

**NATURAL RESOURCES CONSERVATION SERVICE**  
**INTERIM CONSERVATION PRACTICE STANDARD**  
**ENGINE REPLACEMENT**

(No.)

Code 723

**DEFINITION**

Replacing or retrofitting older stationary agricultural engines with newer engines or electric motors, which meet current federal, state, and local standards and guidelines.

**PURPOSE**

The purpose of this standard is to manage emissions from fossil fuel or biofuel powered engines to address air pollution from:

- Nitrogen Oxides (NOx)
- Volatile organic compounds (VOCs)
- Direct emissions of particulate matter (PM)

**CONDITIONS WHERE PRACTICE APPLIES**

This practice applies to any agricultural operation which operates one or more stationary agricultural engines.

**CRITERIA**

The new engine or motor shall be sized appropriately to accomplish the intended task.

The new engine or motor shall utilize cleaner burning technologies, techniques, and/or fuels or alternative power source.

Where required, the new engine or motor shall be certified to meet currently applicable federal, state, and local standards and guidelines.

The new engine or motor shall be operated and maintained in accordance with the manufacturer's recommendations.

All replaced engines shall be rendered inoperable. Certification of inoperability can be accomplished by:

- Obtaining a receipt for the engine disposal from a scrap metal recycling operation and keeping this receipt available for inspection, or
- Punching a permanent hole through the engine block (minimum size to be determined by federal, state, or local guidelines at <http://www.valleyair.org>) and maintaining a certification for inspection that this process has been completed.

**CONSIDERATIONS**

Consider replacement of fuel-fired engines with renewable energy sources, such as solar, wind, and water.

Consider replacement of fuel-fired engines with an electric motor to reduce air pollutant emissions from the site. However, unless the electricity is produced from a source such as solar, wind, hydro, or nuclear power, there will still be air pollutant emissions produced from the electrical generating plant. In general, the incremental emissions produced at the electrical generating plant will be less than those emitted from the fuel-fired engine, although actual emissions may vary from location to location.

Utilize newest available EPA engine TIER technology.

**Cultural Resources Considerations**

NRCS policy is to avoid any effect to cultural resources and protect them in their original location. Determine if installation of this practice or associated practices in the plan could have an effect on cultural resources. The National Historic Preservation Act may require consultation with the California State Historic Preservation Officer. <http://www.nrcs.usda.gov/technical/cultural.html> is the primary website for cultural resources

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard contact your Natural Resources Conservation Service [State Office](#), or download it from the [electronic Field Office Technical Guide](#) for your state.

**NRCS, CA**  
**September 2007**

information. The California Environmental Handbook and the California Environmental Assessment Worksheet also provide guidance on how the NRCS must account for cultural resources. The e-Field Office Technical Guide, Section II contains general information, with Web sites for additional information.

Document any specific considerations for cultural resources in the design docket and the Practice Requirements worksheet.

### **Endangered Species Considerations**

If during the Environmental Assessment NRCS determines that installation of this practice, along with any others proposed, will have an effect on any federal or state listed Rare, Threatened or Endangered species or their habitat, NRCS will advise the client of the requirements of the Endangered Species Act and recommend alternative conservation treatments that avoid the adverse effects. Further assistance will be provided only if the client selects one of the alternative conservation treatments for installation; or with concurrence of the client, NRCS initiates consultations concerning the listed species with the U.S. Fish and Wildlife Service, National Marine Fisheries Service and/or California Department of Fish and Game.

### **PLANS AND SPECIFICATIONS**

Specifications for installation of Engine Replacement shall be prepared for each site or planning unit according to the criteria. Specifications shall be recorded using State-developed specification sheets, job sheets, practice requirement sheets, narrative statements in conservation plans, or other acceptable documents.

As a minimum, the plans and specifications shall provide the following:

1. Identification and description of the type of engine being replaced and the replacement engine
2. Requirements on disposal of old engine, including assuring permanent disabling and rendering inoperable.
3. Documentation requirements to determine engine usage and resulting air pollutant emissions.

### **OPERATION AND MAINTENANCE**

An operation and maintenance plan shall be developed that is consistent with the purposes of this practice, its intended life, safety requirements, and the criteria used for its design.

Records must be retained and updated for a minimum of five years from the beginning of operation of the new engine or motor. The objective of keeping records is to determine engine usage and resulting air pollutant emissions. Annual records must contain, at a minimum, the following:

- Total actual hours operated
- Total amount of fuel used, or electricity used for electric motors
- Documentation of maintenance conducted on the new engine or motor

### **REFERENCES**

NRCS National Air Quality and Climate Change Technology Development Team, National Technical Support Center, Portland, Oregon