

Engine Manufacturers Association CI & SI RICE NSPS Permit Streamlining Outreach Initiative

August 2019

Presentation Overview-

Review Excerpts From Summary Document

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NSPS Permit Streamlining Objectives

1. Harmonize and streamline the state and local permit approval process for NSPS-certified engines.
2. Provide a basis for various state and local air quality management districts (AQMDs) to accept NSPS-Certified engines without additional emissions testing as a condition to permit.
3. Harmonize emission test methods for field tests.

Planned Outreach

1. Reviewed Document With OAQPS October 2015
2. Individual State agencies as appropriate
3. Process will be an on going maintenance process

NSPS Permit Streamlining: Why Now?

1. Understanding emissions levels accurately is critical for permitting stationary engines.
2. Customers have to meet Federal and State Requirements which can vary and certified product is not easily modified.
3. Site Emissions Tests conducted by states use different methods than mfr's are required to use for certification.
4. PM 2.5 NAAQS and GHG Regulations have added additional reporting requirements for end users.
5. CI, SI engines and woodstoves are the only U.S. EPA manufacturer Certified NSPS Category.

EMA Recommendations

1. Wherever possible, harmonize any State-specific emissions limits for stationary engines with the NSPS.
2. Wherever possible, SI and CI NSPS-manufacturer certified emergency (CI Tier 2/Tier 3) and non-emergency (CI Tier 4) products should be considered BACT for PSD (attainment areas) and LAER for NSR (non-attainment areas) permits without further testing.
3. Minimize and streamline permitting requirements for sources using NSPS-certified engines.
4. Eliminate requirements for any additional source testing of stationary engines that are NSPS-certified, utilizing manufacturer supplied data (see Attachment 1) to estimate annual emissions (tons/year).
5. Accept engine manufacturer's certified emissions test results and owner/operator maintenance records as a demonstration of compliance.
6. In those instances where source testing is necessary (e.g. renewal of permits), utilize EMA recommended test methods and reporting template (see Attachment 1) including for formaldehyde and its surrogates.

Manufacturer Emissions Report

- Applicable Emissions Standard
- Applicable Certified Family Cycle-Weighted Results
- **Permit Value (PV)** - Emissions at 100% engine load and rpm for “Potential to Emit” calculation
- **Field Test Value (FTV)** - Emissions at 100% engine load and rpm for comparison to field test results
- Notes for Clarification

Permit Value: Manufacturer Nominal Value

Table 1: Permit Value (PV) - Emissions at 100% Engine Load and RPM For “Potential To Emit” Calculation

Permit Value (PV) (lb/hr)- Used to Calculate Potential to Emit (PTE) = lb/hr*engine hrs/year/2000= tons/year															
Load (%)	Units	NMHC	NMNEHC	VOC	CH ₂ O	NO _x (as NO ₂)	NO ₂	PM _{2.5}	NH ₃	CO	CO ₂	CH ₄	N ₂ O	SO ₂	O ₂ (%)
100	lb/hr														

Notes (excerpt):

1. PV-These reported Permit Values (PV) emissions levels represent the certified engine’s potential to emit at the 100% load factor required for permitting. These emission values do not align with the reported certification values because the certification test utilizes different load factors (e.g. 10, 25, 50, 75, 100%) and different percentage weightings for those load factors to yield a cycle-weighted emissions value (g/kW-hr) that is different from the engine’s maximum potential to emit.

Field Test Value: Permit Value x NTE + Measurement Error

Table 2: Field Test Value (FTV) - Emissions at 100% Engine Load and RPM for Comparison to Field Test Results

Field Test Value (FTV) ppm or lb/hr- Used to Compare to Test Field Test Results. If Field Test Result < FTV, Performance Test is Passed															
Load (%)	Units	NMHC	NMNEHC	VOC	CH ₂ O	NO _x (as NO ₂)	NO ₂	PM _{2.5}	NH ₃	CO	CO ₂	CH ₄	N ₂ O	SO ₂	O ₂ (%)
100	ppm @15% O ₂							Not Applicable							
100	lb/hr														

Multiply ppm values by 2.965 for 5% oxygen , 3.034 for 3% oxygen

Notes (excerpt):

- FTV-The Field Test Values (FTV) represent the equivalent field testing values (lb/hr or ppm_{dv}) applying the appropriate NTE conversion factors and Portable Emissions Measurement Systems (PEMS) field testing measurement allowances. Specifically, a conversion factor of 1.5 (1.25 for Tier 2 and Tier 3) should be applied consistent with 40 CFR 1039.101(e)(3). In addition, the following in-use measurement allowances (in g/bhp-hr) should be provided consistent with the in-use testing of mobile source engines: PM (0.008); NO_x (0.20); NMHC (0.02); NO_x + NMHC (0.22); and CO (0.34). Thus, the FTV will be calculated as follows: $FTV = PV \times 1.5 + \text{the relevant pollutant-specific measurement allowance}$. Humidity correction factors (if applicable) must be applied to field test results as specified in 40 CFR part 1065.670.

Additional Notes

3. PV and FTV emissions data is reported at ambient conditions of mfr. reference conditions.
4. NSPS-certified engines do not produce coarse particles ($PM_{2.5}$ to PM_{10}) and all PM emissions should be deemed $PM_{2.5}$.
5. Emissions are measured using 40 CFR part 1065 methods.
6. For $PM_{2.5}$ source testing, utilize the Field Testing Methods specified in 40 CFR part 1065, subpart J.
7. Reported certified engine permit values (PVs) or field test values (FTVs) should not be used to set BACT. BACT should remain NSPS values.
8. Field tests that include a regeneration event are void.
9. Appropriate test fuels should be those allowed pursuant to 40 CFR part 1065.
10. If operating at loads other than 100%, then the customer should contact the engine manufacturer for specific load emissions rates and/or concentrations; however, available data may be limited.
11. The above table may exclude emissions depending on CI or SI application and fuel.

EMA Recommended Field Test Methods- Follow Part 1065 Field Test Methods

Constituent	Method
NMHC	Part 1065 Subpart C - §1065.260, 265, 267
NOx	Part 1065 Subpart C - §1065.270, 272
NO2	Part 1065 Subpart C - §1065.270, 272
CO	Part 1065 Subpart C - §1065.250
PM2.5	Part 1065 Subpart C - §1065.140, 145, 170
CO2	Part 1065 Subpart C - §1065.250
O2	Part 1065 Subpart C - §1065.280
CH4	Part 1065 Subpart C - §1065.260, 265, 267
N2O	Part 1065 Subpart C - §1065.275
NMNEHC	Allow FTIR for Ethane - Add method to Part 1065 Subpart C
VOC	Part 1065 Subpart C - §1065.260, 265, 267
CH2O	Allow FTIR - Add method to Part 1065 Subpart C
NH3	Allow FTIR - Add method to Part 1065 Subpart C
SO2	Allow UV Fluorescence and NDIR - Add method to Part 1065 Subpart C

Thank You!