

20100223

## SECTION 015100 – EQUIPMENTS EMISSIONS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. General provisions of the contract, including Modified General Conditions and Division 1 through 50 Specification Sections apply to this Section.

#### 1.2 REFERENCES

- A. Non-Road Diesel Engines and Fuel Regulations – US Environmental Protection Agency, Allegheny County Health Department, City of Pittsburgh.
- B. United States Environmental Protection Agency EPA420-F-04-032, May 2004.
- C. United States Environmental Protection Agency EPA420-F-98-034, August 1998
- D. Federal Register / Vol. 69, No. 124 / June 29, 2004 / Rules and Regulations United States Environmental Protection Agency 40 CFR Parts 9, 69, 80, 86, 89, 94, 1039, 1048, 1051, 1065, and 1068

#### 1.3 DEFINITIONS

- A. **"Equipment operator"** means any person who is in actual physical control of a piece of off-road equipment.
- B. **"Equipment owner"** means the registered owner, lessee, licensee, or bailee of any piece of off-road equipment who operates or directs the operation of any such equipment on either a for-hire or not for-hire basis.
- C. **"Idling"** means, for the purposes of off-road-equipment, the engine is running while the piece of off-road equipment is not performing work. "Idling" also means the operation of an engine in the operating mode where the engine is not engaged in gear, where the engine operates at a speed at the revolutions per minute specified by the engine manufacturer, or when the accelerator is fully released and there is no load on the engine.)
- D. **"Maximum power"** means the maximum rated horsepower output of an engine at rated speed as stated by the manufacturer in the manufacturer's sales and service literature.
- E. **"Mobile off-road equipment engine"** means an engine that is used to provide motive power to a self-propelled piece of equipment or vehicle. If such an engine is in a piece of equipment or vehicle that is not a motor vehicle according to 40 CFR 85.1703, it is a mobile off-road equipment engine. If such an engine is in a piece of equipment or vehicle

that is a motor vehicle according to 40 CFR 85.1703, it is a mobile off-road equipment if and only if it meets any one of the following criteria:

1. It is subject to off-road engine standards in 40 CFR 89.112(a) or Part 1039.101; or
2. The vehicle has a permanently mounted auger or blower for snow removal; or
3. The vehicle is a drill rig, crane, or concrete pump truck used predominantly off of public roads.

F. **“Portable”** means designed and capable of being carried or moved from one location to another. Indication of portability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform. For the purposes of this regulation, dredge engines on a boat or barge are considered portable. The engine is not portable if:

1. The engine or its replacement is attached to a foundation, or if not so attached, will reside at the same location for more than 12 consecutive months. The period during which the engine is maintained at a storage facility shall be excluded from the residency time determination. Any engine, such as a back-up or stand-by engine, that replace engine(s) at a location, and is intended to perform the same or similar function as the engine(s) being replaced, will be included in calculating the consecutive time period. In that case, the cumulative time of all engine(s), including the time between the removal of the original engine(s) and installation of the replacement engine(s), will be counted toward the consecutive time period; Or
2. The engine remains or will reside at a location for less than 12 consecutive months if the engine is located at a seasonal source and operates during the full annual operating period of the seasonal source, where a seasonal source is a stationary source that remains in a single location on a permanent basis (at least two years) and that operates at that single location at least three months each year; Or
3. The engine is moved from one location to another in an attempt to circumvent the portable residence time requirements.

G. **“Stationary engine”** means a compression ignition engine that is designed to stay in one location, or remains in one location. A compression ignition engine is stationary if any of the following are true:

1. The engine or its replacement is attached to a foundation, or if not so attached, resides at the same location for more than 12 consecutive months. Any engine such as backup or standby engines, that replaces an engine at a location and is intended to perform the same or similar function as the engine(s) being replaced, shall be included in calculating the consecutive time period. The cumulative time of all engine(s), including the time between the removal of the original engine(s) and installation of the replacement engine(s), will be counted toward the consecutive time period; Or
2. The engine remains or will reside at a location for less than 12 consecutive months if the engine is located at a seasonal source and operates during the full annual operating period of the seasonal source, where a seasonal source is a stationary source that remains in a single location on a permanent basis (at least two years) and that operates at that single location at least three months each year; Or
3. The engine is moved from one location to another in an attempt to circumvent the 12-month residence time requirement. The period during which the engine is maintained at a storage facility shall be excluded from the residency time determination.

## 1.4 BACKGROUND

- A. Since the early 1970s, the U.S. Environmental Protection Agency (EPA) has set increasingly stringent emission standards for highway cars and trucks. After making such progress in controlling highway emissions, the Agency turned to the wide variety of nonroad engines, which also contribute to air pollution. Coupled with the EPA's highway emission standards, the Nonroad Diesel Engine and Fuel standards will greatly reduce harmful air pollution, improve public health, and aid states in meeting the National Ambient Air Quality Standards, as required by the Clean Air Act.

The Final Nonroad Diesel Engines and Fuel standards, and those leading up to the final rule regulates only the design requirements of newly manufactured engines, and requirements lowering sulfur content of diesel fuels for meeting the tiered requirements in reducing emissions from diesel engines.

1. **1990** Amendments to the Clean Air Act (1970) directed the EPA to study the contribution of nonroad diesel engine emissions to urban air pollution, and regulate them if they were a contributor to air quality problems.
2. **1991** EPA publishes a report showing that nonroad equipment emitted large amounts of nitrous oxide (NO<sub>x</sub>), hydrocarbons (HC), carbon monoxide (CO) and particulate matter (PM). The EPA report showed that nonroad engines had total emissions almost as high as highway motor vehicles, and in the case of diesel particulate matter, nonroad emissions were significantly higher than highway motor vehicle emissions.
3. **Tier 1 Standards** In response to their study, the EPA adopted the first set of emission standards for all new nonroad diesel engines greater than 50 horsepower (37 kW) except those used in locomotives and marine vessels. The Tier 1 standards were phased in for different sized engines between 1996 and 2000.
4. EPA had also adopted more stringent emissions standards for NO<sub>x</sub>, HC, and PM for new nonroad diesel engines, including engines less than 50 horsepower (37 kW), phased in between 1999-2000 and included marine engines in this size range.
5. **Tier 2 Standards** More stringent standards were added, phasing in from 2001 to 2006 with emission standards for all engine sizes.
6. **Tier 3 Standards** Emission standards for engines between 50 and 750 horsepower (37 and 560 kW) phased in from 2006 to 2008.
7. **Tier 4 Standards** Further established standards for new engines beginning in 2008 and fully phased in by 2014 with larger engines having an additional year to meet the emission standards. Fuel sulfur levels were also clarified.

## B. NONROAD DIESEL FUEL

1. **2007** Fuel sulfur levels will be limited to a maximum of 500 parts per million (ppm)

2. **2010** Fuel sulfur levels to be reduced to a maximum of 15 ppm (ultra-low sulfur fuel) except for locomotive and marine fuel
3. **2012** Ultra Low sulfur fuel required for locomotives and marine diesel fuel.
4. Reductions in sulfur fuel levels will create immediate public health benefits and will make it possible for engine manufacturers to use advanced emission control systems that will dramatically reduce both PM and NOx emissions.

#### 1.5 ALLEGHENY COUNTY HEALTH DEPARTMENT REQUIREMENTS

In addition to federal standards, local governing bodies can implement additional regulations regarding nonroad diesel engine use.

On April 16, 2010 the Allegheny County Health Department (ACHD) added to Rules and Regulations, Article XXI – Air Pollution Control Section 2105.93 titled In-use Off-Road Diesel Powered Mobile Equipment Engine Idling

This rule applies to commercial diesel fueled off-road compression ignition vehicle engines with a maximum power of 25 horsepower or greater that is used to provide motive power in any vehicle that:

1. Is not designed to or can not be registered or driven safely on-road; and
2. Is not an implement of husbandry (farming).
3. Excludes locomotives, marine and recreational engines, and military equipment.

No vehicles covered under this rule can idle for more than 5 consecutive minutes, except as follows:

1. Idling is necessary to ensure the safe operation of the equipment, including idling to verify that the equipment is in safe operating condition and equipped as required by all the provisions of law, and all equipment is in good working order, either a part of the daily equipment inspection, or as otherwise needed.
2. Idling is required to bring the equipment to operating temperature;
3. Idling for testing, servicing, repairing, or diagnostic purposes;
4. Engine operation is necessary to accomplish work for which the equipment was designed (i.e. operating a crane)
5. Idling necessary for the operators physical well being while accomplishing such work;
6. Idling when queuing, i.e. machine is situated in a queue of other vehicles, must intermittently move forward to perform work or service, and when shutting the engine off would impede the progress of the queue and be impractical. This does not include the time an operator may wait motionless in line in anticipation of the start of a workday or opening of a location where work or a service will be performed; and
7. Idling of any vehicle being used in an emergency or public safety capacity.

In addition:

1. Idling of a vehicle that is owned by a rental company is the responsibility of the renter or lessee; and

2. Equipment subject to the rule must be located away from sensitive receptors, such as fresh air intakes, to the extent possible.

## 1.6 UPMC REQUIREMENTS

### A. Scope

1. This Specification applies to all UPMC construction projects, without exception

### B. Applicability

1. This Section applies to any person or business that owns or operates any diesel fueled off-road compression ignition vehicle engine with maximum power of 25 horsepower (hp) or greater that is used to provide motive power in any vehicle that:
  - a) Is not designed to or cannot be registered and driven safely on-road; and
  - b) Is not an implement for agricultural use.
2. Vehicles with engines subject to this section are used in construction, rental, landscaping, recycling, warehousing, industrial, and other operations.

### C. General

1. No vehicles or engines subject to this Section may idle for more than five consecutive minutes, except as permitted under Subsection D.
2. Idling of a vehicle that is owned by a rental company is the responsibility of the renter or lessee; and
3. Equipment subject to this Subsection must be located away from sensitive receptors, such as building fresh air intakes, to the extent possible.
4. **New equipment is required to meet the Tier 4 Emission Requirements starting April 1, 2011.**
5. **Used equipment is to be modified to meet Tier 4 Emission Requirements starting April 1, 2011**

### D. Exemptions. Based upon the ACHD Requirements, the idling limit does not apply to:

1. Idling necessary to ensure the safe operation of the equipment, including idling to verify that the equipment is in safe operating condition and equipped as required by all provisions of law, and all equipment is in good working order, either as part of the daily equipment inspection, or as otherwise needed.
  2. Idling required to bring the machine system to operating temperature;
  3. Idling for testing, servicing, repairing, or diagnostic purposes;
  4. Engine operation necessary to accomplish work for which the equipment was designed (such as operating a crane);
  5. Idling necessary for the operator's physical well being while accomplishing such work;
  6. Idling when queuing, i.e., when an off-road vehicle, situated in a queue of other vehicles, must intermittently move forward to perform work or a service, and when shutting the vehicle engine off would impede the progress of the queue and be impractical. This does not include the time an operator may wait motionless in line in anticipation of the start of a workday or opening of a location where work or a service will be performed; and
  7. Idling by any vehicle being used in an emergency or public safety capacity.
- Any changes to the ACHD Requirements are effective as though they were written here.

- E. **Waiver**  
An equipment owner may apply to ACHD for a waiver to allow additional idling beyond five minutes. The equipment owner must provide justification as to why such idling is necessary.
- F. **Signage**  
At jobsites with posted workplace notices where one or more pieces of equipment subject to this Section are used, or at any other location where one or more pieces of such equipment are stored or operated, the owner of such equipment must prominently display signage informing equipment operators of the requirements of this Section and the penalties for non-compliance.
- G. **Penalties**  
Notwithstanding the provisions of Part H, "Enforcement," of this Article, violations of this Section are subject to:
1. A penalty of \$1,000.00 for the first offense;
  2. A penalty of \$5,000.00 for the second offense, and any subsequent offenses.
- H. **Enforcement**
1. UPMC is requiring earlier implementation of EPA requirements. As such the penalties in Subsection G above will be enforced.
  2. Notwithstanding any other provisions of this Article, the prohibitions of this Section may be enforced by UPMC and any municipal or local government unit having jurisdiction and regulations applicable to the place where the idling occurs. Such enforcement will be in accordance with the laws governing such municipal or local government unit and the Pa. Air Pollution Control Act and separate from UPMC penalties and enforcement. In addition, UPMC and/or the government agency may pursue the remedies provided by §2109.02 of this Article for any violation of this Section.
  3. For the purpose of inspecting off-road equipment to determine compliance with these regulations, an inspector representing UPMC and/or a separate government agency, has the right to enter any facility where off road equipment is located.
- I. **Relationship to Other Law.**
1. Nothing in this Section allows idling in excess of other applicable law, including, but not limited to any local ordinance or requirement as stringent as, or more stringent than, this Specification.

## 1.7 GENERAL REQUIREMENTS

All contractors and subcontractors performing work on UPMC projects shall be required via the inclusion of appropriate language in contract documents, to incorporate this Specification and to implement the same.

In establishing this Specification, it is not UPMC's intent to exercise control over the employees of contractors and subcontractors on its projects. Neither is it UPMC's intent to create contractual relationships of any nature, specifically including third party beneficiary relationships, (i) between itself and employees of contractors and subcontractors, or (ii) between itself and any other third parties who might purport to be affected by this Specification. UPMC expressly disclaims any such intentions or outcome.

## 1.8 CONTRACTOR'S RESPONSIBILITIES FOR UPMC POLICIES

The Contractor is responsible and has contractually bound itself to be aware of UPMC Specification as they relate to the Work and to conduct the Work in accordance with this Specification. It is possible that, in certain instances, the UPMC Specification may be in conflict with the terms of the Contract, in which case the Contract will control. Any question in regard to such a situation should be referred to the Owner's Project Manager. In the event that the Contractor determines that UPMC requires the reporting of an incident, the Contractor should report the incident to the Owner's Project Manager immediately. In the event that an incident involves the Project Manager or a matter outside the Work, the Contractor should report the matter to the UPMC Compliance Officer.

## **PART 2 - PRODUCTS**

(Not Used)

## **PART 3 - EXECUTION**

### 3.1 NEW EQUIPMENT

Is required to meet the Tier 4 Emission Requirements starting April 1, 2011

### 3.2 USED EQUIPMENT

Is to be modified to meet Tier 4 Emission Requirements starting April 1, 2011

### 3.3 CERTIFICATION

All construction equipment of 25 HP or greater is to have a certification issued by an equipment supplier or manufacturer that individual pieces of equipment meet TIER 4 emissions Requirements

### 3.4 DOCUMENTATION

Documentation is to be provided to UPMC by the equipment owner, renting or leasing company certifying that the specific piece of equipment has been tested and certified that it meets the Tier 4 Emission Requirements. As part of the documentation and certification for construction equipment over 25 HP the contractor will need to provide the make, model and serial number of the equipment along with the serial number of the engine.

Documentation is to be provided at the time the equipment enters the construction site.

### 3.5 NOTIFICATION

An equipment owner may apply to UPMC for a waiver of the Tier 4 Requirement prior to that piece of equipment being brought onto the project site. The equipment owner must

provide justification as to why such a waiver is being requested including, but not limited to, manufacturer's confirmation that a qualifying piece of equipment is not currently in production. UPMC reserves the right to deny admittance to any piece of equipment on the project site if it feels that an alternative qualifying piece of equipment is available.

END OF SECTION 015100