test. See MAC 86-06.
   - Evap. emission control system previously CA-certified, or
   - Evap. system/components have proven UL durability

5. Retain test vehicle for possible confirmatory testing at ARB and for testing future production running changes.

CA HMC Emission Standards
Model Year 2007 and Later

EXHAUST (g/km.)			
	HC	HC+NO_x	CO
Class I & II [50-279 cc)			
2007+	1.0	-	12
Class III [280+ cc]			
2007	-	1.4 (1)	12
2008+	-	0.8 (1)	12
EVAPORATIVE (grams per 1-hr. diurnal + hot soak SHED test)			
All	2.0		

(1) May be met on a corporate average basis.

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CA Small Volume HMC Mfr. (≤ 300 sales/yr) Emission Standards

Model Year 2007 and Later

EXHAUST (g/km.)			
	HC	HC+NO_x	CO
2007			
Class III [280-699 cc)	1.0 (1)	-	12
Class III [700+ cc]	1.4 (1)	-	12
2008+			
Class III [280+ cc]	-	1.4 (1)	12
EVAPORATIVE (grams per 1-hr. diurnal + hot soak SHED test)			
All	2.0		

(1) May be met on a corporate average basis.

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CA OHRV Emission Standards

Model Year 2007 and Later

EXHAUST EMISSION STANDARDS BASED ON CHASSIS-BASED TESTING (g/km.)			
Vehicle Classification	HC	$HC+NO_x$	CO
OFMC, ATV, UV, SV, SCAR	1.2 (1)	-	15.0
EXHAUST EMISSION STANDARDS BASED ON ENGINE-BASED TESTING (g/kW-hr.)			
ATV < 225cc	-	16.1 (1)	400
ATV ≥ 225cc	-	13.4 (1)	400
UV, SV	-	12.0 (1)	400
SCAR	-	13.4 (1)	400

(1) May be met on a corporate average basis.

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CA OHRV Emission Standards

Model Year 2008 and Later

EVAPORATIVE EMISSIONS - PERMEATION FROM FUEL TANK AND FUEL HOSE			
Vehicle Classification	Emission Component	Permeation Standard ($g/m^2/day$)	Test Temperature
All OHRVs	Fuel Tank	1.5	28 ℃ (82 ℉)
	Fuel Hose	15.0	23 ℃ (73 ℉)

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Corporate Averaging

- Compliance based on sales-weighted emissions
- Applicable to exhaust HC or HC+NO_x for class III only [280+ cc]
- Separate corporate average plan (CAP) for each standard
- List designated standard on emissions label
- May revise CAP during model year
- Cannot change designated standard for an engine family after start of production of that family

Auxiliary Emission Control Devices (AECDs)

1. AECD: Any element of design which senses temperature, vehicle speed, engine RPM, transmission gear, manifold vacuum, or any other parameters for the purpose of activating, modulating, delaying, or deactivating the operation of any part of the emission control system.

Auxiliary Emission Control Devices (AECDs)
(cont'd)

2. All AECDs must be described in the application and approved by ARB.

3. Unapproved AECDs may be deemed a defeat device – a violation of certification.

   [Ref. 40 CFR, §86.409-78]

SMALL OFF-ROAD ENGINE EMISSIONS CERTIFICATION

(Exhaust & Evaporative)

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Exhaust Emissions Certification

SORE

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Regulations and Guidance

- Title 13, CCR, Section 2400
- Small Off-Road Engine Resource Page

  [www.arb.ca.gov/msprog/OFFROAD/sore/sorectp/sorectp.htm]

- SORE Exhaust Test Procedures

2005-2012: [http://www.arb.ca.gov/regact/sore03/rtp2005.pdf]
http://www.arb.ca.gov/regact/2008/sore2008/soreresubtp.pdf
http://www.arb.ca.gov/regact/2011/soreci2011/soreci2011part2.pdf

2013 and later (part 1054):
http://www.arb.ca.gov/regact/2011/soreci2011/part3sore2011fro.pdf

2013 and later (Part 1065):
http://www.arb.ca.gov/regact/2011/soreci2011/part4sore2011fro.pdf

2008 and Later Exhaust Emission Standards in g/kW-hr

Displacement	HC+NOx	CO	PM
< 50cc	50	536	2.0 (2-stroke)
≥ 50cc - ≤ 80cc	72	536	2.0 (2-stroke)
> 80cc - < 225cc	10.0	549	-
≥ 225 cc	8.0	549	-

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Deterioration Factor (D.F.) Calculation

- For each engine family, the manufacturer must determine Deterioration Factors (DFs) which quantify the emission increase over the durability period
- DF is determined by running the test engine through a full durability period and using at least three test points to determine a least squares, linear regression line
- The DF is multiplied by the zero hour engine test results
- Assigned DFs can be determined according to Subpart C, Section 1054.245 of the 2013 and Later Test Procedures (Small Volume manufacturers only)

Averaging, Banking, Trading Program (ABT)

- Used to allow manufacturers to average emissions across entire production line
- Assign a Family Emission Limit (FEL) instead of normal standard for each applicable family
- Any surplus can be banked or traded with other participating manufacturers
- Submit Corporate Average Plan (CAP) with application
- Provide end of year reports

Auxiliary Engine Cooling Systems (AECS)

- All applications must include the AECS questionnaire (available on SORE webpage)
- Evaluation of AECS is based on comparison to in-use operating conditions
- Special test procedures must be approved by ARB for any auxiliary cooling system
- Special test procedures must account for all factors that simulate in-use operating conditions
- Example: Handheld blowers with fan removed. The fan's effect may be reproduced externally, but must also be factored into the horsepower determination

Evaporative Emissions (Equipment) Certification

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SORE Evaporative Requirements
(Applicability)

- Evaporative requirements are applicable to equipment that uses an engine from any SORE exhaust displacement category
- These standards do not apply to engines powered by the following fuels:
  - CNG
  - Propane
  - LPG
  - LNG

Regulations and Guidance

- Title 13, CCR, Section 2750
- ≤ 80cc:

  CP 901 (Certification Procedures)
  [www.arb.ca.gov/regact/sore03/cp901.pdf]

  TP 901 (Test Procedure)
  [www.arb.ca.gov/regact/sore03/tp901.pdf]
- > 80cc:

  CP 902 (Certification Procedures)
  [www.arb.ca.gov/regact/sore03/cp902.pdf]

  TP 902 (Test Procedure)
  [www.arb.ca.gov/regact/sore03/tp902.pdf]
- SORE Resource Page
  [www.arb.ca.gov/msprog/OFFROAD/sore/sorectp/sorectp.htm]

2008 and Later Evaporative Emission Standards

≤ 80 cc

- Apply to small engines ≤ 80 cc
- Typical equipment includes string trimmers, leaf blowers, and chainsaws

Effective Date Model Year	*Requirement Tank Permeation*
2008	**Fuel Tank Permeation Emissions Shall Not Exceed 2.0 Grams Per Square Meter Per Day As Determined By TP-901**

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Exemptions
≤ 80cc

- Equipment using metal, coextruded multilayer, or structurally integrated nylon tanks are exempt from the tank permeation standard

Equipment with exemptions must still certify with ARB

>80 cc - <225 cc
Walk-Behind Mowers

- Apply to walk-behind mowers with engines > 80 cc to < 225 cc

	Performance Requirements Section 2754(a)
Effective Date Model Year	***Diurnal Standard Grams HC/day***
2008	**1.3**
2009	**1.0**

>80 cc - <225 cc
Non Walk-Behind Mowers

- Apply to equipment other than walk-behind mowers with engines > 80 cc to < 225 cc

	Performance Requirements Section 2754(a)	Design Requirements Section 2754(b)		
Effective Date Model Year	Diurnal Standard Grams HC/day	Fuel Hose Permeation Grams ROG/m^2/day	Fuel Tank Permeation Grams ROG/m^2/day	Carbon Canister or Equivalent Butane Working Capacity Grams HC
2008	1.20 + 0.056*tank vol. (liters)	15	2.5	Specified in TP-902
2012	0.95 + 0.056*tank vol. (liters)	15	1.5	Specified in TP-902

≥ 225 cc

- Apply to large equipment like lawn tractors and generators with engines ≥ 225 cc

	Performance Requirements Section 2754(a)	Design Requirements Section 2754(b)		
Effective Date Model Year	Diurnal Standard Grams HC/day	Fuel Hose Permeation Grams ROG/m^2/day	Fuel Tank Permeation Grams ROG/m^2/day	Carbon Canister or Equivalent Butane Working Capacity Grams HC
2008	1.20 + 0.056*tank vol. (liters)	15	2.5	Specified in TP-902
2013	1.20 + 0.056*tank vol. (liters)	15	1.5	Specified in TP-902

Fuel Cap Performance Standards
> 80cc

- Fuel cap must be permanently tethered to the tank, equipment, or engine.
- Fuel cap must be designed to provide physical and/or audible feedback to the user that a fuel tank vapor seal is established.

Effective Date Model Year	***Applicability***
2008	***ALL SORE Equipment With Small Off-Road Engines*** **>80 cc**

Exemptions
> 80cc

- Equipment ≥ 225cc using small production volume tanks (< 400 units) are exempt until 2010
- Generators fueled by an on-road vehicle tank

Equipment with exemptions must still certify with ARB

Evaporative Code Determination
> 80cc

- A two digit code may be used as the evaporative family name
- The first digit represents the venting control, the second digit represents the tank barrier
- Example: "CM" = Carbon Canister and Metal Tank
- Full explanation found on pg. 13 in CP-902

Design vs. Performance
> 80cc

- Engines or equipment must be certified under one of the following options:
  - –Performance-Based Option , 13 CCR 2754 (a)
    - Compliance demonstrated through diurnal test
    - Likely option for engine manufacturers that sell engines with complete evaporative systems
  - –Design-Based Option, 13 CCR 2754 (b)
    - Compliance demonstrated by using components that meet specified design requirements
    - Likely option for equipment manufacturers that purchase engines without fuel tanks

Performance-Based Certification
> 80cc

- What is performance-based certification?
  - –Performance-based certification is where compliance with the evaporative requirements are demonstrated by diurnal testing of engines or equipment with complete evaporative emission systems in a SHED.
- How is performance-based certification useful?
  - –Standard for demonstrating compliance.
  - –Manufacturers can take advantage of averaging and banking provisions within the regulations to optimize production.

Design-Based Certification
> 80cc

- What is design-based certification?

  –Design-based certification is where engine or equipment manufacturers use certified fuel hoses, fuel tanks, and carbon canisters, that meet specific design requirements and have received component EOs, in evaporative emission control systems.

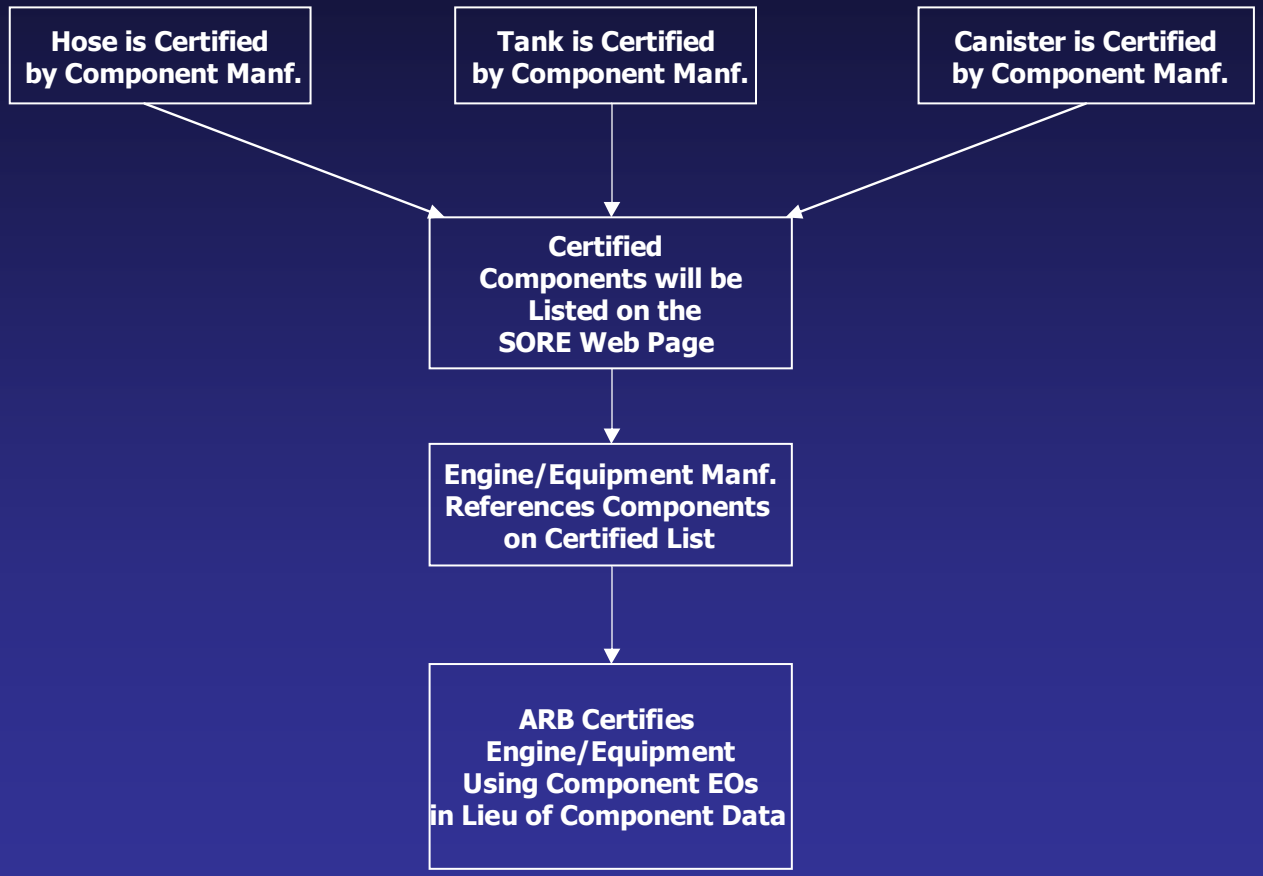
  –Alternatively, a manufacturer may test its own components using applicable test procedures and generate test data showing compliance with applicable design requirements. Worst case components must be tested.

Component Certification
> 80cc

- What is component certification?
- Component certification is the certification of fuel hoses, fuel tanks, and carbon canisters by ARB.
- Certification means that the manufacturers have demonstrated that their product meets applicable design requirements.
- Allows manufacturers to reference a pre-certified component Executive Order (EO) in a certification application when certifying by design

Component Certification

(How it works)



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Component Certification
Contacts

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Component EO Web Page

[http://www.arb.ca.gov/msprog/offroad/sore/sorecomponent/sorecomponent.htm]

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Other Requirements

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Certification Application Submittal

- Letter of Intent
- Cover letter/Statements of Compliance
- Application
  - Certification summary
  - Supplementary Information
  - Test data
- Emissions Label

Certification Application Submittal (cont'd)

- Tamper Resistance Compliance
- Durability Plan
- Corporate Average Plan
- Warranty Statement
- Other

Emission Label

- Must be permanently fixed to vehicle (HMC & OHRV) or engine (SORE)
- Identify emission control system and maintenance adjustments
- Include engine family name, displacement and date of manufacture
- A name other than manufacturer's can be used for SORE with approval from ARB

Emissions Warranty

- Provide text in accordance with warranty regulations
- If a name other than manufacturer's is used, submit an agreement letter signed by both parties
- Warranty service phone number must be a U.S. number

Adjustable Parameters
Fuel & Ignition System

1. Adjustable parameters (e.g., idle air fuel mixture):

   - Should employ measures approved by ARB to discourage adjustments by owners.
     - Plugs
     - Limiting Caps

   - Must be described in application.

2. ARB can specify, for emission testing, any setting within the physical range of adjustments.

Tamper Resistance Method Review

- TRMs prevents unauthorized changes to engine manufacturer-certified calibrations
- Previously approved TRMs will be periodically reevaluated to assure their continued effectiveness
- Equipment Manufacturers may not modify engine calibration

Tamper Resistance Method Review (cont'd)

- Evaluation criteria includes but is not limited to:
  - need for special tools for access and/or adjustment
  - cannot be tampered using common tools
- All new engine manufacturers must submit carburetor samples for tamper resistance approval

Post Certification

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Post-Certification Responsibilities

HMC/OHRV

- VIN Reports (VIN coding scheme)
- Quarterly Sales Reports
- HMC Only – Submit CA sales at end of year (for certification fee determination)

SORE

- Submit end of year averaging and banking reports
- Quarterly Production Line Testing (PLT) reports

Production Line Testing (PLT) (SORE only)

- PLT is required for each SORE exhaust family
- New manufacturers must provide sampling plan to ARB designating method of choosing test engines randomly
- Submit quarterly PLT reports listing test results within 45 days of the end of each quarter
- Immediately notify ARB if any PLT test engine fails compliance

Compliance

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Confirmatory Testing

- Regulations provide authority to request Confirmatory Testing (CT)
- If a manufacturer submits only one certification test result, then CT is required if certification level is >85% of the standard
- Example, if the standard is 16.1, then:
  - 16.1 x 0.85 = 13.7
  - CT done for certification levels above 13.7
- CT may be performed voluntarily by manufacturer without prior ARB notification
- All tests must be reported in the certification application

Compliance

- New Vehicle/Engine Compliance Testing
  - ARB may request compliance testing at manufacturer's facility or ARB's test facility
  - Compliance testing insures that production vehicles/engines/equipment conform with emission standards
- Emission-related Defect Reporting
  - 1% or 25 vehicles per engine family, which ever is greater (HMC)
  - Defect that exists in 25 or more equipment in a family (SORE)
  - Must report within 15 days after defect found

Compliance
(cont'd)

- Emissions Recall
  - Must submit report detailing repair/adjustments, and evap families affected, to ARB

Electronic Document Management System DMS

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ARB Electronic Certification System Overview

- **E-CERT:** stores in an Oracle database the certification *summary* information and generates Executive Orders (e.g., cert emission levels, DFs, veh. model description)
- **DMS:** stores the *supporting* certification documents (e.g., label design, warranty statement, ECS description, durability test plan).
- **E-CERT + DMS** = complete application

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Submit Certification Data to U.S.EPA's VERIFY

- Data to be submitted to U.S. EPA's VERIFY that are subsequently forwarded to ARB's E-Cert:
  - manufacturer's identification
  - vehicle classification
  - emission test data for durability and certification
  - basic emission control and fuel system description
  - All vehicle models for which mfr. seeks certification must be listed in application. [Ref. 40 CFR, §86.416-80 (a)(2)(i)]
  - Models listed on EO are determined by models listed in application. [Ref. 40 CFR, §86.437-78]
  - Models **not** listed on EO are considered **not** certified.

Submit Supporting Certification Documents to ARB's DMS

- Documents to be submitted to ARB's DMS, e.g.:
  - manufacturer's identification
  - vehicle description
  - test procedures, e.g., durability, worst-case vehicle selection criteria, carry-across & carry-over justification
  - maintenance instructions
  - AECDs
  - adjustable parameters
  - anti-tampering devices for adjustable parameters
  - ECS description (e.g., **catalyst,** carburetor, fuel injection info.)
  - ECS part numbers
  - emissions label design
  - emissions warranty statement
  - compliance statements, corporate average plan

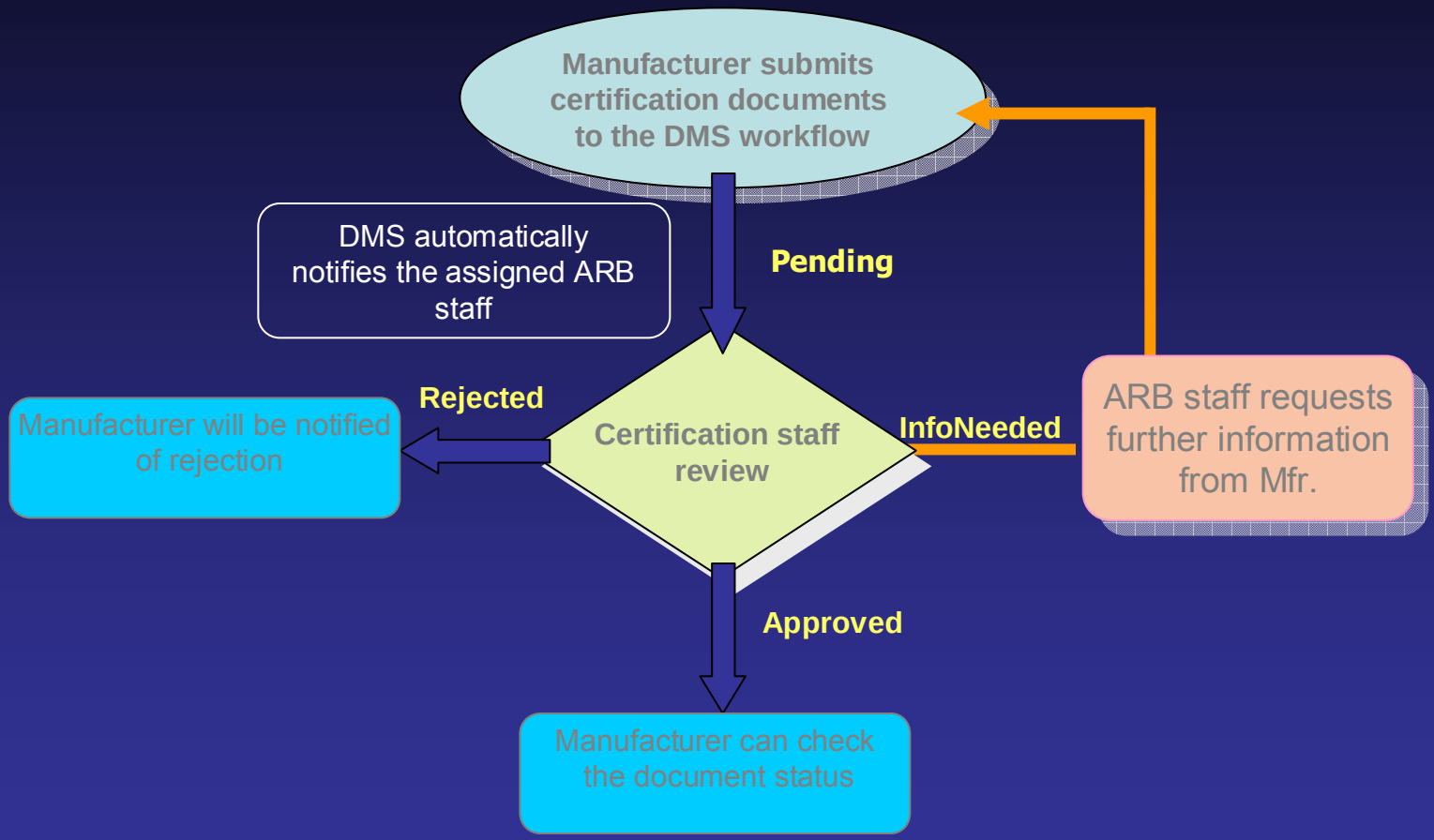
DMS Components

- SECURITY
  - Protection from tampering/destroying documents
  - Protection from unauthorized access
  - A manufacturer can only see its own documents
- WORKFLOW
  - Rules for transferring documents
- DOCUMENT ORGANIZATION
  - Domains
    - Directory Structure
    - Document Types and Metadata
    - Document Naming Convention

DMS Workflow

- Upload document
- Submit document to workflow
  - tracking mechanism triggered
  - certification engineer notified
  - process added to staff queue

DMS Workflow Process Flowchart



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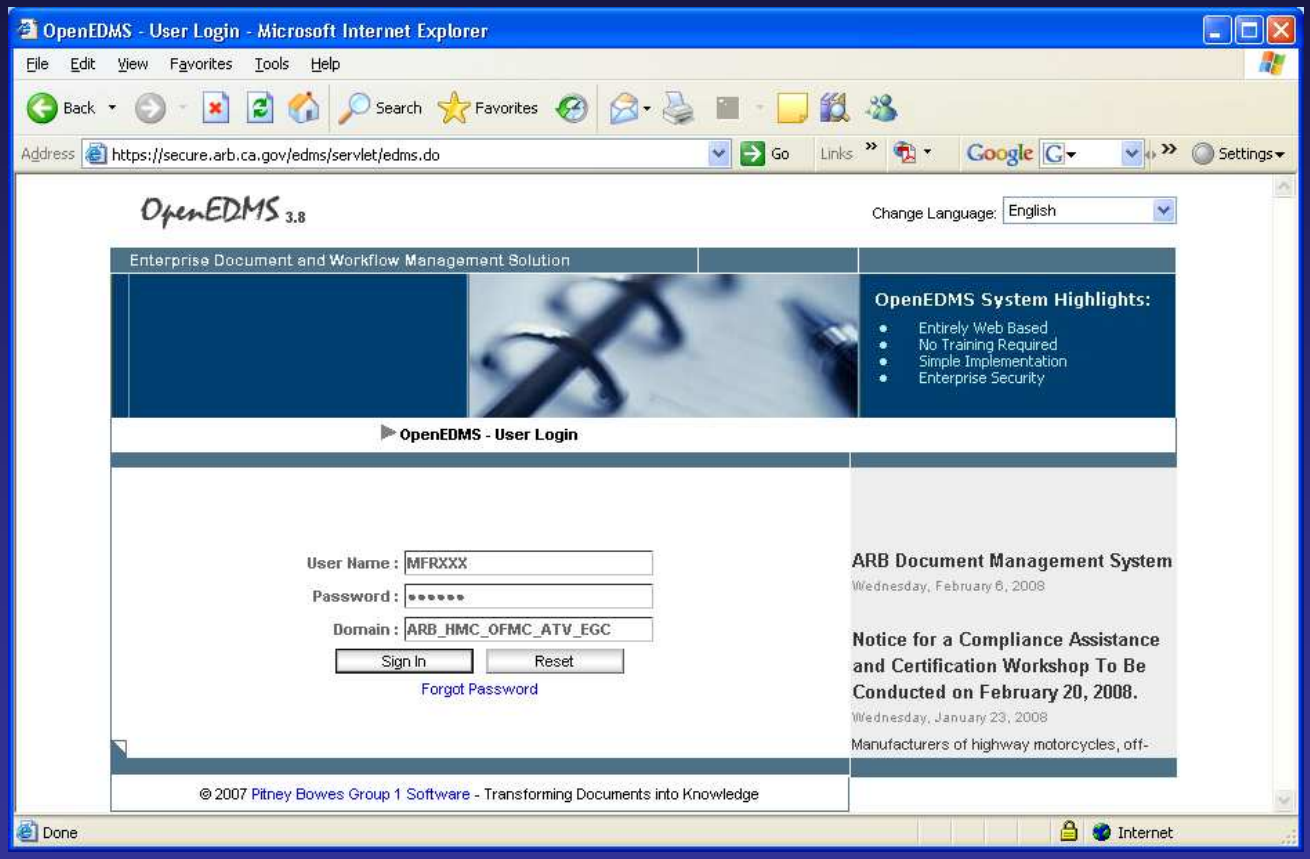
Major Steps

Sign in at https://secure.arb.ca.gov/edms/



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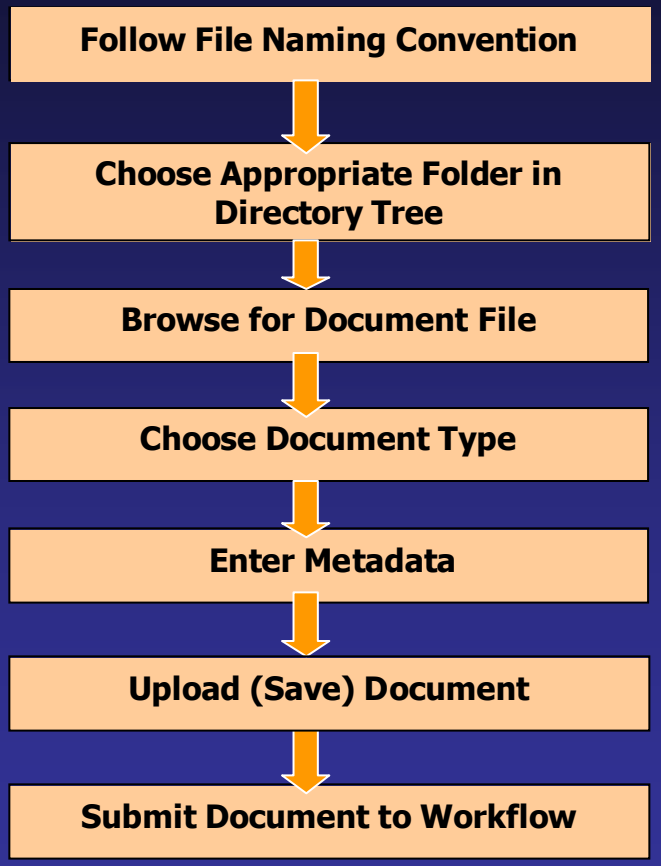
Major Steps of Document Submission to the ARB DMS



Learn More About DMS

http://www.arb.ca.gov/msprog/dms/dms.htm

- **Users Guide for ARB DMS**
- **ARB Tutorials for Manufactures**
- **Frequently Asked Questions**
- **ARB DMS Training**
- **DMS Problems / Troubleshooting Contacts**
- **List Serve**

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Obtain DMS Access

- New manufacturer please contact
  - (On Road) Duc Nguyen, (626) 575-6844, duc.nguyen@arb.ca.gov
  - (Off Road) Kumar Muthukumar, (626) 575-7040, kumar.muthukumar@arb.ca.gov
- New staff of registered manufacturers please contact your ARB cert rep

DMS Problems/Troubleshooting

- Contact your ARB certification representative to help delete documents, when
  - a document is uploaded into the wrong folder
  - a document is submitted to the wrong workflow processes
  - changing manufacturer representatives
  - need help to use the DMS
- Contact Ivonne Guzman-Cicero, Kim Pryor (On Road), Michael Lin (Off Road), or Kevin Curley (Off Road) when
  - need help to use the DMS
  - experiencing technical problems

ARB Contacts

- Contacts for Electronic Document Management System:

Ivonne Guzman-Cicero, (626)-575-6718, ivonne.guzmancicero@arb.ca.gov
Or
Kim Pryor (On Road),(626) 575-6640, kim.pryor@arb.ca.gov
Or
Michael Lin (Off Road), (626) 575-6661, michael.lin@arb.ca.gov
Or
Kevin Curley (Off Road), (626) 350-6418. kevin.curley@arb.ca.gov

ARB Contacts

- Contact for Motorcycle/OHRV certification:

  Duc Nguyen, Manager

  On-Road Certification/Audit Section

  (626) 575-6844 duc.nguyen@arb.ca.gov

  Steven Hada

  On-Road Certification/Audit Section

  (626) 575-6641 steven.hada@arb.ca.gov

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ARB Contacts

- Contact for SORE certification:

  Kumar Muthukumar, Manager

  Off-Road Certification/Audit Section

  (626) 575-7040

  kumar.muthukumar@arb.ca.gov

  Kevin Curley

  Off-Road Certification/Audit Section

  (626) 350-6418

  kevin.curley@arb.ca.gov

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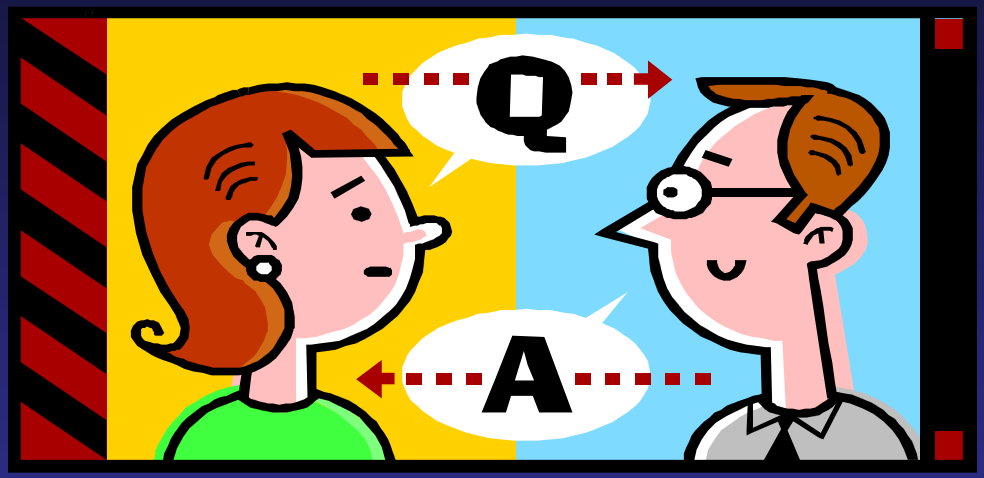
Question and Answer



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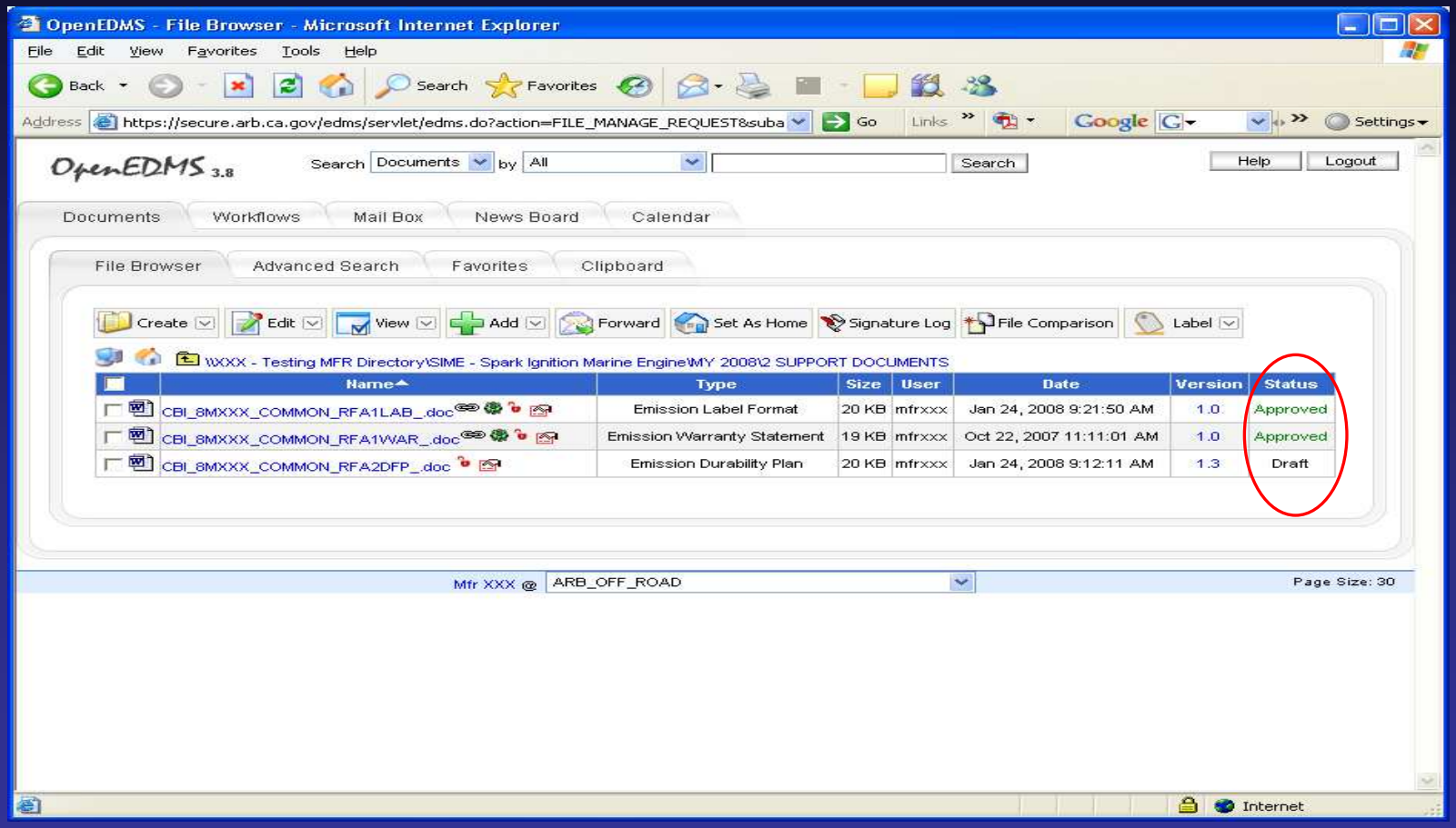
Document Status



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