

TESTING PROCEDURE FOR UNDERGROUND DIESEL POWERED EQUIPMENT FOR AN ARIZONA STATE MINE INSPECTOR'S PERMIT

1. Equipment must be at normal operating temperature.
2. Exhaust samples will be taken directly from the exhaust ports. Where there are left and right exhaust manifolds and exhaust systems, a sample must be taken from both sides.
3. Exhaust gasses will be hot and must be cooled so they don't damage the sampling pumps.
4. At the time of sampling, the engine should be warmed up at least at half throttle.
5. To cool gasses, use a piece of 3/8 "diameter copper tubing three (3) feet long. Put the end of the tube directly into the exhaust stream you wish to test. Attach the sampling pump to the other end of the copper tube with a 3/8" diameter short rubber tube. Follow the directions that come with the indicator tubes used in conjunction with the sampling pump.
6. Tests must be run for both Carbon Monoxide (CO) and Nitrogen Dioxide (NO₂). The limits for CO are 600 parts per million (PPM); for NO₂ it is only 5.0 PPM, **at the exhaust port.**

After the emission test has been completed and recorded, a physical inspection of the equipment must be completed. The engine compartment must be clean of any oil or fuel leaks that could contribute to engine fire. There should be no leaks between the engine head and scrubber device on the exhaust system. Black stains on the exhaust system indicate an exhaust leak. Tires, brakes, lights, fire suppression systems and back up alarms (if equipped) must be in working order.

The fire suppression system consists of both a hand held fire extinguisher and permanently installed extinguisher(s), which is activated in the event of an engine or wiring fire. This installed system shall be either automatically activated or installed such that it can be easily activated by the equipment operator or a passer by. It must have nozzles directing the spray of extinguishing chemicals to both sides of the engine compartment and the electrical wiring compartment. The minimum size of the installed fire suppression system must be 20 pounds, unless otherwise stated by the Mine Inspector. Both suppression systems (manual and installed) must be rated for types ABC service. Unarmed or unattended stationary equipment must be equipped with a thermal shut off device in the event the diesel equipment starts to overheat. They must be checked for operating pressure at least monthly.

After completion of both the exhaust and physical inspection, the appropriate form must be filled out and sent to the Office of the State Mine Inspector for approval and issue of the permit or renewal sticker. The approved permits shall be maintained at the mine; in addition the sticker must be affixed to the equipment.

**Arizona State Mine Inspector
1700 West Washington, Suite 400
Phoenix, AZ 85007-2805
602-542-5971**

Underground Diesel Equipment Permit Application

Inspection Date: _____ **Arizona State ID #** _____

Company Name: _____

Address: _____

City: _____ **State:** _____ **Zip:** _____

County: _____ **Phone #:** _____ **Fax #:** _____

Mine / Plant Name: _____

Location: **Township:** _____ **Range:** _____ **Section:** _____

Directions: _____

The Following is Required for a Diesel Permit

Inspected By: _____ **Date of Inspection:** _____

Location Where Equipment Will Be Used: _____

Is This a New Unit? _____

**Ventilation Required
(From Ventilation Schedule)** _____ **CFM**

**Ventilation in
Work Location:** _____ **CFM**

Engine Information

Equipment Information

Manufacturer: _____

Manufacturer: _____

Serial #: _____

Serial #: _____

Model #: _____

Model #: _____

Horsepower: _____

Description: _____

CO Gas Concentration: Left: _____ **PPM**

Right: _____ **PPM**

NO₂ Gas Concentration: Left: _____ **PPM**

Right: _____ **PPM**

Mechanical Check List

Brakes: _____ **Engine:** _____ **Scrubber:** _____ **Lights:** _____ **Tires:** _____

Fire Suppression System: _____ **Fire Extinguisher:** _____

Comments: _____

