# Statement of Basis

**Permit to Construct No. P-2016.0048**
**Project ID 61767**

**Saint Alphonsus Medical Center**
**Nampa, Idaho**

**Facility ID 027-00159**

**Final**

**December 22, 2016**
**Tom Burnham** CB
**Permit Writer**

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

## FACILITY INFORMATION

### *Description*

Saint Alphonsus Medical Center Nampa (SAMC) is a 152-Bed acute care hospital serving the medical needs of Canyon County and surrounding areas.

### *Permitting History*

This is the initial PTC for an existing unpermitted facility that is undergoing expansion thus there is no permitting history.

### *Application Scope*

This PTC is for a minor modification at an existing facility. The applicant has proposed to install four boilers which provide hot water and steam for the hospital, one cooling tower, and two diesel IC engines for emergency backup electric power.

### *Application Chronology*

| | |
|---|---|
| August 1, 2016 | DEQ received an application and an application fee. |
| August 16 – August 31, 2016 | DEQ provided an opportunity to request a public comment period on the application and proposed permitting action. |
| August 11, 2016 | DEQ approved pre-permit construction. |
| August 17, 2016 | DEQ determined that the application was incomplete. |
| September 1, 2016 | DEQ received supplemental information from the applicant. |
| September 7, 2016 | DEQ determined that the application was complete. |
| October 26, 2016 | DEQ made available the draft permit and statement of basis for peer and regional office review. |
| December 2, 2016 | DEQ made available the draft permit and statement of basis for applicant review. |
| December 19, 2016 | DEQ received the permit processing fee. |
| December 22, 2016 | DEQ issued the final permit and statement of basis. |

## TECHNICAL ANALYSIS

### *Emissions Units and Control Equipment*

**Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION**

| Permit Section | Source | Control Equipment | Emission Point ID's |
|---|---|---|---|
| 2 | NEWENG1<br>*IC Engine for emergency 1600kW generator<br>*Manufacturer: Mitsubishi<br>*Model: S16R-Y2PTAW-1<br>*Manufactured: 2015<br>*Tier certification number: 2<br>* Max. rating: 2346 bhp<br>*Allowable fuel type: diesel fuel | None | NEWENG1 exhaust |
| 2 | NEWENG2<br>*IC Engine for emergency 1600kW generator<br>*Manufacturer: Mitsubishi<br>*Model: S16R-Y2PTAW-1<br>*Manufactured: 2015<br>*Tier certification number: 2<br>*Rated at 1600kW (2346 bhp)<br>*Allowable fuel type: diesel fuel | None | NEWENG2 exhaust |
| 2 | 500KWENG<br>*IC Engine for emergency 500kW generator<br>*Manufacturer: Caterpillar<br>*Model: LC6<br>*Manufactured: 2015<br>Max rating: 671 bhp<br>*Allowable fuel type: diesel fuel | None | 500KWENG exhaust |
| 2 | 250KWENG<br>*IC Engine for emergency 250kW generator<br>*Manufacturer: Kohler<br>*Model: 25CREOZD<br>*Manufactured: 2015<br>*Max. rating:335 bhp<br>*Allowable fuel type: diesel fuel | None | 250KWENG exhaust |
| 3 | Boiler B1<br>*Manufacturer: Hurst<br>*Model: S5-GA2-3200-125W<br>*Rated at 10 MMBtu/hr<br>*Allowable fuel type(s): natural gas with diesel backup<br>*Manufactured: 2016 | None | B1 exhaust<br>Stack Height: 21.13 ft<br>Stack Diameter: 20 in<br>Flowrate: 4100 cfm<br>Temperature: 350 °F |
| 3 | Boiler B2<br>*Manufacturer: Hurst<br>*Model: S5-GA2-3200-125W<br>*Rated at 10 MMBtu/hr<br>*Allowable fuel type(s): natural gas with diesel backup<br>*Manufactured: 2016 | None | B2 exhaust<br>Stack Height: 21.13 ft<br>Stack Diameter: 20 in<br>Flowrate: 4100 cfm<br>Temperature: 350 °F |

| | | | |
|---|---|---|---|
| 3 | Boilers B3 and B4<br>*Manufacturer: Hurst<br>*Model: 4VT-GP2-60-150<br>*Rated at 2.0 MMBtu/hr<br>*Allowable fuel type(s): natural gas with diesel backup<br>*Manufactured: 2016 | None | B3 and B4 exhaust (combined)<br>Stack Height: 111 ft<br>Stack Diameter: 14 in<br>Flowrate: 0.21 cfm<br>Temperature: 350°F |
| 3 | Boiler C-1<br>*Condensing boiler<br>*Manufacturer: Cleaver Brooks<br>*Model: CFC 700-750-125HW<br>*Rated at 0.75 MMBtu/hr<br>*Allowable fuel type(s): natural gas with diesel backup<br>*Manufactured: 2014 | None | C-1 exhaust<br>Stack Height: 53 ft<br>Stack Diameter: 12 in<br>Flowrate: 128 cfm<br>Temperature: 350°F |
| 3 | Boiler NC-1<br>Non-condensing boiler<br>*Manufacturer: Cleaver Brooks<br>*Model: FLX Fuel Series-200<br>*Rated at 2.0 MMBtu/hr<br>*Allowable fuel type(s): natural gas with diesel backup<br>*Manufactured: 2014 | None | NC-1 exhaust<br>Stack Height: 53 ft<br>Stack Diameter: 12 in<br>Flowrate: 345 cfm<br>Temperature: 350°F |
| 3 | Boiler NC-2<br>Non-condensing boiler<br>*Manufacturer: Cleaver Brooks<br>*Model: FLX Fuel Series-200<br>*Manufactured: 2014<br>*Rated at 2.0 MMBtu/hr<br>*Allowable fuel type(s): natural gas with diesel backup | None | NC-2 exhaust<br>Stack Height: 53 ft<br>Stack Diameter: 12 in<br>Flowrate: 345 cfm<br>Temperature: 350°F |
| 3 | Boilers F1 and F2<br>*Manufacturer: Fulton<br>*Model: ICS 60<br>*Manufactured: 2001<br>*Rated at 2.0 MMBtu/hr<br>*Allowable fuel type(s): natural gas with diesel backup | None | F1 and F2 exhaust (combined)<br>Stack Height: 23 ft<br>Stack Diameter: 12 in<br>Flowrate: 347 cfm<br>Temperature: 350°F |
| 3 | Boiler K-1<br>*Manufacturer: Kewanee<br>*Model: M-135-KG<br>*Manufactured: 1998<br>*Rated at 1.35 MMBtu/hr<br>*Allowable fuel type: natural gas | None | K-1 exhaust<br>Stack Height: 23 ft<br>Stack Diameter: 12 in<br>Flowrate: 232 cfm<br>Temperature: 350°F |
| 3 | Cooling Tower CT-1<br>*Manufacturer: Marley<br>*Model: NC8405QAN2<br>*Manufactured: 2016<br>*Number of cells: 2<br>*Flowrate: 2040 gpm | None | CT-1 exhaust |

## *Emissions Inventories*

**Potential to Emit**

IDAPA 58.01.01 defines Potential to Emit as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is state or federally enforceable. Secondary emissions do not count in determining the potential to emit of a facility or stationary source.

Using this definition of Potential to Emit an emission inventory was developed for the proposed medical center expansion (see Appendix A) associated with this proposed project. Emissions estimates of criteria pollutant, GHG, and HAPs were based on emission factors from AP-42 and process information specific to the facility for this proposed project.

The following table presents the Potential to Emit for regulated air pollutants as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit. For this medical care center Potential to Emit is based upon a worst-case operation of the facility of 8760 hr/yr, with the exception of the diesel generators analyzed at 100 hours per year for maintenance and testing. Since there are no controls on the equipment, this is the uncontrolled Potential to Emit.

**Table 2 UNCONTROLLED POTENTIAL TO EMIT FOR NSR REGULATED POLLUTANTS**

| Emissions Unit | PM/PM10/PM2.5 | CO | NO2 | VOC | SO2 | CO2e |
|---|---|---|---|---|---|---|
| | T/yr | T/yr | T/yr | T/yr | T/yr | T/yr |
| 300HP Hurst Boiler (B-1) | 0.63 / 0.50 / 0.28 | 1.63 | 5.28 | 1.67 | 0.08 | 7197.01 |
| 300HP Hurst Boiler (B-2) | 0.63 / 0.50 / 0.28 | 1.63 | 5.28 | 1.67 | 0.08 | 7197.01 |
| 60HP Hurst Boiler (B-3&4)* | 0.21 / 0.14 / 0.10 | 0.72 | 1.26 | 0.05 | 0.01 | 1439.69 |
| 0.75MMBtu/hr Condensing Boiler (CB-1) | 0.08 / 0.05 / 0.04 | 0.27 | 0.47 | 0.02 | 0.005 | 537.46 |
| 2MMBtu/hr Non-condensing Boiler 1 (NC-1) | 0.21 / 0.14 / 0.10 | 0.72 | 1.25 | 0.05 | 0.01 | 1433.24 |
| 2MMBtu/hr Non-condensing Boiler 1 (NC-2) | 0.21 / 0.14 / 0.10 | 0.72 | 1.25 | 0.05 | 0.01 | 1433.24 |
| 60HP Fulton Boiler 1 (F-1&2)* | 0.21 / 0.14 / 0.10 | 0.72 | 1.26 | 0.05 | 0.01 | 1439.69 |
| 1.35 MMBtu/Hr Kewanee Boiler (K-1) | 0.04 / 0.03 / 0.02 | 0.49 | 0.58 | 0.03 | 0.003 | 692.39 |
| 1600kW Diesel Generator 1 | 0.03 /0.03 / 0.03 | 0.11 | 0.95 | 0.10 | 0.001 | 134.34 |
| 1600kW Diesel Generator 2 | 0.03 /0.03 / 0.03 | 0.11 | 0.95 | 0.10 | 0.001 | 134.34 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 500kW Diesel Generator | 0.07 / 0.07 / 0.07 | 0.22 | 1.03 | 0.08 | 0.07 | 38.40 |
| 250kW Diesel Generator | 0.04 /0.03 / 0.03 | 0.11 | 0.52 | 0.04 | 0.03 | 19.20 |
| Cooling Tower (CT-1) | 18.43 / 0.27 / 6.72E-3 | -- | -- | -- | -- | -- |
| **Total, Point Sources** | **20.81/2.07/1.19** | **7.45** | **20.07** | **3.91** | **0.32** | **21696.01** |

The following table presents the uncontrolled Potential to Emit for HAPs as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit. For this medical care center Potential to Emit is based upon a worst-case for normal operation of the facility of 8760 hr/yr, with the exception of the diesel generators analyzed at 100 hours per year for maintenance and testing. Then, the worst-case maximum HAP Potential to Emit was determined for this medical care center.

**Table 2 UNCONTROLLED POTENTIAL TO EMIT FOR HAZARDOUS AIR POLLUTANTS**

| Hazardous Air Pollutants | PTE (T/yr) |
|---|---|
| **1,3-Butadine** | 3.90E-04 |
| **2-Methylnaphthalene** | 3.11E-06 |
| **3-Methylchloranthene** | 2.33E-07 |
| **7,12-Dimethylbenz(a)anthracene** | 2.08E-06 |
| **Acenaphthene** | 3.32E-05 |
| **Acenaphthylene** | 5.07E-05 |
| **Acetaldehyde** | 7.65E-03 |
| **Acrolein** | 9.22E-04 |
| **Anthracene** | 1.98E-05 |
| **Benz(a)anthracene** | 2.04E-05 |
| **Benzene** | 9.58E-03 |
| **Benzo(a)pyrene** | 2.03E-06 |
| **Benzo(b,k)fluoranthene** | 3.89E-06 |
| **Benzo(g,h,i)perylene** | 6.92E-06 |
| **Butane** | 2.72E-01 |
| **Chrysene** | 5.68E-06 |
| **Dibenzo(a,h)anthracene** | 7.33E-06 |
| **Dichlorobenzene** | 1.56E-04 |
| **Ethane** | 4.02E-01 |
| **Ethylbenzene** | 5.74E-05 |
| **Fluoranthene** | 8.03E-05 |
| **Fluorene** | 2.95E-04 |
| **Formaldehyde** | 4.20E-02 |
| **Hexane** | 2.33E-01 |
| **Indeno(1,2,3-cd)pyrene** | 5.68E-06 |

| | |
|---|---|
| **Naphthalene** | 1.87E-03 |
| **Pentane** | 3.37E-01 |
| **Phenanthrene** | 3.03E-04 |
| **Propane** | 2.08E-01 |
| **Pyrene** | 5.15E-05 |
| **1,1,1-Tricholorethane** | 2.13E-04 |
| **Toluene** | 9.69E-03 |
| **o-Xylene** | 2.94E-03 |
| **PAH** | 2.71E-03 |
| **POM*** | 4.48E-05 |
| **Metals** | 1.38E-04 |
| **Arsenic** | 4.94E-04 |
| **Barium** | 5.70E-04 |
| **Beryllium** | 3.84E-04 |
| **Cadmium** | 3.86E-04 |
| **Chromium** | 3.87E-04 |
| **Cobalt** | 2.05E-05 |
| **Copper** | 7.44E-04 |
| **Lead** | 1.13E-03 |
| **Manganese** | 7.70E-04 |
| **Mercury** | 3.91E-04 |
| **Molybdenum** | 1.49E-04 |
| **Nickel** | 3.85E-04 |
| **Selenium** | 1.86E-03 |
| **Vanadium** | 3.40E-04 |
| **Zinc** | 3.68E-03 |
| **Total HAPs** | **1.54E+00** |

## Pre-Project Potential to Emit

This is an existing facility. However, since this is the first time the facility is receiving a permit, pre-project emissions are set to zero for all criteria pollutants.

## Post Project Potential to Emit

Post project Potential to Emit is used to establish the change in emissions at a facility and to determine the facility's classification as a result of this project. Post project Potential to Emit includes all permit limits resulting from this project.

Table 4 below presents the post project Potential to Emit for criteria and GHG pollutants from all emissions units at the facility as determined by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

**Table 4 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS**

| Source | $PM_{10}/PM_{2.5}$ | | $SO_2$ | | $NO_X$ | | CO | | VOC | | $CO_2e$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr[(a)] | T/yr[(b)] | lb/hr[(a)] | T/yr[(b)] | lb/hr[(a)] | T/yr[(b)] | lb/hr[(a)] | T/yr[(b)] | lb/hr[(a)] | T/yr[(b)] | T/yr[(b)] |
| 300HP Hurst Boiler (B-1) | 0.63 | 0.14 | 0.08 | 0.02 | 5.28 | 1.21 | 1.63 | 0.37 | 1.67 | 0.38 | 7197.01 |
| 300HP Hurst Boiler (B-2) | 0.63 | 0.14 | 0.08 | 0.02 | 5.28 | 1.21 | 1.63 | 0.37 | 1.67 | 0.38 | 7197.01 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 60HP Hurst Boiler (B-3&4) | 0.21 | 0.05 | 0.01 | 0.00 | 1.26 | 0.29 | 0.72 | 0.17 | 0.05 | 0.01 | 1439.69 |
| 0.75MMBtu/hr Condensing Boiler (C-1) | 0.08 | 0.02 | 0.00 | 0.00 | 0.47 | 0.11 | 0.27 | 0.06 | 0.02 | 0.00 | 537.46 |
| 2MMBtu/hr Non-condensing Boiler 1 (NC-1) | 0.21 | 0.05 | 0.01 | 0.00 | 1.25 | 0.29 | 0.72 | 0.16 | 0.05 | 0.01 | 1433.24 |
| 2MMBtu/hr Non-condensing Boiler 2 (NC-2) | 0.21 | 0.05 | 0.01 | 0.00 | 1.25 | 0.29 | 0.72 | 0.16 | 0.05 | 0.01 | 1433.24 |
| 60HP Fulton Boiler (F-1&2) | 0.21 | 0.05 | 0.01 | 0.00 | 1.26 | 0.29 | 0.72 | 0.17 | 0.05 | 0.01 | 1439.69 |
| 1.35 MMBtu/Hr Kewanee Boiler(K-1) | 0.04 | 0.01 | 0.00 | 0.00 | 0.58 | 0.13 | 0.49 | 0.11 | 0.03 | 0.01 | 692.39 |
| New Generator 1 IC Engine (NEWGEN1) | 0.03 | 0.01 | 0.00 | 0.00 | 0.95 | 0.22 | 0.11 | 0.02 | 0.10 | 0.02 | 134.34 |
| New Generator 2 IC Engine (NEWGEN2) | 0.03 | 0.01 | 0.00 | 0.00 | 0.95 | 0.22 | 0.11 | 0.02 | 0.10 | 0.02 | 134.34 |
| 500kw Generator IC Engine (500kwENG) | 0.07 | 0.02 | 0.07 | 0.02 | 1.03 | 0.24 | 0.22 | 0.05 | 0.08 | 0.02 | 38.40 |
| 250kw Generator IC Engine (250kwENG) | 0.04 | 0.01 | 0.03 | 0.01 | 0.52 | 0.12 | 0.11 | 0.03 | 0.04 | 0.01 | 19.20 |
| Cooling Tower (CT-1) | 18.43 | 4.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Post Project Totals** | **20.81** | **4.75** | **0.32** | **0.07** | **20.07** | **4.58** | **7.45** | **1.70** | **3.91** | **0.89** | **21696.01** |

a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.
b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.

## Change in Potential to Emit

The change in facility-wide potential to emit is used to determine if a public comment period may be required and to determine the processing fee per IDAPA 58.01.01.225. Since this is an existing facility and there are no control devices, Table 4 above also represents the change in the potential to emit for criteria pollutants.

## Non-carcinogenic TAP Emissions

A summary of the estimated PTE for emissions increase of non-carcinogenic toxic air pollutants (TAP) is provided in the following table.

**Table 5 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR NON-CARCINOGENIC TOXIC AIR POLLUTANTS**

| Non-Carcinogenic Toxic Air Pollutants (sum of all emissions) | Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr) | Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr) | Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr) | Non-Carcinogenic Screening Emission Level (lb/hr) | Exceeds Screening Level? (Y/N) |
|---|---|---|---|---|---|
| **Barium** | **3.50E-05** | **1.30E-04** | **9.53E-05** | **3.30E-02** | **No** |
| **Chromium** | **2.21E-05** | **8.84E-05** | **6.63E-05** | **3.30E-02** | **No** |
| **Cobalt** | **6.68E-07** | **2.49E-06** | **1.82E-06** | **3.30E-03** | **No** |
| **Copper** | **4.17E-05** | **1.74E-04** | **1.33E-04** | **1.30E-02** | **No** |

| | | | | | |
|---|---|---|---|---|---|
| Ethylbenzene | 3.07E-06 | 1.31E-05 | 1.00E-05 | 29 | No |
| Hexane | 1.43E-02 | 5.33E-02 | 3.90E-02 | 12 | No |
| Manganese | 4.11E-05 | 1.74E-04 | 1.33E-04 | 6.70E-02 | No |
| Molybdenum | 8.75E-06 | 3.26E-05 | 2.38E-05 | 3.33E-01 | No |
| Naphthalene | 5.54E-05 | 2.34E-04 | 1.78E-04 | 3.33 | No |
| Pentane | 2.07E-02 | 7.70E-02 | 5.63E-02 | 118 | No |
| o-Xylene | 5.26E-06 | 2.25E-05 | 1.72E-05 | 29 | No |
| Selenium | 1.01E-04 | 4.33E-04 | 3.31E-04 | 1.30E-02 | No |
| Toluene | 3.04E-04 | 1.28E-03 | 9.78E-04 | 25 | No |
| Zinc | 2.31E-04 | 8.59E-04 | 6.28E-04 | 3.33E-01 | No |

None of the PTEs for non-carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is not required for any non-carcinogenic TAP because none of the 24-hour average carcinogenic screening ELs identified in IDAPA 58.01.01.586 were exceeded.

## Carcinogenic TAP Emissions

A summary of the estimated PTE for emissions increase of carcinogenic toxic air pollutants (TAP) is provided in the following table.

**Table 6 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR CARCINOGENIC TOXIC AIR POLLUTANTS**

| Carcinogenic Toxic Air Pollutants (sum of all emissions) | Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr) | Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr) | Change in Annual Average Emissions Rates for Units at the Facility (lb/hr) | Carcinogenic Screening Emission Level (lb/hr) | Exceeds Screening Level? (Y/N) |
|---|---|---|---|---|---|
| Arsenic | 2.73E-05 | 1.16E-04 | 8.84E-05 | 1.50E-06 | Yes |
| Benzene | 1.67E-05 | 6.22E-05 | 4.55E-05 | 8.00E-04 | No |
| Beryllium | 2.03E-05 | 8.66E-05 | 6.63E-05 | 2.80E-05 | Yes |
| Benzo(a)pyrene | 9.54E-09 | 3.55E-08 | 2.60E-08 | 2.00E-06 | No |
| Cadmium | 2.17E-05 | 8.80E-05 | 6.63E-05 | 3.70E-06 | Yes |
| Formaldehyde | 1.69E-03 | 6.90E-03 | 5.21E-03 | 5.10E-04 | Yes |
| Nickel | 2.31E-05 | 8.93E-05 | 6.63E-05 | 2.70E-05 | Yes |
| PAH* | 5.78E-05 | 2.44E-04 | 1.86E-04 | 9.10E-05 | Yes |
| POM* | 5.70E-07 | 2.41E-06 | 1.84E-06 | 2.00E-06 | No |

a) Polycyclic Organic Matter (POM) is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. The total is compared to benzo(a)pyrene.

Some carcinogenic TAPs have estimated short-term (lb/hr) potential emissions greater than the carcinogenic screening emission levels IDAPA 58.01.01.586. These TAPs were Arsenic, Beryllium, Cadmium, Formaldehyde, Nickel, and PAH which required modeling to demonstrate compliance with the acceptable ambient concentrations (AACC) which are annual averages.

## Post Project HAP Emissions

Table 3 above presents the post project potential to emit for HAP pollutants from all emissions units at the facility as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

### *Ambient Air Quality Impact Analyses*

As presented in the Modeling Memo in Appendix B, the estimated emission rates of several TAPs from this project exceeded applicable screening emission levels (EL) and published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline[1]. Refer to the Emissions Inventories section for additional information concerning the emission inventories.

The applicant has demonstrated pre-construction compliance to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard. The applicant has also demonstrated pre-construction compliance to DEQ's satisfaction that the emissions increase due to this permitting action will not exceed any acceptable ambient concentration (AAC) or acceptable ambient concentration for carcinogens (AACC) for toxic air pollutants (TAP). A summary of the Ambient Air Impact Analysis for TAP is provided in Appendix B.

## REGULATORY ANALYSIS

### *Attainment Designation (40 CFR 81.313)*

The facility is located in Canyon County, which is designated as attainment or unclassifiable for $PM_{2.5}$, $PM_{10}$, $SO_2$, $NO_2$, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

### *Facility Classification*

The AIRS/AFS facility classification codes are as follows:

For THAPs (Total Hazardous Air Pollutants) Only:

A = Use when any one HAP has actual or potential emissions ≥ 10 T/yr or if the aggregate of all HAPS (Total HAPs) has actual or potential emissions ≥ 25 T/yr.

SM80 = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the permit sets limits ≥ 8 T/yr of a single HAP or ≥ 20 T/yr of THAP.

SM = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the potential HAP emissions are limited to < 8 T/yr of a single HAP and/or < 20 T/yr of THAP.

B = Use when the potential to emit without permit restrictions is below the 10 and 25 T/yr major source threshold

UNK = Class is unknown

For All Other Pollutants:

A = Actual or potential emissions of a pollutant are ≥ 100 T/yr.

SM80 = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are ≥ 80 T/yr.

SM = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the

[1] Criteria pollutant thresholds in Table 2, State of Idaho Guideline for Performing Air Quality Impact Analyses, Doc ID AQ-011, September 2013.

pollutant are < 80 T/yr.

B = Actual and potential emissions are < 100 T/yr without permit restrictions.

UNK = Class is unknown.

**Table 7 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION**

| Pollutant | Uncontrolled PTE (T/yr) | Permitted PTE (T/yr) | Major Source Thresholds (T/yr) | AIRS/AFS Classification |
|---|---|---|---|---|
| PM | 20.82 | 19.96 | **100** | B |
| $PM_{10}/PM_{2.5}$ | 2.07/1.19 | 1.477/0.727 | **100** | B |
| $SO_2$ | 0.31 | 0.17 | **100** | B |
| $NO_X$ | 20.08 | 13.72 | **100** | B |
| CO | 7.45 | 4.20 | **100** | B |
| VOC | 3.91 | 3.59 | **100** | B |
| HAP (single) | 0.402 | 0.402 | **10** | B |
| HAP (Total) | 1.54 | 1.54 | **25** | B |

## *Permit to Construct (IDAPA 58.01.01.201)*

IDAPA 58.01.01.201 ..... Permit to Construct Required

The permittee has requested that a PTC be issued to the facility for the proposed new emissions sources. Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

## *Tier II Operating Permit (IDAPA 58.01.01.401)*

IDAPA 58.01.01.401 Tier II Operating Permit

The application was submitted for a permit to construct (refer to the Permit to Construct section), and an optional Tier II operating permit has not been requested. Therefore, the procedures of IDAPA 58.01.01.400–410 were not applicable to this permitting action.

## *Visible Emissions (IDAPA 58.01.01.625)*

IDAPA 58.01.01.625 ..... Visible Emissions

The sources of PM emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. This requirement is assured by Permit Condition 2.4.

## *Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)*

IDAPA 58.01.01.301 ..... Requirement to Obtain Tier I Operating Permit

Post project facility-wide emissions from this facility do not have a potential to emit greater than 100 tons per year for $PM_{10}$, $SO_2$, $NO_X$, CO, VOC or 10 tons per year for any one HAP, or 25 tons per year for all HAP combined as demonstrated previously in the Emissions Inventories Section of this analysis. Therefore, the facility is not a Tier I source in accordance with IDAPA 58.01.01.006 and the requirements of IDAPA 58.01.01.301 do not apply.

## *PSD Classification (40 CFR 52.21)*

40 CFR 52.21 ..... Prevention of Significant Deterioration of Air Quality

The facility is not a major stationary source as defined in 40 CFR 52.21(b)(1), nor is it undergoing any physical change at a stationary source not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source, that would constitute a major stationary source by itself as defined in 40 CFR 52. Therefore in accordance with 40 CFR 52.21(a)(2), PSD requirements are not applicable to this permitting action. The facility is not a designated facility as defined in 40 CFR 52.21(b)(1)(i)(a), and does not have facility-wide emissions of any criteria pollutant that exceed 250 T/yr.

## *IDAPA 58.01.01.677 – Standards for Minor and Existing Sources*

*A person shall not discharge into the atmosphere from any fuel burning equipment in operation prior to October 1, 1979, or with a maximum rated input of less than ten (10) million BTU per hour, particulate matter in excess of 0.015 gr/dscf corrected to 3% oxygen for gas fuel.* :

Saint Alphonsus Medical Center is subject to this rule because it operates fuel-burning equipment with a maximum rated input capacity of less than 10.0 MMBtu/hr. The fuel-burning equipment is ten boilers having a cumulative heat input of less than 10.0 MMBtu/hr. The following calculation illustrates that the fuel-burning equipment is in compliance with this emissions standard.

- Max. heat rate = $10.0\frac{MMBtu}{hr}$
- Fuel heating value of natural gas in ambient air = $1020\frac{Btu}{scf}$,
- F-factor for natural gas = $8710\frac{dscf}{MMBtu}$ at STP (EPA Method 19)
- Emission factor = $7.6E-06\frac{lb}{scf}$ (AP-42, Table 1.4-2, 1998)
- Conversion, 7000 grains (gr)/pound (lb)

  ***1) combustion gas volume at 3% oxygen:***

  - $\left(8710\frac{dscf}{MMBtu}\right)\left(\frac{20.9}{20.9-3}\right) = 1.02E+04\frac{dscf}{MMBtu}$

  ***2) dry combustion volume of 1 scf natural gas***

  - $\left(1.02E+04\frac{dscf}{MMBtu}\right)\left(1020\frac{Btu}{scf}\right) = 10.4\frac{dscf}{scf}$

  ***3) grain loading calculation to demonstrate compliance with grain loading standard***

  - $\left(7.6E-06\frac{lb}{scf}\right)\left(7000\frac{gr}{lb}\right) = 0.05\frac{gr}{scf}$
  - $\left(0.05\frac{gr}{scf}\right) \div \left(10.4\frac{dscf}{scf}\right) = 4.81E-03\frac{gr}{dscf} < 1.5E-02\frac{gr}{dscf}$ (Standard)

## *NSPS Applicability (40 CFR 60)*

The facility operates ten boilers and four emergency IC engines for which the following NSPS requirements apply:

- **40 CFR 60, Subpart Dc—Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units**
- **40 CFR 60, Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines**

See Appendix C for a complete breakdown of these subparts as presented by the applicant.

## *NESHAP Applicability (40 CFR 61)*

The facility is not subject to any NESHAP requirements in 40 CFR 61.

## *MACT Applicability (40 CFR 63)*

The facility operates a cooling tower for which the following NESHAP requirement does not apply because the cooling tower is not used for chemical or industrial processes.

- **40 CFR 63 Subpart Q - National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers**

The facility operates four emergency IC engines for which the following NESHAP requirements apply:

- **40 CFR 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines**

Nine of the ten boilers use diesel as back up fuel for which the following NSPS requirements could apply, but don't:

- **40 CFR 63 Subpart JJJJJJ-National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources**

See Appendix C for complete breakdown of the subpart as presented by the applicant.

## *Permit Conditions Review*

This section describes the permit conditions for this initial permit or only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action.

Initial Permit Condition 1.1
This is the initial PTC for this facility. The expansion of the existing building into a 152 bed medical center will include the addition of more floor space and a supporting equipment. Table 1.1 presents the components of the supporting equipment as described by the applicant. The cooling tower was omitted, as the emissions are minor and components consist of few or no inspection requirements.

Initial Permit Condition 2.1
The facility contains four diesel-fired IC engines which are used to power electrical generators during emergency situations.

Initial Permit Condition 2.2
The four emergency generators operate with no control devices on the exhaust stacks. Table 2.2 presents the generators emission points as presented in the application.

Initial Permit Condition 2.3
This permit condition lists the criteria pollutant emissions for the emissions units permitted in this section of the permit. CO and VOC levels in this application were well below regulatory concern and the estimates were developed from manufacturer performance data, which is considered to be reliable. Therefore, there were no limits for CO and VOC included.

Initial Permit Condition 2.4
Permit Condition 2.4 establishes that emissions shall not exceed 20% opacity as required by IDAPA 625.

Initial Permit Condition 2.5
This permit condition requires recordkeeping of the sulfur content in the fuel used in the emergency generators.

### 40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Initial Permit Condition 2.6
In accordance with 40 CFR 60.4202(a)(2) the emergency IC engines shall be operated to limit opacity exhaust and in accordance with manufacturer certification.

Initial Permit Condition 2.7
In accordance with 40 CFR 60.4207(a) the emergency IC engines shall operate on fuel with a maximum sulfur content of 15 ppm.

Initial Permit Condition 2.8
In accordance with 40 CFR 60.4209(a) the emergency IC engines shall have a non-resettable hour meter installed, shall not change setting from manufacturers specifications, and limit testing to 100 hours per year.

Initial Permit Condition 2.9
In accordance with 40 CFR 60.4214(b) the permittee must record the time of operation of the engine and the reason the engine was in operation during that time.

## Boilers

Initial Permit Condition 3.1
Initial Permit Condition 3.1 describes the ten boilers located throughout the facility.

Initial Permit Condition 3.2
The boilers operate with no control devices on the exhaust stacks. Table 3.2 presents the emission points as presented in the application.

Initial Permit Condition 3.3
This permit condition lists the criteria pollutant emissions for the emissions units permitted in this section of the permit. CO and VOC levels in this application were well below regulatory concern and the estimates were developed from manufacturer performance data, which is considered to be reliable. Therefore, there were no limits for CO and VOC included.

Initial Permit Condition 3.4
This permit condition specifies the 48 hours for maintenance and testing of the backup diesel operation.

Initial Permit Condition 3.5
This permit condition specifies the NG for primary operation and diesel fuel for back-up operation.

Initial Permit Condition 3.6
Permit Condition 3.6 limits testing of the boilers with backup fuel to 48 hours per boiler per consecutive 12 month period and only one unit of the pairs of B3/B4 and F1/F2 can be operated at any given time, based on the condition listed in the emission inventory for the project.

Initial Permit Condition 3.7
The diesel fuel shall have a maximum sulfur content of 0.05% by weight.

Initial Permit Condition 3.8
This permit condition specifies requirements for recordkeeping of the sulfur content of the fuel used for back-up operation of the boilers.

## 40 CFR 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

Initial Permit Condition 3.9
In accordance with 40 CFR 60.44c the permittee shall opt to use supplier certifications as stated in paragraph (a) through exceptions in paragraphs (g) and (h).

Initial Permit Condition 3.10
In accordance with 40 CFR 60.46c the permittee must demonstrate sulfur dioxide compliance by monitoring the percent sulfur content by weight using fuel samples or supplier certifications.

Initial Permit Condition 3.11

In accordance with 40 CFR 60.48c the permittee is required to record boiler construction and startup dates, amounts of fuel combusted each day and keep records maintained and available upon request for at least two years. A semiannual report to DEQ of sulfur dioxide is also required.

Initial Permit Condition 3.12
In any case where any permit condition conflicts with NSPS or NESHAP requirements. The federal requirement will take precedent.

## General Provisions

Initial Permit Condition 4.1

The duty to comply general compliance provision requires that the permittee comply with all of the permit terms and conditions pursuant to Idaho Code §39-101.

Initial Permit Condition 4.2

The maintenance and operation general compliance provision requires that the permittee maintain and operate all treatment and control facilities at the facility in accordance with IDAPA 58.01.01.211.

Initial Permit Condition 4.3

The obligation to comply general compliance provision specifies that no permit condition is intended to relieve or exempt the permittee from compliance with applicable state and federal requirements, in accordance with IDAPA 58.01.01.212.01.

Initial Permit Condition 4.4

The inspection and entry provision requires that the permittee allow DEQ inspection and entry pursuant to Idaho Code §39-108.

Initial Permit Condition 4.5

The permit expiration construction and operation provision specifies that the permit expires if construction has not begun within two years of permit issuance or if construction has been suspended for a year in accordance with IDAPA 58.01.01.211.02.

Initial Permit Condition 4.6

The notification of construction and operation provision requires that the permittee notify DEQ of the dates of construction and operation, in accordance with IDAPA 58.01.01.211.03.

Initial Permit Condition 4.7

The performance testing notification of intent provision requires that the permittee notify DEQ at least 15 days prior to any performance test to provide DEQ the option to have an observer present, in accordance with IDAPA 58.01.01.157.03.

Initial Permit Condition 4.8

The performance test protocol provision requires that any performance testing be conducted in accordance with the procedures of IDAPA 58.01.01.157, and encourages the permittee to submit a protocol to DEQ for approval prior to testing.

Initial Permit Condition 4.9

The performance test report provision requires that the permittee report any performance test results to DEQ within 30 days of completion, in accordance with IDAPA 58.01.01.157.04-05.

Initial Permit Condition 4.10

The monitoring and recordkeeping provision requires that the permittee maintain sufficient records to ensure compliance with permit conditions, in accordance with IDAPA 58.01.01.211.

Initial Permit Condition 4.11

The excess emissions provision requires that the permittee follow the procedures required for excess emissions events, in accordance with IDAPA 58.01.01.130-136.

Initial Permit Condition 4.12

The certification provision requires that a responsible official certify all documents submitted to DEQ, in accordance with IDAPA 58.01.01.123.

Initial Permit Condition 4.13

The false statement provision requires that no person make false statements, representations, or certifications, in accordance with IDAPA 58.01.01.125.

Initial Permit Condition 4.14

The tampering provision requires that no person render inaccurate any required monitoring device or method, in accordance with IDAPA 58.01.01.126.

Initial Permit Condition 4.15

The transferability provision specifies that this permit to construct is transferable, in accordance with the procedures of IDAPA 58.01.01.209.06.

Initial Permit Condition 4.16

The severability provision specifies that permit conditions are severable, in accordance with IDAPA 58.01.01.211.

## PUBLIC REVIEW

### *Public Comment Opportunity*

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c or IDAPA 58.01.01.404.01.c. During this time, there were no comments on the application and there was not a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

# APPENDIX A – EMISSIONS INVENTORIES

St Alphonsus Medical Center

**2 MMBtu/hr Hurst Boiler (Source ID B-3,4)**

**Stationary Source: Boiler**

| Boiler Information | | |
|---|---|---|
| Fuel | Natural Gas | |
| Rated Capacity | 2.009 | MMBtu/hr |
| Hours of Operation: | 8760 | hr/yr |
| Heat content of Fuel: | 1020 | Btu/scf |
| Maximum Fuel Consumption: | 0.001970 | $10^6$ scf/hr |
| Fuel | No. 2 Diesel | |
| Rated Capacity | 2.009 | MMBtu/hr |
| Hours of Operation: | 8760 | hr/yr |
| Heat content of Fuel: | 140 MMBtu/Mgal | AP-42 Section 1.3 |
| Maximum Fuel Consumption: | 0.01 Mgal/hr | |
| Sulfur Content | 0.0015 | Percent |

| Emissions-Criteria and GHG | Natural Gas | | | | | No. 2 Diesel | | | | Worst Case Emissions | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pollutant | Emission Factor ($lbs/10^6$ scf) | Emission Factor (lb/MMBtu) | Emission Factor Source | Emission Rate (lbs/hr) | Maximum Potential Emissions (tons/yr) | Emission Factor ($lbs/10^3$ gal) | Emission Factor Source | Emission Rate (lbs/hr) | Potential Emissions (tons/yr) | Emission Rate (lbs/hr) | Maximum Potential Emissions (tons/yr) |
| PM [1] | 7.6 | | AP-42 Table 1.4-2 | 0.01 | 0.07 | 3.3000 | AP-42 Table 1.3-2 and 1.3-6 | 0.05 | 0.21 | 0.05 | 0.21 |
| PM10 [1] | 6.00 | | AP-42 Table 1.4-2 | 0.01 | 0.05 | 2.3000 | AP-42 Table 1.3-2 and 1.3-6 | 0.03 | 0.14 | 0.03 | 0.14 |
| PM2.5 [1] | 3.42 | | AP-42 Table 1.4-2 | 0.01 | 0.03 | 1.5500 | AP-42 Table 1.3-2 and 1.3-6 | 0.02 | 0.10 | 0.02 | 0.10 |
| SOx | 0.6000 | | AP-42 Table 1.4-2 | 0.00 | 0.01 | 0.2130 | AP-42 Table 1.3-1 | 0.00 | 0.01 | 3.06E-03 | 0.01 |
| NOx | 100 | | AP-42 Table 1.4-1 | 0.20 | 0.86 | 20.000 | AP-42 Table 1.3-1 | 0.29 | 1.26 | 0.29 | 1.26 |
| VOC | 5.5 | | AP-42 Table 1.4-2 | 0.01 | 0.05 | 0.34 | AP-42 Table 1.3-3 | 0.00 | 0.02 | 0.01 | 0.05 |
| CO | 84 | | AP-42 Table 1.4-1 | 0.17 | 0.72 | 5.000 | AP-42 Table 1.3-1 | 0.07 | 0.31 | 0.17 | 0.72 |
| CO2 | -- | 116.98 | 40 CFR Part 98 | 235.00 | 1029.32 | 22,827.31 | 40 CFR Part 98 | 327.57 | 1434.76 | 327.57 | 1434.76 |
| CH4 | -- | 2.20E-03 | 40 CFR Part 98 | 0.00 | 0.02 | 0.93 | 40 CFR Part 98 | 0.01 | 0.06 | 0.01 | 0.06 |
| N2O | -- | 2.20E-04 | 40 CFR Part 98 | 0.000 | 0.00 | 0.19 | 40 CFR Part 98 | 0.00 | 0.01 | 0.00 | 0.01 |
| CO2e | -- | -- | -- | 235.25 | 1030.38 | -- | -- | 328.70 | 1439.69 | 328.70 | 1439.69 |

[1] PM10 and PM2.5 are speciated for Natural Gas based on Speciation in App. B from AP-42 for Category 2 (boilers).

| Emissions-HAPs | Natural Gas | | | | | No. 2 Diesel | | | | Worst Case Emissions | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pollutant | Emission Factor ($lbs/10^6$ scf) | Emission Factor (lb/MMBtu) | Emission Factor Source | Emission Rate (lbs/hr) | Emissions (tons/yr) | Emission Factor (lb/1000 gal) | Emission Factor Source | Emission Rate (lbs/hr) | Emissions (tons/yr) | Emission Rate (lbs/hr) | Maximum Potential Emissions (tons/yr) |
| 2-Methylnaphthalene | 2.40E-05 | 2.35E-08 | AP-42 Table 1.4-3 | 4.7E-08 | 2.1E-07 | | - | - | - | 4.73E-08 | 2.07E-07 |
| 3-Methylchloranthene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.6E-08 | | - | - | - | 3.55E-09 | 1.55E-08 |
| 7,12-Dimethylbenz(a)anthracene | 1.60E-05 | 1.57E-08 | AP-42 Table 1.4-3 | 3.2E-08 | 1.4E-07 | | - | - | - | 3.15E-08 | 1.38E-07 |
| Acenaphthene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.6E-08 | 2.11E-05 | AP-42 Table 1.3-9 | 3.03E-07 | 1.3E-06 | 3.03E-07 | 1.33E-06 |
| Acenaphthylene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.6E-08 | 2.53E-07 | AP-42 Table 1.3-9 | 3.63E-09 | 1.6E-08 | 3.63E-09 | 1.59E-08 |
| Anthracene | 2.40E-06 | 2.35E-09 | AP-42 Table 1.4-3 | 4.7E-09 | 2.1E-08 | 1.22E-06 | AP-42 Table 1.3-9 | 1.75E-08 | 7.7E-08 | 1.75E-08 | 7.67E-08 |
| Benz(a)anthracene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.6E-08 | 4.01E-06 | AP-42 Table 1.3-9 | 5.75E-08 | 2.5E-07 | 5.75E-08 | 2.52E-07 |
| Benzene | 2.10E-03 | 2.06E-06 | AP-42 Table 1.4-3 | 4.1E-06 | 1.8E-05 | 2.14E-04 | AP-42 Table 1.3-9 | 3.07E-06 | 1.3E-05 | 4.14E-06 | 1.81E-05 |
| Benzo(a)pyrene | 1.20E-06 | 1.18E-09 | AP-42 Table 1.4-3 | 2.4E-09 | 1.0E-08 | | | | | 2.36E-09 | 1.04E-08 |
| Benzo(b,k)fluoranthene | 3.60E-06 | 3.53E-09 | AP-42 Table 1.4-3 | 7.1E-09 | 3.1E-08 | 1.48E-06 | AP-42 Table 1.3-9 | 2.12E-08 | 9.3E-08 | 2.12E-08 | 9.30E-08 |
| Benzo(g,h,i)perylene | 1.20E-06 | 1.18E-09 | AP-42 Table 1.4-3 | 2.4E-09 | 1.0E-08 | 2.26E-06 | AP-42 Table 1.3-9 | 3.24E-08 | 1.4E-07 | 3.24E-08 | 1.42E-07 |
| Butane | 2.10E+00 | 2.06E-03 | AP-42 Table 1.4-3 | 4.1E-03 | 1.8E-02 | | | | | 4.14E-03 | 1.81E-02 |
| Chrysene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.6E-08 | 2.38E-06 | AP-42 Table 1.3-9 | 3.42E-08 | 1.5E-07 | 3.42E-08 | 1.50E-07 |
| Dibenzo(a,h)anthracene | 1.20E-06 | 1.18E-09 | AP-42 Table 1.4-3 | 2.4E-09 | 1.0E-08 | 1.67E-06 | AP-42 Table 1.3-9 | 2.40E-08 | 1.0E-07 | 2.40E-08 | 1.05E-07 |
| Dichlorobenzene | 1.20E-03 | 1.18E-06 | AP-42 Table 1.4-3 | 2.4E-06 | 1.0E-05 | | - | - | - | 2.36E-06 | 1.04E-05 |
| Ethane | 3.10E+00 | 3.04E-03 | AP-42 Table 1.4-3 | 6.1E-03 | 2.7E-02 | | - | - | - | 6.11E-03 | 2.67E-02 |
| Ethylbenzene | | 0.00E+00 | AP-42 Table 1.4-3 | 0.0E+00 | 0.0E+00 | 6.36E-05 | AP-42 Table 1.3-9 | 9.13E-07 | 4.0E-06 | 9.13E-07 | 4.00E-06 |
| Fluoranthene | 3.00E-06 | 2.94E-09 | AP-42 Table 1.4-3 | 5.9E-09 | 2.6E-08 | 4.84E-06 | AP-42 Table 1.3-9 | 6.95E-08 | 3.0E-07 | 6.95E-08 | 3.04E-07 |
| Fluorene | 2.80E-06 | 2.75E-09 | AP-42 Table 1.4-3 | 5.5E-09 | 2.4E-08 | 4.47E-06 | AP-42 Table 1.3-9 | 6.41E-08 | 2.8E-07 | 6.41E-08 | 2.81E-07 |
| Formaldehyde | 7.50E-02 | 7.35E-05 | AP-42 Table 1.4-3 | 1.5E-04 | 6.5E-04 | 3.30E-02 | AP-42 Table 1.3-9 | 4.74E-04 | 2.1E-03 | 4.74E-04 | 2.07E-03 |
| Hexane | 1.80E+00 | 1.76E-03 | AP-42 Table 1.4-3 | 3.5E-03 | 1.6E-02 | - | - | - | - | 3.55E-03 | 1.55E-02 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.6E-08 | 2.14E-06 | AP-42 Table 1.3-9 | 3.07E-08 | 1.3E-07 | 3.07E-08 | 1.35E-07 |
| Naphthalene | 6.10E-04 | 5.98E-07 | AP-42 Table 1.4-3 | 1.2E-06 | 5.3E-06 | 1.13E-03 | AP-42 Table 1.3-9 | 1.62E-05 | 7.1E-05 | 1.62E-05 | 7.10E-05 |
| Pentane | 2.60E+00 | 2.55E-03 | AP-42 Table 1.4-3 | 5.1E-03 | 2.2E-02 | | - | - | - | 5.12E-03 | 2.24E-02 |
| Phenanthrene | 1.70E-05 | 1.67E-08 | AP-42 Table 1.4-3 | 3.3E-08 | 1.5E-07 | 1.05E-05 | AP-42 Table 1.3-9 | 1.51E-07 | 6.6E-07 | 1.51E-07 | 6.60E-07 |
| Propane | 1.60E+00 | 1.57E-03 | AP-42 Table 1.4-3 | 3.2E-03 | 1.4E-02 | | - | - | - | 3.15E-03 | 1.38E-02 |
| Pyrene | 5.00E-06 | 4.90E-09 | AP-42 Table 1.4-3 | 9.8E-09 | 4.3E-08 | 4.25E-06 | AP-42 Table 1.3-9 | 6.10E-08 | 2.7E-07 | 6.10E-08 | 2.67E-07 |
| 1,1,1-Tricholorethane | | | | | | 2.36E-04 | AP-42 Table 1.3-9 | 3.39E-06 | 1.5E-05 | 3.39E-06 | 1.48E-05 |
| Toluene | 3.40E-03 | 3.33E-06 | AP-42 Table 1.4-3 | 6.7E-06 | 2.9E-05 | 6.20E-03 | AP-42 Table 1.3-9 | 8.90E-05 | 3.9E-04 | 8.90E-05 | 3.90E-04 |
| o-Xylene | | | | | | 1.09E-04 | AP-42 Table 1.3-9 | 1.56E-06 | 6.9E-06 | 1.56E-06 | 6.85E-06 |
| PAH | 6.87E-04 | 6.73E-07 | AP-42 Table 1.4-3 | 1.4E-06 | 5.9E-06 | 1.18E-03 | AP-42 Table 1.3-9 | 1.69E-05 | 7.4E-05 | 1.69E-05 | 7.41E-05 |
| POM* | 1.14E-05 | 1.12E-08 | AP-42 Table 1.4-3 | 2.2E-08 | 9.8E-08 | 1.17E-05 | AP-42 Table 1.3-9 | 1.68E-07 | 7.3E-07 | 1.68E-07 | 7.34E-07 |

| *Metals* | | | | | | (lb/MMBtu/hr) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 2.00E-04 | 1.96E-07 | AP-42 Table 1.4-4 | 3.9E-07 | 1.7E-06 | 4.00E-06 | AP-42 Table 1.3-10 | 8.0E-06 | 3.5E-05 | 8.04E-06 | 3.52E-05 |
| Barium | 4.40E-03 | 4.31E-06 | AP-42 Table 1.4-4 | 8.7E-06 | 3.8E-05 | - | - | - | - | 8.67E-06 | 3.80E-05 |
| Beryllium | 1.20E-05 | 1.18E-08 | AP-42 Table 1.4-4 | 2.4E-08 | 1.0E-07 | 3.00E-06 | AP-42 Table 1.3-10 | 6.0E-06 | 2.6E-05 | 6.03E-06 | 2.64E-05 |
| Cadmium | 1.10E-03 | 1.08E-06 | AP-42 Table 1.4-4 | 2.2E-06 | 9.5E-06 | 3.00E-06 | AP-42 Table 1.3-10 | 6.0E-06 | 2.6E-05 | 6.03E-06 | 2.64E-05 |
| Chromium | 1.40E-03 | 1.37E-06 | AP-42 Table 1.4-4 | 2.8E-06 | 1.2E-05 | 3.00E-06 | AP-42 Table 1.3-10 | 6.0E-06 | 2.6E-05 | 6.03E-06 | 2.64E-05 |
| Cobalt | 8.40E-05 | 8.24E-08 | AP-42 Table 1.4-4 | 1.7E-07 | 7.2E-07 | - | - | - | - | 1.65E-07 | 7.25E-07 |
| Copper | 8.50E-04 | 8.33E-07 | AP-42 Table 1.4-4 | 1.7E-06 | 7.3E-06 | 6.00E-06 | AP-42 Table 1.3-10 | 1.2E-05 | 5.3E-05 | 1.21E-05 | 5.28E-05 |
| Lead | 5.0E-04 | 4.90E-07 | AP-42 Table 1.4-1 | 9.8E-07 | 4.3E-06 | 9.00E-06 | AP-42 Table 1.3-10 | 1.8E-05 | 7.9E-05 | 1.81E-05 | 7.92E-05 |
| Manganese | 3.80E-04 | 3.73E-07 | AP-42 Table 1.4-4 | 7.5E-07 | 3.3E-06 | 6.00E-06 | AP-42 Table 1.3-10 | 1.2E-05 | 5.3E-05 | 1.21E-05 | 5.28E-05 |
| Mercury | 2.60E-04 | 2.55E-07 | AP-42 Table 1.4-4 | 5.1E-07 | 2.2E-06 | 3.00E-06 | AP-42 Table 1.3-10 | 6.0E-06 | 2.6E-05 | 6.03E-06 | 2.64E-05 |
| Molybdenum | 1.10E-03 | 1.08E-06 | AP-42 Table 1.4-4 | 2.2E-06 | 9.5E-06 | - | - | - | - | 2.17E-06 | 9.49E-06 |
| Nickel | 2.10E-03 | 2.06E-06 | AP-42 Table 1.4-4 | 4.1E-06 | 1.8E-05 | 3.00E-06 | AP-42 Table 1.3-10 | 6.0E-06 | 2.6E-05 | 6.03E-06 | 2.64E-05 |
| Selenium | 2.40E-05 | 2.35E-08 | AP-42 Table 1.4-4 | 4.7E-08 | 2.1E-07 | 1.50E-05 | AP-42 Table 1.3-10 | 3.0E-05 | 1.3E-04 | 3.01E-05 | 1.32E-04 |
| Vanadium | 2.30E-03 | 2.25E-06 | AP-42 Table 1.4-4 | 4.5E-06 | 2.0E-05 | - | - | - | - | 4.53E-06 | 1.98E-05 |
| Zinc | 2.90E-02 | 2.84E-05 | AP-42 Table 1.4-4 | 5.7E-05 | 2.5E-04 | 4.00E-06 | AP-42 Table 1.3-10 | 8.0E-06 | 3.5E-05 | 5.71E-05 | 2.50E-04 |
| **Total HAPs** | | | | **0.02** | **0.10** | | | **0.00** | **0.00** | **0.02** | **0.10** |

*POM is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. PAH conservatively includes all other PAHs.

| GHG Emission Factors | | Natural Gas | | No. 2 Diesel | | |
|---|---|---|---|---|---|---|
| Pollutant | Global Warming | EF (kg/MMBtu) | EF (lb/MMBtu) | EF (kg/MMBtu) | EF (lb/MMBtu) | Emission Factor |
| $CO_2$ | 1 | 53.06 | 117.0 | 73.96 | 163.1 | 40 CFR Part 98 Subpart C Table C-1 |
| $CH_4$ | 25 | 1.00E-03 | 2.20E-03 | 3.00E-03 | 6.61E-03 | 40 CFR Part 98 Subpart C Table C-2 |
| $N_2O$ | 298 | 1.00E-04 | 2.20E-04 | 6.00E-04 | 1.32E-03 | 40 CFR Part 98 Subpart C Table C-2 |

St Alphonsus Medical Center

1,600kW Generator (Source ID NEWENG1&2)

Stationary Source: Emergency Generator

| Engine Information | | | |
|---|---|---|---|
| **Assumptions:** | | | **Notes:** |
| Operating Hours | 100 | hr/yr | |
| Kilowatt Rating | 1,600 | kW | |
| Horsepower Rating | 2,346 | hp | BHP |
| Diesel Brake Specific Fuel Consumption (BSFC) | 7,000 | btu/Hp-hr | AP-42 Section 3.3 |
| Diesel Heating Value (HV) | 19,300 | btu/lb | AP-42 Section 3.3 |
| Density of Diesel | 7.05 | lb/gal | AP-42 Appendix A |
| Diesel Throughput | 120.69 | gal/hr | Generator HI / Diesel HV / Density of Diesel * 10^6 |
| Generator Heat Input (HI) | 16.42 | MMbtu/hr | Horsepower Rating * BSFC / 10^6 |
| Sulfur Content | 0.0015 | % | Assuming use of ULSD |

| Emissions | | | | | |
|---|---|---|---|---|---|
| **Pollutant** | **Emission Factor** | **Emission Factor Unit** | **Emission Factor Source** | **Potential Emissions (lb/hr)** | **Potential to Emit (tpy)** |
| PM | 0.17 | g/kW-hr | Tier 2 EPA Certificate Data | 0.60 | 0.03 |
| $PM_{10}$ | 0.16 | g/kW-hr | Tier 2 EPA Certificate Data | 0.58 | 0.03 |
| $PM_{2.5}$ | 0.15 | g/kW-hr | Tier 2 EPA Certificate Data | 0.54 | 0.03 |
| $SO_x$ | 1.52E-03 | lb/MMBtu | AP-42 Table 3.4-1 | 2.49E-02 | 0.001 |
| $NO_x$ | 5.36 | g/kW-hr | Tier 2 EPA Certificate Data | 18.91 | 0.95 |
| CO | 0.6 | g/kW-hr | Tier 2 EPA Certificate Data | 2.12 | 0.11 |
| VOC | 0.56 | g/kW-hr | Tier 2 EPA Certificate Data | 1.98 | 0.10 |
| $CO_2$ | 163.05 | lb/MMBtu | 40 CFR Part 98 | 2,677.64 | 133.88 |
| $CH_4$ | 0.01 | lb/MMBtu | 40 CFR Part 98 | 0.11 | 0.01 |
| $N_2O$ | 0.00 | lb/MMBtu | 40 CFR Part 98 | 0.02 | 0.00 |
| $CO_2e$ | - | - | 40 CFR Part 98 | 2,686.83 | 134.34 |
| *HAPS* | | | | | |
| Acetaldehyde | 7.67E-04 | lb/MMbtu | AP-42 Table 3.3-2 | 1.26E-02 | 3.15E-03 |
| Acrolein | 9.25E-05 | lb/MMbtu | AP-42 Table 3.3-2 | 1.52E-03 | 3.80E-04 |
| Benzene | 9.33E-04 | lb/MMbtu | AP-42 Table 3.3-2 | 1.53E-02 | 3.83E-03 |
| Formaldehyde | 1.18E-03 | lb/MMbtu | AP-42 Table 3.3-2 | 1.94E-02 | 4.84E-03 |
| Naphthalene | 8.48E-05 | lb/MMbtu | AP-42 Table 3.3-2 | 1.39E-03 | 3.48E-04 |
| Toluene | 4.09E-04 | lb/MMbtu | AP-42 Table 3.3-2 | 6.72E-03 | 1.68E-03 |
| Xylenes | 2.85E-04 | lb/MMbtu | AP-42 Table 3.3-2 | 4.68E-03 | 1.17E-03 |
| 1,3-Butadiene | 3.91E-05 | lb/MMbtu | AP-42 Table 3.3-2 | 6.42E-04 | 1.61E-04 |
| Acenaphthylene | 5.06E-06 | lb/MMbtu | AP-42 Table 3.3-2 | 8.31E-05 | 2.08E-05 |
| Acenaphthene | 1.42E-06 | lb/MMbtu | AP-42 Table 3.3-2 | 2.33E-05 | 5.83E-06 |
| Fluorene | 2.92E-05 | lb/MMbtu | AP-42 Table 3.3-2 | 4.80E-04 | 1.20E-04 |
| Phenanthrene | 2.94E-05 | lb/MMbtu | AP-42 Table 3.3-2 | 4.83E-04 | 1.21E-04 |
| Anthracene | 1.87E-06 | lb/MMbtu | AP-42 Table 3.3-2 | 3.07E-05 | 7.68E-06 |
| Fluoranthene | 7.61E-06 | lb/MMbtu | AP-42 Table 3.3-2 | 1.25E-04 | 3.12E-05 |
| Pyrene | 4.78E-06 | lb/MMbtu | AP-42 Table 3.3-2 | 7.85E-05 | 1.96E-05 |
| Benzo(a)anthracene | 1.68E-06 | lb/MMbtu | AP-42 Table 3.3-2 | 2.76E-05 | 6.90E-06 |
| Chrysene | 3.53E-07 | lb/MMbtu | AP-42 Table 3.3-2 | 5.80E-06 | 1.45E-06 |
| Benzo(b)fluoranthene | 9.91E-08 | lb/MMbtu | AP-42 Table 3.3-2 | 1.63E-06 | 4.07E-07 |
| Benzo(k)fluoranthene | 1.55E-07 | lb/MMbtu | AP-42 Table 3.3-2 | 2.55E-06 | 6.36E-07 |
| Benzo(a)pyrene | 1.88E-07 | lb/MMbtu | AP-42 Table 3.3-2 | 3.09E-06 | 7.72E-07 |
| Indeno(123-cd)pyrene | 3.75E-07 | lb/MMbtu | AP-42 Table 3.3-2 | 6.16E-06 | 1.54E-06 |
| Dibenz(a,h)anthracene | 5.83E-07 | lb/MMbtu | AP-42 Table 3.3-2 | 9.57E-06 | 2.39E-06 |
| Benzo(g,h,i)perylene | 4.89E-07 | lb/MMbtu | AP-42 Table 3.3-2 | 8.03E-06 | 2.01E-06 |
| PAH | 1.65E-04 | lb/MMbtu | AP-42 Table 3.3-2 | 2.70E-03 | 6.76E-04 |
| POM* | 3.43E-06 | lb/MMbtu | AP-42 Table 3.3-2 | 5.64E-05 | 1.41E-05 |
| **Total HAPs** | --- | --- | | **6.36E-02** | **1.59E-02** |

Note: $PM_{10}$ and $PM_{2.5}$ are speciated based on Speciation in App. B.2 from AP-42 for Category 1 (Stationary Internal Combustion Engines-gasoline and diesel fuel).

*POM is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. PAH conservatively

| GHG Emissions | | | | |
|---|---|---|---|---|
| **Pollutant** | **Global Warming Potential** | **EF (kg/MMBtu)** | **EF (lb/MMBtu)** | **Emission Factor Source** |
| $CO_2$ | 1 | 73.96 | 163.05 | 40 CFR Part 98 Subpart C Table C-1 |
| $CH_4$ | 25 | 3.00E-03 | 6.61E-03 | 40 CFR Part 98 Subpart C Table C-2 |
| $N_2O$ | 298 | 6.00E-04 | 1.32E-03 | 40 CFR Part 98 Subpart C Table C-2 |

St Alphonsus Medical Center

0.75 MMBtu/hr Condensing Boiler (Source ID C-1)

Stationary Source: Boiler

| Boiler Information | | |
|---|---|---|
| Fuel | Natural Gas | |
| Rated Capacity | 0.750 | MMBtu/hr |
| Hours of Operation: | 8760 | hr/yr |
| Heat content of Fuel: | 1020 | Btu/scf |
| Fuel | No. 2 Diesel | |
| Rated Capacity | 0.750 | MMBtu/hr |
| Hours of Operation: | 8760 | hr/yr |
| Heat content of Fuel: | 140 MMBtu/Mgal | AP-42 Section 1.3 |
| Maximum Fuel Consumption: | 0.01 Mgal/hr | |
| Sulfur Content | 0.0015 | Percent |

| Emissions-Criteria and GHG | Natural Gas | | | | | No. 2 Diesel | | | | Worst Case Emissions | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pollutant | Emission Factor (lbs/$10^6$ scf) | Emission Factor (lb/MMBtu) | Emission Factor Source | Emission Rate (lbs/hr) | Maximum Potential Emissions (tons/yr) | Emission Factor (lb/1000 gal) | Emission Factor Source | Emission Rate (lbs/hr) | Potential Emissions (tons/yr) | Emission Rate (lbs/hr) | Maximum Potential Emissions (tons/yr) |
| PM [1] | 7.6 | 7.45E-03 | AP-42 Table 1.4-2 | 0.01 | 0.02 | 3.3 | AP-42 Table 1.3-2 and 1.3-6 | 0.02 | 0.08 | 0.02 | 0.08 |
| PM10 [1] | 6.00 | 5.89E-03 | AP-42 Table 1.4-2 | 0.00 | 0.02 | 2.3 | AP-42 Table 1.3-2 and 1.3-6 | 0.01 | 0.05 | 0.01 | 0.05 |
| PM2.5 [1] | 3.42 | 3.35E-03 | AP-42 Table 1.4-2 | 0.00 | 0.01 | 1.6 | AP-42 Table 1.3-2 and 1.3-6 | 0.01 | 0.04 | 0.01 | 0.04 |
| SOx | 0.60 | 5.88E-04 | AP-42 Table 1.4-2 | 0.00 | 0.00 | 0.213 | AP-42 Table 1.3-1 | 0.00 | 0.00 | 1.14E-03 | 0.00 |
| NOx | 100 | 9.80E-02 | AP-42 Table 1.4-1 | 0.07 | 0.32 | 20.0 | AP-42 Table 1.3-1 | 0.11 | 0.47 | 0.11 | 0.47 |
| VOC | 5.5 | 5.39E-03 | AP-42 Table 1.4-2 | 0.00 | 0.02 | 0.34 | AP-42 Table 1.3-3 | 0.00 | 0.01 | 0.00 | 0.02 |
| CO | 84 | 8.24E-02 | AP-42 Table 1.4-1 | 0.06 | 0.27 | 5.0 | AP-42 Table 1.3-1 | 0.03 | 0.12 | 0.06 | 0.27 |
| CO2 | -- | 116.98 | 40 CFR Part 98 | 87.73 | 384.27 | 22,827.31 | 40 CFR Part 98 | 122.29 | 535.63 | 122.29 | 535.63 |
| CH4 | -- | 2.20E-03 | 40 CFR Part 98 | 0.00 | 0.01 | 0.93 | 40 CFR Part 98 | 0.00 | 0.02 | 0.00 | 0.02 |
| N2O | -- | 2.20E-04 | 40 CFR Part 98 | 0.000 | 0.00 | 0.19 | 40 CFR Part 98 | 0.00 | 0.00 | 0.00 | 0.00 |
| CO2e | -- | -- | -- | 87.82 | 384.66 | -- | -- | 122.71 | 537.46 | 122.71 | 537.46 |

[1] PM10 and PM2.5 are speciated for Natural Gas based on Speciation in App. B from AP-42 for Category 2 (boilers).

| Emissions-HAPs | Natural Gas | | | | | No. 2 Diesel | | | | Worst Case Emissions | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pollutant | Emission Factor (lbs/$10^6$ scf) | Emission Factor (lb/MMBtu) | Emission Factor Source | Emission Rate (lbs/hr) | Emissions (tons/yr) | Emission Factor (lb/1000 gal) | Emission Factor Source | Emission Rate (lbs/hr) | Emissions (tons/yr) | Emission Rate (lbs/hr) | Maximum Potential Emissions (tons/yr) |
| 2-Methylnaphthalene | 2.40E-05 | 2.35E-08 | AP-42 Table 1.4-3 | 1.8E-08 | 7.7E-08 | | | | | 1.76E-08 | 7.73E-08 |
| 3-Methylchloranthene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 1.3E-09 | 5.8E-09 | | | | | 1.32E-09 | 5.80E-09 |
| 7,12-Dimethylbenz(a)anthracene | 1.60E-05 | 1.57E-08 | AP-42 Table 1.4-3 | 1.2E-08 | 5.2E-08 | | | | | 1.18E-08 | 5.15E-08 |
| Acenaphthene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 1.3E-09 | 5.8E-09 | 2.11E-05 | AP-42 Table 1.3-9 | 1.13E-07 | 5.0E-07 | 1.13E-07 | 4.95E-07 |
| Acenaphthylene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 1.3E-09 | 5.8E-09 | 2.53E-07 | AP-42 Table 1.3-9 | 1.36E-09 | 5.9E-09 | 1.36E-09 | 5.94E-09 |
| Anthracene | 2.40E-06 | 2.35E-09 | AP-42 Table 1.4-3 | 1.8E-09 | 7.7E-09 | 1.22E-06 | AP-42 Table 1.3-9 | 6.54E-09 | 2.9E-08 | 6.54E-09 | 2.86E-08 |
| Benz(a)anthracene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 1.3E-09 | 5.8E-09 | 4.01E-06 | AP-42 Table 1.3-9 | 2.15E-08 | 9.4E-08 | 2.15E-08 | 9.41E-08 |
| Benzene | 2.10E-03 | 2.06E-06 | AP-42 Table 1.4-3 | 1.5E-06 | 6.8E-06 | 2.14E-04 | AP-42 Table 1.3-9 | 1.15E-06 | 5.0E-06 | 1.54E-06 | 6.76E-06 |
| Benzo(a)pyrene | 1.20E-06 | 1.18E-09 | AP-42 Table 1.4-3 | 8.8E-10 | 3.9E-09 | | | | | 8.82E-10 | 3.86E-09 |
| Benzo(b,k)fluoranthene | 3.60E-06 | 3.53E-09 | AP-42 Table 1.4-3 | 2.6E-09 | 1.2E-08 | 1.48E-06 | AP-42 Table 1.3-9 | 7.93E-09 | 3.5E-08 | 7.93E-09 | 3.47E-08 |
| Benzo(g,h,i)perylene | 1.20E-06 | 1.18E-09 | AP-42 Table 1.4-3 | 8.8E-10 | 3.9E-09 | 2.26E-06 | AP-42 Table 1.3-9 | 1.21E-08 | 5.3E-08 | 1.21E-08 | 5.30E-08 |
| Butane | 2.10E+00 | 2.06E-03 | AP-42 Table 1.4-3 | 1.5E-03 | 6.8E-03 | | | | | 1.54E-03 | 6.76E-03 |
| Chrysene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 1.3E-09 | 5.8E-09 | 2.38E-06 | AP-42 Table 1.3-9 | 1.28E-08 | 5.6E-08 | 1.28E-08 | 5.58E-08 |
| Dibenzo(a,h)anthracene | 1.20E-06 | 1.18E-09 | AP-42 Table 1.4-3 | 8.8E-10 | 3.9E-09 | 1.67E-06 | AP-42 Table 1.3-9 | 8.95E-09 | 3.9E-08 | 8.95E-09 | 3.92E-08 |
| Dichlorobenzene | 1.20E-03 | 1.18E-06 | AP-42 Table 1.4-3 | 8.8E-07 | 3.9E-06 | | - | - | - | 8.82E-07 | 3.86E-06 |
| Ethane | 3.10E+00 | 3.04E-03 | AP-42 Table 1.4-3 | 2.3E-03 | 1.0E-02 | | | | | 2.28E-03 | 9.98E-03 |
| Ethylbenzene | | | | | | 6.36E-05 | AP-42 Table 1.3-9 | 3.41E-07 | 1.5E-06 | 3.41E-07 | 1.49E-06 |
| Fluoranthene | 3.00E-06 | 2.94E-09 | AP-42 Table 1.4-3 | 2.2E-09 | 9.7E-09 | 4.84E-06 | AP-42 Table 1.3-9 | 2.59E-08 | 1.1E-07 | 2.59E-08 | 1.14E-07 |
| Fluorene | 2.80E-06 | 2.75E-09 | AP-42 Table 1.4-3 | 2.1E-09 | 9.0E-09 | 4.47E-06 | AP-42 Table 1.3-9 | 2.39E-08 | 1.0E-07 | 2.39E-08 | 1.05E-07 |
| Formaldehyde | 7.50E-02 | 7.35E-05 | AP-42 Table 1.4-3 | 5.5E-05 | 2.4E-04 | 3.30E-02 | AP-42 Table 1.3-9 | 1.77E-04 | 7.7E-04 | 1.77E-04 | 7.74E-04 |
| Hexane | 1.80E+00 | 1.76E-03 | AP-42 Table 1.4-3 | 1.3E-03 | 5.8E-03 | - | - | - | - | 1.32E-03 | 5.80E-03 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 1.3E-09 | 5.8E-09 | 2.14E-06 | AP-42 Table 1.3-9 | 1.15E-08 | 5.0E-08 | 1.15E-08 | 5.02E-08 |
| Naphthalene | 6.10E-04 | 5.98E-07 | AP-42 Table 1.4-3 | 4.5E-07 | 2.0E-06 | 1.13E-03 | AP-42 Table 1.3-9 | 6.05E-06 | 2.7E-05 | 6.05E-06 | 2.65E-05 |
| Pentane | 2.60E+00 | 2.55E-03 | AP-42 Table 1.4-3 | 1.9E-03 | 8.4E-03 | | | | | 1.91E-03 | 8.37E-03 |
| Phenanthrene | 1.70E-05 | 1.67E-08 | AP-42 Table 1.4-3 | 1.3E-08 | 5.5E-08 | 1.05E-05 | AP-42 Table 1.3-9 | 5.63E-08 | 2.5E-07 | 5.63E-08 | 2.46E-07 |
| Propane | 1.60E+00 | 1.57E-03 | AP-42 Table 1.4-3 | 1.2E-03 | 5.2E-03 | | | | | 1.18E-03 | 5.15E-03 |
| Pyrene | 5.00E-06 | 4.90E-09 | AP-42 Table 1.4-3 | 3.7E-09 | 1.6E-08 | 4.25E-06 | AP-42 Table 1.3-9 | 2.28E-08 | 1.0E-07 | 2.28E-08 | 9.97E-08 |
| 1,1,1-Trichloroethane | | | | | | 2.36E-04 | AP-42 Table 1.3-9 | 1.26E-06 | 5.5E-06 | 1.26E-06 | 5.54E-06 |
| Toluene | 3.40E-03 | 3.33E-06 | AP-42 Table 1.4-3 | 2.5E-06 | 1.1E-05 | 6.20E-03 | AP-42 Table 1.3-9 | 3.32E-05 | 1.5E-04 | 3.32E-05 | 1.45E-04 |
| o-Xylene | | | | | | 1.09E-04 | AP-42 Table 1.3-9 | 5.84E-07 | 2.6E-06 | 5.84E-07 | 2.56E-06 |
| PAH | 6.87E-04 | 6.73E-07 | AP-42 Table 1.4-3 | 5.1E-07 | 2.2E-06 | 1.18E-03 | AP-42 Table 1.3-9 | 6.32E-06 | 2.8E-05 | 6.32E-06 | 2.77E-05 |
| POM* | 1.14E-05 | 1.12E-08 | AP-42 Table 1.4-3 | 8.4E-09 | 3.7E-08 | 1.00E-05 | AP-42 Table 1.3-9 | 5.36E-08 | 2.3E-07 | 5.36E-08 | 2.35E-07 |
| *Metals* | | | | | | (lb/MMBtu/hr) | | | | | |
| Arsenic | 2.00E-04 | 1.96E-07 | AP-42 Table 1.4-4 | 1.5E-07 | 6.4E-07 | 4.00E-06 | AP-42 Table 1.3-10 | 3.0E-06 | 1.3E-05 | 3.00E-06 | 1.31E-05 |
| Barium | 4.40E-03 | 4.31E-06 | AP-42 Table 1.4-4 | 3.2E-06 | 1.4E-05 | | | | | 3.24E-06 | 1.42E-05 |
| Beryllium | 1.20E-05 | 1.18E-08 | AP-42 Table 1.4-4 | 8.8E-09 | 3.9E-08 | 3.00E-06 | AP-42 Table 1.3-10 | 2.3E-06 | 9.9E-06 | 2.25E-06 | 9.86E-06 |
| Cadmium | 1.10E-03 | 1.08E-06 | AP-42 Table 1.4-4 | 8.1E-07 | 3.5E-06 | 3.00E-06 | AP-42 Table 1.3-10 | 2.3E-06 | 9.9E-06 | 2.25E-06 | 9.86E-06 |
| Chromium | 1.40E-03 | 1.37E-06 | AP-42 Table 1.4-4 | 1.0E-06 | 4.5E-06 | 3.00E-06 | AP-42 Table 1.3-10 | 2.3E-06 | 9.9E-06 | 2.25E-06 | 9.86E-06 |
| Cobalt | 8.40E-05 | 8.24E-08 | AP-42 Table 1.4-4 | 6.2E-08 | 2.7E-07 | - | - | - | - | 6.18E-08 | 2.71E-07 |
| Copper | 8.50E-04 | 8.33E-07 | AP-42 Table 1.4-4 | 6.3E-07 | 2.7E-06 | 6.00E-06 | AP-42 Table 1.3-10 | 4.5E-06 | 2.0E-05 | 4.50E-06 | 1.97E-05 |
| Lead | 5.0E-04 | 4.90E-07 | AP-42 Table 1.4-1 | 3.7E-07 | 1.6E-06 | 9.00E-06 | AP-42 Table 1.3-10 | 6.8E-06 | 3.0E-05 | 6.75E-06 | 2.96E-05 |
| Manganese | 3.80E-04 | 3.73E-07 | AP-42 Table 1.4-4 | 2.8E-07 | 1.2E-06 | 6.00E-06 | AP-42 Table 1.3-10 | 4.5E-06 | 2.0E-05 | 4.50E-06 | 1.97E-05 |
| Mercury | 2.60E-04 | 2.55E-07 | AP-42 Table 1.4-4 | 1.9E-07 | 8.4E-07 | 3.00E-06 | AP-42 Table 1.3-10 | 2.3E-06 | 9.9E-06 | 2.25E-06 | 9.86E-06 |
| Molybdenum | 1.10E-03 | 1.08E-06 | AP-42 Table 1.4-4 | 8.1E-07 | 3.5E-06 | | | | | 8.09E-07 | 3.54E-06 |
| Nickel | 2.10E-03 | 2.06E-06 | AP-42 Table 1.4-4 | 1.5E-06 | 6.8E-06 | 3.00E-06 | AP-42 Table 1.3-10 | 2.3E-06 | 9.9E-06 | 2.25E-06 | 9.86E-06 |
| Selenium | 2.40E-05 | 2.35E-08 | AP-42 Table 1.4-4 | 1.8E-08 | 7.7E-08 | 1.50E-05 | AP-42 Table 1.3-10 | 1.1E-05 | 4.9E-05 | 1.13E-05 | 4.93E-05 |
| Vanadium | 2.30E-03 | 2.25E-06 | AP-42 Table 1.4-4 | 1.7E-06 | 7.4E-06 | | | | | 1.69E-06 | 7.41E-06 |
| Zinc | 2.90E-02 | 2.84E-05 | AP-42 Table 1.4-4 | 2.1E-05 | 9.3E-05 | 4.00E-06 | AP-42 Table 1.3-10 | 3.0E-06 | 1.3E-05 | 2.13E-05 | 9.34E-05 |
| Total HAPs | | | | 0.01 | 0.04 | | | 0.00 | 0.00 | 0.01 | 0.04 |

*POM is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. PAH conservatively includes all other PAHs.

| GHG Emission Factors | | Natural Gas | | No. 2 Diesel | | |
|---|---|---|---|---|---|---|
| Pollutant | Global Warming | EF (kg/MMBtu) | EF (lb/MMBtu) | EF (kg/MMBtu) | EF (lb/MMBtu) | Emission Factor |
| $CO_2$ | 1 | 53.06 | 117.0 | 73.96 | 163.1 | 40 CFR Part 98 Subpart C Table C-1 |
| $CH_4$ | 25 | 1.00E-03 | 2.20E-03 | 3.00E-03 | 6.61E-03 | 40 CFR Part 98 Subpart C Table C-2 |
| $N_2O$ | 298 | 1.00E-04 | 2.20E-04 | 6.00E-04 | 1.32E-03 | 40 CFR Part 98 Subpart C Table C-2 |

St Alphonsus Medical Center
2 MMBtu/hr Noncondensing Boiler (Source ID NC-1,2)
Stationary Source: Boiler

| Boiler Information | | |
|---|---|---|
| Fuel | Natural Gas | |
| Rated Capacity | 2.000 | MMBtu/hr |
| Hours of Operation: | 8760 | hr/yr |
| Heat content of Fuel: | 1020 | Btu/scf |
| Fuel | No. 2 Diesel | |
| Rated Capacity | 2.000 | MMBtu/hr |
| Hours of Operation: | 8760 | hr/yr |
| Heat content of Fuel: | 140 MMBtu/Mgal | AP-42 Section 1.3 |
| Maximum Fuel Consumption: | 0.01 Mgal/hr | |
| Sulfur Content | 0.0015 | Percent |

| Emissions-Criteria and GHG | Natural Gas | | | | | No. 2 Diesel | | | | Worst Case Emissions | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pollutant | Emission Factor (lbs/$10^6$ scf) | Emission Factor (lb/MMBtu) | Emission Factor Source | Emission Rate (lbs/hr) | Maximum Potential Emissions (tons/yr) | Emission Factor (lb/1000 gal) | Emission Factor Source | Emission Rate (lbs/hr) | Potential Emissions (tons/yr) | Emission Rate (lbs/hr) | Maximum Potential Emissions (tons/yr) |
| PM [1] | 7.6 | 7.45E-03 | AP-42 Table 1.4-2 | 0.01 | 0.07 | 3.3 | AP-42 Table 1.3-2 and 1.3-6 | 0.05 | 0.21 | 0.05 | 0.21 |
| PM10 [1] | 6.00 | 5.88E-03 | AP-42 Table 1.4-2 | 0.01 | 0.05 | 2.3 | AP-42 Table 1.3-2 and 1.3-6 | 0.03 | 0.14 | 0.03 | 0.14 |
| PM2.5 [1] | 3.42 | 3.35E-03 | AP-42 Table 1.4-2 | 0.01 | 0.03 | 1.6 | AP-42 Table 1.3-2 and 1.3-6 | 0.02 | 0.10 | 0.02 | 0.10 |
| SOx | 0.60 | 5.88E-04 | AP-42 Table 1.4-2 | 0.00 | 0.01 | 0.213 | AP-42 Table 1.3-1 | 0.00 | 0.01 | 3.04E-03 | 0.01 |
| NOx | 100 | 9.80E-02 | AP-42 Table 1.4-1 | 0.20 | 0.86 | 20.0 | AP-42 Table 1.3-1 | 0.29 | 1.25 | 0.29 | 1.25 |
| VOC | 5.5 | 5.39E-03 | AP-42 Table 1.4-2 | 0.01 | 0.05 | 0.34 | AP-42 Table 1.3-3 | 0.00 | 0.02 | 0.01 | 0.05 |
| CO | 84 | 8.24E-02 | AP-42 Table 1.4-1 | 0.16 | 0.72 | 5.0 | AP-42 Table 1.3-1 | 0.07 | 0.31 | 0.16 | 0.72 |
| CO2 | -- | 116.98 | 40 CFR Part 98 | 233.95 | 1024.71 | 22,827.31 | 40 CFR Part 98 | 326.10 | 1428.34 | 326.10 | 1428.34 |
| CH4 | -- | 2.20E-03 | 40 CFR Part 98 | 0.00 | 0.02 | 0.93 | 40 CFR Part 98 | 0.01 | 0.06 | 0.01 | 0.06 |
| N2O | -- | 2.20E-04 | 40 CFR Part 98 | 0.000 | 0.00 | 0.19 | 40 CFR Part 98 | 0.00 | 0.01 | 0.00 | 0.01 |
| CO2e | -- | -- | -- | 234.19 | 1025.77 | -- | -- | 327.22 | 1433.24 | 327.22 | 1433.24 |

[1] PM10 and PM2.5 are speciated for Natural Gas based on Speciation in App. B from AP-42 for Category 2 (boilers).

| Emissions-HAPs | Natural Gas | | | | | No. 2 Diesel | | | | Worst Case Emissions | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pollutant | Emission Factor (lbs/$10^6$ scf) | Emission Factor (lb/MMBtu) | Emission Factor Source | Emission Rate (lbs/hr) | Emissions (tons/yr) | Emission Factor (lb/1000 gal) | Emission Factor Source | Emission Rate (lbs/hr) | Emissions (tons/yr) | Emission Rate (lbs/hr) | Maximum Potential Emissions (tons/yr) |
| 2-Methylnaphthalene | 2.40E-05 | 2.35E-08 | AP-42 Table 1.4-3 | 4.7E-08 | 2.1E-07 | | | | | 4.71E-08 | 2.06E-07 |
| 3-Methylchloranthene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.5E-08 | | | | | 3.53E-09 | 1.55E-08 |
| 7,12-Dimethylbenz(a)anthracene | 1.60E-05 | 1.57E-08 | AP-42 Table 1.4-3 | 3.1E-08 | 1.4E-07 | | | | | 3.14E-08 | 1.37E-07 |
| Acenaphthene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.5E-08 | 2.11E-05 | AP-42 Table 1.3-9 | 3.01E-07 | 1.3E-06 | 3.01E-07 | 1.32E-06 |
| Acenaphthylene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.5E-08 | 2.53E-07 | AP-42 Table 1.3-9 | 3.61E-09 | 1.6E-08 | 3.61E-09 | 1.58E-08 |
| Anthracene | 2.40E-06 | 2.35E-09 | AP-42 Table 1.4-3 | 4.7E-09 | 2.1E-08 | 1.22E-06 | AP-42 Table 1.3-9 | 1.74E-08 | 7.6E-08 | 1.74E-08 | 7.63E-08 |
| Benz[a]anthracene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.5E-08 | 4.01E-06 | AP-42 Table 1.3-9 | 5.73E-08 | 2.5E-07 | 5.73E-08 | 2.51E-07 |
| Benzene | 2.10E-03 | 2.06E-06 | AP-42 Table 1.4-3 | 4.1E-06 | 1.8E-05 | 2.14E-04 | AP-42 Table 1.3-9 | 3.06E-06 | 1.3E-05 | 4.12E-06 | 1.80E-05 |
| Benzo(a)pyrene | 1.20E-06 | 1.18E-09 | AP-42 Table 1.4-3 | 2.4E-09 | 1.0E-08 | | | | | 2.35E-09 | 1.03E-08 |
| Benzo(b,k)fluoranthene | 3.60E-06 | 3.53E-09 | AP-42 Table 1.4-3 | 7.1E-09 | 3.1E-08 | 1.48E-06 | AP-42 Table 1.3-9 | 2.11E-08 | 9.3E-08 | 2.11E-08 | 9.26E-08 |
| Benzo(g,h,i)perylene | 1.20E-06 | 1.18E-09 | AP-42 Table 1.4-3 | 2.4E-09 | 1.0E-08 | 2.26E-06 | AP-42 Table 1.3-9 | 3.23E-08 | 1.4E-07 | 3.23E-08 | 1.41E-07 |
| Butane | 2.10E+00 | 2.06E-03 | AP-42 Table 1.4-3 | 4.1E-03 | 1.8E-02 | | | | | 4.12E-03 | 1.80E-02 |
| Chrysene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.5E-08 | 2.38E-06 | AP-42 Table 1.3-9 | 3.40E-08 | 1.5E-07 | 3.40E-08 | 1.49E-07 |
| Dibenzo(a,h)anthracene | 1.20E-06 | 1.18E-09 | AP-42 Table 1.4-3 | 2.4E-09 | 1.0E-08 | 1.67E-06 | AP-42 Table 1.3-9 | 2.39E-08 | 1.0E-07 | 2.39E-08 | 1.04E-07 |
| Dichlorobenzene | 1.20E-03 | 1.18E-06 | AP-42 Table 1.4-3 | 2.4E-06 | 1.0E-05 | | - | - | - | 2.35E-06 | 1.03E-05 |
| Ethane | 3.10E+00 | 3.04E-03 | AP-42 Table 1.4-3 | 6.1E-03 | 2.7E-02 | | | | | 6.08E-03 | 2.66E-02 |
| Ethylbenzene | | | | | | 6.36E-05 | AP-42 Table 1.3-9 | 9.09E-07 | 4.0E-06 | 9.09E-07 | 3.98E-06 |
| Fluoranthene | 3.00E-06 | 2.94E-09 | AP-42 Table 1.4-3 | 5.9E-09 | 2.6E-08 | 4.84E-06 | AP-42 Table 1.3-9 | 6.91E-08 | 3.0E-07 | 6.91E-08 | 3.03E-07 |
| Fluorene | 2.80E-06 | 2.75E-09 | AP-42 Table 1.4-3 | 5.5E-09 | 2.4E-08 | 4.47E-06 | AP-42 Table 1.3-9 | 6.39E-08 | 2.8E-07 | 6.39E-08 | 2.80E-07 |
| Formaldehyde | 7.50E-02 | 7.35E-05 | AP-42 Table 1.4-3 | 1.5E-04 | 6.4E-04 | 3.30E-02 | AP-42 Table 1.3-9 | 4.71E-04 | 2.1E-03 | 4.71E-04 | 2.06E-03 |
| Hexane | 1.80E+00 | 1.76E-03 | AP-42 Table 1.4-3 | 3.5E-03 | 1.5E-02 | - | - | - | - | 3.53E-03 | 1.55E-02 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.5E-08 | 2.14E-06 | AP-42 Table 1.3-9 | 3.06E-08 | 1.3E-07 | 3.06E-08 | 1.34E-07 |
| Naphthalene | 6.10E-04 | 5.98E-07 | AP-42 Table 1.4-3 | 1.2E-06 | 5.2E-06 | 1.13E-03 | AP-42 Table 1.3-9 | 1.61E-05 | 7.1E-05 | 1.61E-05 | 7.07E-05 |
| Pentane | 2.60E+00 | 2.55E-03 | AP-42 Table 1.4-3 | 5.1E-03 | 2.2E-02 | | | | | 5.10E-03 | 2.23E-02 |
| Phenanthrene | 1.70E-05 | 1.67E-08 | AP-42 Table 1.4-3 | 3.3E-08 | 1.5E-07 | 1.05E-05 | AP-42 Table 1.3-9 | 1.50E-07 | 6.6E-07 | 1.50E-07 | 6.57E-07 |
| Propane | 1.60E+00 | 1.57E-03 | AP-42 Table 1.4-3 | 3.1E-03 | 1.4E-02 | | | | | 3.14E-03 | 1.37E-02 |
| Pyrene | 5.00E-06 | 4.90E-09 | AP-42 Table 1.4-3 | 9.8E-09 | 4.3E-08 | 4.25E-06 | AP-42 Table 1.3-9 | 6.07E-08 | 2.7E-07 | 6.07E-08 | 2.66E-07 |
| 1,1,1-Trichloroethane | | | | | | 2.36E-04 | AP-42 Table 1.3-9 | 3.37E-06 | 1.5E-05 | 3.37E-06 | 1.48E-05 |
| Toluene | 3.40E-03 | 3.33E-06 | AP-42 Table 1.4-3 | 6.7E-06 | 2.9E-05 | 6.20E-03 | AP-42 Table 1.3-9 | 8.86E-05 | 3.9E-04 | 8.86E-05 | 3.88E-04 |
| o-Xylene | | | | | | 1.09E-04 | AP-42 Table 1.3-9 | 1.56E-06 | 6.8E-06 | 1.56E-06 | 6.82E-06 |
| PAH | 6.87E-04 | 6.73E-07 | AP-42 Table 1.4-3 | 1.3E-06 | 5.9E-06 | 1.18E-03 | AP-42 Table 1.3-9 | 1.68E-05 | 7.4E-05 | 1.68E-05 | 7.38E-05 |
| POM* | 1.14E-05 | 1.12E-08 | AP-42 Table 1.4-3 | 2.2E-08 | 9.8E-08 | 1.17E-05 | AP-42 Table 1.3-9 | 1.67E-07 | 7.3E-07 | 1.67E-07 | 7.31E-07 |
| *Metals* | | | | | | (lb/MMBtu) | | | | | |
| Arsenic | 2.00E-04 | 1.96E-07 | AP-42 Table 1.4-4 | 3.9E-07 | 1.7E-06 | 4.00E-06 | AP-42 Table 1.3-10 | 8.0E-06 | 3.5E-05 | 8.00E-06 | 3.50E-05 |
| Barium | 4.40E-03 | 4.31E-06 | AP-42 Table 1.4-4 | 8.6E-06 | 3.8E-05 | | | | | 8.63E-06 | 3.78E-05 |
| Beryllium | 1.20E-05 | 1.18E-08 | AP-42 Table 1.4-4 | 2.4E-08 | 1.0E-07 | 3.00E-06 | AP-42 Table 1.3-10 | 6.0E-06 | 2.6E-05 | 6.00E-06 | 2.63E-05 |
| Cadmium | 1.10E-03 | 1.08E-06 | AP-42 Table 1.4-4 | 2.2E-06 | 9.4E-06 | 3.00E-06 | AP-42 Table 1.3-10 | 6.0E-06 | 2.6E-05 | 6.00E-06 | 2.63E-05 |
| Chromium | 1.40E-03 | 1.37E-06 | AP-42 Table 1.4-4 | 2.7E-06 | 1.2E-05 | 3.00E-06 | AP-42 Table 1.3-10 | 6.0E-06 | 2.6E-05 | 6.00E-06 | 2.63E-05 |
| Cobalt | 8.40E-05 | 8.24E-08 | AP-42 Table 1.4-4 | 1.6E-07 | 7.2E-07 | - | - | - | - | 1.65E-07 | 7.21E-07 |
| Copper | 8.50E-04 | 8.33E-07 | AP-42 Table 1.4-4 | 1.7E-06 | 7.3E-06 | 6.00E-06 | AP-42 Table 1.3-10 | 1.2E-05 | 5.3E-05 | 1.20E-05 | 5.26E-05 |
| Lead | 5.0E-04 | 4.90E-07 | AP-42 Table 1.4-1 | 9.8E-07 | 4.3E-06 | 9.00E-06 | AP-42 Table 1.3-10 | 1.8E-05 | 7.9E-05 | 1.80E-05 | 7.88E-05 |
| Manganese | 3.80E-04 | 3.73E-07 | AP-42 Table 1.4-4 | 7.5E-07 | 3.3E-06 | 6.00E-06 | AP-42 Table 1.3-10 | 1.2E-05 | 5.3E-05 | 1.20E-05 | 5.26E-05 |
| Mercury | 2.60E-04 | 2.55E-07 | AP-42 Table 1.4-4 | 5.1E-07 | 2.2E-06 | 3.00E-06 | AP-42 Table 1.3-10 | 6.0E-06 | 2.6E-05 | 6.00E-06 | 2.63E-05 |
| Molybdenum | 1.10E-03 | 1.08E-06 | AP-42 Table 1.4-4 | 2.2E-06 | 9.4E-06 | | | | | 2.16E-06 | 9.45E-06 |
| Nickel | 2.10E-03 | 2.06E-06 | AP-42 Table 1.4-4 | 4.1E-06 | 1.8E-05 | 3.00E-06 | AP-42 Table 1.3-10 | 6.0E-06 | 2.6E-05 | 6.00E-06 | 2.63E-05 |
| Selenium | 2.40E-05 | 2.35E-08 | AP-42 Table 1.4-4 | 4.7E-08 | 2.1E-07 | 1.50E-05 | AP-42 Table 1.3-10 | 3.0E-05 | 1.3E-04 | 3.00E-05 | 1.31E-04 |
| Vanadium | 2.30E-03 | 2.25E-06 | AP-42 Table 1.4-4 | 4.5E-06 | 2.0E-05 | | | | | 4.51E-06 | 1.98E-05 |
| Zinc | 2.90E-02 | 2.84E-05 | AP-42 Table 1.4-4 | 5.7E-05 | 2.5E-04 | 4.00E-06 | AP-42 Table 1.3-10 | 8.0E-06 | 3.5E-05 | 5.69E-05 | 2.49E-04 |
| Total HAPs | | | | 0.02 | 0.10 | | | 0.00 | 0.00 | 0.02 | 0.10 |

*POM is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. PAH conservatively includes all other PAHs.

| GHG Emission Factors | Natural Gas | | | No. 2 Diesel | | |
|---|---|---|---|---|---|---|
| Pollutant | Global Warming | EF (kg/MMBtu) | EF (lb/MMBtu) | EF (kg/MMBtu) | EF (lb/MMBtu) | Emission Factor |
| $CO_2$ | 1 | 53.06 | 117.0 | 73.96 | 163.1 | 40 CFR Part 98 Subpart C Table C-1 |
| $CH_4$ | 25 | 1.00E-03 | 2.20E-03 | 3.00E-03 | 6.61E-03 | 40 CFR Part 98 Subpart C Table C-2 |
| $N_2O$ | 298 | 1.00E-04 | 2.20E-04 | 6.00E-04 | 1.32E-03 | 40 CFR Part 98 Subpart C Table C-2 |

St Alphonsus Medical Center

**1.35 MMBtu/hr Boiler Emissions (Source ID K-1)**

**Stationary Source: Boiler**

| Boiler Information | | |
|---|---|---|
| Fuel | Natural Gas | |
| Rated Capacity | 1.350 | MMBtu/hr |
| Hours of Operation: | 8760 | hr/yr |
| Heat content of Fuel: | 1020 | Btu/scf |

| Emissions-Criteria and GHG | Natural Gas | | | | |
|---|---|---|---|---|---|
| Pollutant | Emission Factor (lbs/$10^6$ scf) | Emission Factor (lb/MMBtu) | Emission Factor Source | Emission Rate (lbs/hr) | Maximum Potential Emissions (tons/yr) |
| PM [1] | 7.6 | 7.45E-03 | AP-42 Table 1.4-2 | 0.01 | 0.04 |
| PM10 [1] | 6.004 | 5.89E-03 | AP-42 Table 1.4-2 | 0.01 | 0.03 |
| PM2.5 [1] | 3.42 | 3.35E-03 | AP-42 Table 1.4-2 | 0.00 | 0.02 |
| SOx | 0.60 | 5.88E-04 | AP-42 Table 1.4-2 | 7.94E-04 | 0.00 |
| NOx | 100 | 9.80E-02 | AP-42 Table 1.4-1 | 0.13 | 0.58 |
| VOC | 5.5 | 5.39E-03 | AP-42 Table 1.4-2 | 0.01 | 0.03 |
| CO | 84 | 8.24E-02 | AP-42 Table 1.4-1 | 0.11 | 0.49 |
| CO2 | -- | 116.98 | 40 CFR Part 98 | 157.92 | 691.68 |
| CH4 | -- | 2.20E-03 | 40 CFR Part 98 | 0.00 | 0.01 |
| N2O | -- | 2.20E-04 | 40 CFR Part 98 | 0.000 | 0.00 |
| CO2e | -- | -- | -- | 158.08 | 692.39 |

[1] PM10 and PM2.5 are speciated based on Speciation in App. B.2 from AP-42 for Category 2 (boilers).

| Emissions-HAPs | Natural Gas | | | | |
|---|---|---|---|---|---|
| Pollutant | Emission Factor (lbs/$10^6$ scf) | Emission Factor (lb/MMBtu) | Emission Factor Source | Emission Rate (lbs/hr) | Emissions (tons/yr) |
| 2-Methylnaphthalene | 2.40E-05 | 2.35E-08 | AP-42 Table 1.4-3 | 3.2E-08 | 1.4E-07 |
| 3-Methylchloranthene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 2.4E-09 | 1.0E-08 |
| 7,12-Dimethylbenz(a)anthracene | 1.60E-05 | 1.57E-08 | AP-42 Table 1.4-3 | 2.1E-08 | 9.3E-08 |
| Acenaphthene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 2.4E-09 | 1.0E-08 |
| Acenaphthylene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 2.4E-09 | 1.0E-08 |
| Anthracene | 2.40E-06 | 2.35E-09 | AP-42 Table 1.4-3 | 3.2E-09 | 1.4E-08 |
| Benz(a)anthracene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 2.4E-09 | 1.0E-08 |
| Benzene | 2.10E-03 | 2.06E-06 | AP-42 Table 1.4-3 | 2.8E-06 | 1.2E-05 |
| Benzo(a)pyrene | 1.20E-06 | 1.18E-09 | AP-42 Table 1.4-3 | 1.6E-09 | 7.0E-09 |
| Benzo(b,k)fluoranthene | 3.60E-06 | 3.53E-09 | AP-42 Table 1.4-3 | 4.8E-09 | 2.1E-08 |
| Benzo(g,h,i)perylene | 1.20E-06 | 1.18E-09 | AP-42 Table 1.4-3 | 1.6E-09 | 7.0E-09 |
| Butane | 2.10E+00 | 2.06E-03 | AP-42 Table 1.4-3 | 2.8E-03 | 1.2E-02 |
| Chrysene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 2.4E-09 | 1.0E-08 |
| Dibenzo(a,h)anthracene | 1.20E-06 | 1.18E-09 | AP-42 Table 1.4-3 | 1.6E-09 | 7.0E-09 |
| Dichlorobenzene | 1.20E-03 | 1.18E-06 | AP-42 Table 1.4-3 | 1.6E-06 | 7.0E-06 |
| Ethane | 3.10E+00 | 3.04E-03 | AP-42 Table 1.4-3 | 4.1E-03 | 1.8E-02 |
| Fluoranthene | 3.00E-06 | 2.94E-09 | AP-42 Table 1.4-3 | 4.0E-09 | 1.7E-08 |
| Fluorene | 2.80E-06 | 2.75E-09 | AP-42 Table 1.4-3 | 3.7E-09 | 1.6E-08 |
| Formaldehyde | 7.50E-02 | 7.35E-05 | AP-42 Table 1.4-3 | 9.9E-05 | 4.3E-04 |
| Hexane | 1.80E+00 | 1.76E-03 | AP-42 Table 1.4-3 | 2.4E-03 | 1.0E-02 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 2.4E-09 | 1.0E-08 |
| Naphthalene | 6.10E-04 | 5.98E-07 | AP-42 Table 1.4-3 | 8.1E-07 | 3.5E-06 |
| Pentane | 2.60E+00 | 2.55E-03 | AP-42 Table 1.4-3 | 3.4E-03 | 1.5E-02 |
| Phenanthrene | 1.70E-05 | 1.67E-08 | AP-42 Table 1.4-3 | 2.3E-08 | 9.9E-08 |
| Propane | 1.60E+00 | 1.57E-03 | AP-42 Table 1.4-3 | 2.1E-03 | 9.3E-03 |
| Pyrene | 5.00E-06 | 4.90E-09 | AP-42 Table 1.4-3 | 6.6E-09 | 2.9E-08 |
| Toluene | 3.40E-03 | 3.33E-06 | AP-42 Table 1.4-3 | 4.5E-06 | 2.0E-05 |
| PAH | 6.87E-04 | 6.73E-07 | AP-42 Table 1.4-3 | 9.1E-07 | 4.0E-06 |
| POM* | 1.14E-05 | 1.12E-08 | AP-42 Table 1.4-3 | 1.5E-08 | 6.6E-08 |
| ***Metals*** | | | | | |
| Arsenic | 2.00E-04 | 1.96E-07 | AP-42 Table 1.4-4 | 2.6E-07 | 1.2E-06 |
| Barium | 4.40E-03 | 4.31E-06 | AP-42 Table 1.4-4 | 5.8E-06 | 2.6E-05 |
| Beryllium | 1.20E-05 | 1.18E-08 | AP-42 Table 1.4-4 | 1.6E-08 | 7.0E-08 |
| Cadmium | 1.10E-03 | 1.08E-06 | AP-42 Table 1.4-4 | 1.5E-06 | 6.4E-06 |
| Chromium | 1.40E-03 | 1.37E-06 | AP-42 Table 1.4-4 | 1.9E-06 | 8.1E-06 |
| Cobalt | 8.40E-05 | 8.24E-08 | AP-42 Table 1.4-4 | 1.1E-07 | 4.9E-07 |
| Copper | 8.50E-04 | 8.33E-07 | AP-42 Table 1.4-4 | 1.1E-06 | 4.9E-06 |
| Lead | 5.0E-04 | 4.90E-07 | AP-42 Table 1.4-4 | 6.6E-07 | 2.9E-06 |
| Manganese | 3.80E-04 | 3.73E-07 | AP-42 Table 1.4-4 | 5.0E-07 | 2.2E-06 |
| Mercury | 2.60E-04 | 2.55E-07 | AP-42 Table 1.4-4 | 3.4E-07 | 1.5E-06 |
| Molybdenum | 1.10E-03 | 1.08E-06 | AP-42 Table 1.4-4 | 1.5E-06 | 6.4E-06 |
| Nickel | 2.10E-03 | 2.06E-06 | AP-42 Table 1.4-4 | 2.8E-06 | 1.2E-05 |
| Selenium | 2.40E-05 | 2.35E-08 | AP-42 Table 1.4-4 | 3.2E-08 | 1.4E-07 |

| | | | | | |
|---|---|---|---|---|---|
| Vanadium | 2.30E-03 | 2.25E-06 | AP-42 Table 1.4-4 | 3.0E-06 | 1.3E-05 |
| Zinc | 2.90E-02 | 2.84E-05 | AP-42 Table 1.4-4 | 3.8E-05 | 1.7E-04 |
| **Total HAPs** | | | | **0.01** | **0.07** |

*POM is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benz

| **GHG Emission Factors** | | **Natural Gas** | |
|---|---|---|---|
| **Pollutant** | **Global Warming** | **EF (kg/MMBtu)** | **EF (lb/MMBtu)** |
| $CO_2$ | 1 | 53.06 | 117.0 |
| $CH_4$ | 25 | 1.00E-03 | 2.20E-03 |
| $N_2O$ | 298 | 1.00E-04 | 2.20E-04 |

St Alphonsus Medical Center

2.009 MMBtu/hr Fulton Boiler (Source ID F-1,2)

Stationary Source: Boiler

| Boiler Information | | |
|---|---|---|
| Fuel | Natural Gas | |
| Rated Capacity | 2.009 | MMBtu/hr |
| Hours of Operation: | 8760 | hr/yr |
| Heat content of Fuel: | 1020 | Btu/scf |
| Fuel | No. 2 Diesel | |
| Rated Capacity | 2.009 | MMBtu/hr |
| Hours of Operation: | 8760 | hr/yr |
| Heat content of Fuel: | 140 MMBtu/Mgal | AP-42 Section 1.3 |
| Maximum Fuel Consumption: | 0.01 Mgal/hr | |
| Sulfur Content | 0.0015 | Percent |

| Emissions-Criteria and GHG | Natural Gas | | | | | No. 2 Diesel | | | | Worst Case Emissions | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pollutant | Emission Factor (lbs/$10^6$ scf) | Emission Factor (lb/MMBtu) | Emission Factor Source | Emission Rate (lbs/hr) | Maximum Potential Emissions (tons/yr) | Emission Factor (lb/1000 gal) | Emission Factor Source | Emission Rate (lbs/hr) | Potential Emissions (tons/yr) | Emission Rate (lbs/hr) | Maximum Potential Emissions (tons/yr) |
| PM [1] | 7.6 | 7.45E-03 | AP-42 Table 1.4-2 | 0.01 | 0.07 | 3.3 | AP-42 Table 1.3-2 and 1.3-6 | 0.05 | 0.21 | 0.05 | 0.21 |
| PM10 [1] | 6.00 | 5.89E-03 | AP-42 Table 1.4-2 | 0.01 | 0.05 | 2.3 | AP-42 Table 1.3-2 and 1.3-6 | 0.03 | 0.14 | 0.03 | 0.14 |
| PM2.5 [1] | 3.42 | 3.35E-03 | AP-42 Table 1.4-2 | 0.01 | 0.03 | 1.6 | AP-42 Table 1.3-2 and 1.3-6 | 0.02 | 0.10 | 0.02 | 0.10 |
| SOx | 0.60 | 5.88E-04 | AP-42 Table 1.4-2 | 0.00 | 0.01 | 0.213 | AP-42 Table 1.3-1 | 0.00 | 0.01 | 3.06E-03 | 0.01 |
| NOx | 100 | 9.80E-02 | AP-42 Table 1.4-1 | 0.20 | 0.86 | 20.0 | AP-42 Table 1.3-1 | 0.29 | 1.26 | 0.29 | 1.26 |
| VOC | 5.5 | 5.39E-03 | AP-42 Table 1.4-2 | 0.01 | 0.05 | 0.34 | AP-42 Table 1.3-3 | 0.00 | 0.02 | 0.01 | 0.05 |
| CO | 84 | 8.24E-02 | AP-42 Table 1.4-1 | 0.17 | 0.72 | 5.0 | AP-42 Table 1.3-1 | 0.07 | 0.31 | 0.17 | 0.72 |
| CO2 | -- | 116.98 | 40 CFR Part 98 | 235.00 | 1029.32 | 22,827.31 | 40 CFR Part 98 | 327.57 | 1434.76 | 327.57 | 1434.76 |
| CH4 | -- | 2.20E-03 | 40 CFR Part 98 | 0.00 | 0.02 | 0.93 | 40 CFR Part 98 | 0.01 | 0.06 | 0.01 | 0.06 |
| N2O | -- | 2.20E-04 | 40 CFR Part 98 | 0.000 | 0.00 | 0.19 | 40 CFR Part 98 | 0.00 | 0.01 | 0.00 | 0.01 |
| CO2e | -- | -- | -- | 235.25 | 1030.38 | -- | -- | 328.70 | 1439.69 | 328.70 | 1439.69 |

[1] PM10 and PM2.5 are speciated for Natural Gas based on Speciation in App. B from AP-42 for Category 2 (boilers).

| Emissions-HAPs | Natural Gas | | | | | No. 2 Diesel | | | | Worst Case Emissions | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pollutant | Emission Factor (lbs/$10^6$ scf) | Emission Factor (lb/MMBtu) | Emission Factor Source | Emission Rate (lbs/hr) | Emissions (tons/yr) | Emission Factor (lb/1000 gal) | Emission Factor Source | Emission Rate (lbs/hr) | Emissions (tons/yr) | Emission Rate (lbs/hr) | Maximum Potential Emissions (tons/yr) |
| 2-Methylnaphthalene | 2.40E-05 | 2.35E-08 | AP-42 Table 1.4-3 | 4.7E-08 | 2.1E-07 | | | | | 4.73E-08 | 2.07E-07 |
| 3-Methylchloranthene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.6E-08 | | | | | 3.55E-09 | 1.55E-08 |
| 7,12-Dimethylbenz(a)anthracene | 1.60E-05 | 1.57E-08 | AP-42 Table 1.4-3 | 3.2E-08 | 1.4E-07 | | | | | 3.15E-08 | 1.38E-07 |
| Acenaphthene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.6E-08 | 2.11E-05 | AP-42 Table 1.3-9 | 3.03E-07 | 1.3E-06 | 3.03E-07 | 1.33E-06 |
| Acenaphthylene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.6E-08 | 2.53E-07 | AP-42 Table 1.3-9 | 3.63E-09 | 1.6E-08 | 3.63E-09 | 1.59E-08 |
| Anthracene | 2.40E-06 | 2.35E-09 | AP-42 Table 1.4-3 | 4.7E-09 | 2.1E-08 | 1.22E-06 | AP-42 Table 1.3-9 | 1.75E-08 | 7.7E-08 | 1.75E-08 | 7.67E-08 |
| Benz(a)anthracene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.6E-08 | 4.01E-06 | AP-42 Table 1.3-9 | 5.75E-08 | 2.5E-07 | 5.75E-08 | 2.52E-07 |
| Benzene | 2.10E-03 | 2.06E-06 | AP-42 Table 1.4-3 | 4.1E-06 | 1.8E-05 | 2.14E-04 | AP-42 Table 1.3-9 | 3.07E-06 | 1.3E-05 | 4.14E-06 | 1.81E-05 |
| Benzo(a)pyrene | 1.20E-06 | 1.18E-09 | AP-42 Table 1.4-3 | 2.4E-09 | 1.0E-08 | | | | | 2.36E-09 | 1.04E-08 |
| Benzo(b,k)fluoranthene | 3.60E-06 | 3.53E-09 | AP-42 Table 1.4-3 | 7.1E-09 | 3.1E-08 | 1.48E-06 | AP-42 Table 1.3-9 | 2.12E-08 | 9.3E-08 | 2.12E-08 | 9.30E-08 |
| Benzo(g,h,i)perylene | 1.20E-06 | 1.18E-09 | AP-42 Table 1.4-3 | 2.4E-09 | 1.0E-08 | 2.26E-06 | AP-42 Table 1.3-9 | 3.24E-08 | 1.4E-07 | 3.24E-08 | 1.42E-07 |
| Butane | 2.10E+00 | 2.06E-03 | AP-42 Table 1.4-3 | 4.1E-03 | 1.8E-02 | | | | | 4.14E-03 | 1.81E-02 |
| Chrysene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.6E-08 | 2.38E-06 | AP-42 Table 1.3-9 | 3.42E-08 | 1.5E-07 | 3.42E-08 | 1.50E-07 |
| Dibenzo(a,h)anthracene | 1.20E-06 | 1.18E-09 | AP-42 Table 1.4-3 | 2.4E-09 | 1.0E-08 | 1.67E-06 | AP-42 Table 1.3-9 | 2.40E-08 | 1.0E-07 | 2.40E-08 | 1.05E-07 |
| Dichlorobenzene | 1.20E-03 | 1.18E-06 | AP-42 Table 1.4-3 | 2.4E-06 | 1.0E-05 | | - | - | - | 2.36E-06 | 1.04E-05 |
| Ethane | 3.10E+00 | 3.04E-03 | AP-42 Table 1.4-3 | 6.1E-03 | 2.7E-02 | | | | | 6.11E-03 | 2.67E-02 |
| Ethylbenzene | | | | | | 6.36E-05 | AP-42 Table 1.3-9 | 9.13E-07 | 4.0E-06 | 9.13E-07 | 4.00E-06 |
| Fluoranthene | 3.00E-06 | 2.94E-09 | AP-42 Table 1.4-3 | 5.9E-09 | 2.6E-08 | 4.84E-06 | AP-42 Table 1.3-9 | 6.95E-08 | 3.0E-07 | 6.95E-08 | 3.04E-07 |
| Fluorene | 2.80E-06 | 2.75E-09 | AP-42 Table 1.4-3 | 5.5E-09 | 2.4E-08 | 4.47E-06 | AP-42 Table 1.3-9 | 6.41E-08 | 2.8E-07 | 6.41E-08 | 2.81E-07 |
| Formaldehyde | 7.50E-02 | 7.35E-05 | AP-42 Table 1.4-3 | 1.5E-04 | 6.5E-04 | 3.30E-02 | AP-42 Table 1.3-9 | 4.74E-04 | 2.1E-03 | 4.74E-04 | 2.07E-03 |
| Hexane | 1.80E+00 | 1.76E-03 | AP-42 Table 1.4-3 | 3.5E-03 | 1.6E-02 | - | - | - | - | 3.55E-03 | 1.55E-02 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | 1.76E-09 | AP-42 Table 1.4-3 | 3.5E-09 | 1.6E-08 | 2.14E-06 | AP-42 Table 1.3-9 | 3.07E-08 | 1.3E-07 | 3.07E-08 | 1.35E-07 |
| Naphthalene | 6.10E-04 | 5.98E-07 | AP-42 Table 1.4-3 | 1.2E-06 | 5.3E-06 | 1.13E-03 | AP-42 Table 1.3-9 | 1.62E-05 | 7.1E-05 | 1.62E-05 | 7.10E-05 |
| Pentane | 2.60E+00 | 2.55E-03 | AP-42 Table 1.4-3 | 5.1E-03 | 2.2E-02 | | | | | 5.12E-03 | 2.24E-02 |
| Phenanthrene | 1.70E-05 | 1.67E-08 | AP-42 Table 1.4-3 | 3.3E-08 | 1.5E-07 | 1.05E-05 | AP-42 Table 1.3-9 | 1.51E-07 | 6.6E-07 | 1.51E-07 | 6.60E-07 |
| Propane | 1.60E+00 | 1.57E-03 | AP-42 Table 1.4-3 | 3.2E-03 | 1.4E-02 | | | | | 3.15E-03 | 1.38E-02 |
| Pyrene | 5.00E-06 | 4.90E-09 | AP-42 Table 1.4-3 | 9.8E-09 | 4.3E-08 | 4.25E-06 | AP-42 Table 1.3-9 | 6.10E-08 | 2.7E-07 | 6.10E-08 | 2.67E-07 |
| 1,1,1-Tricholorethane | | | | | | 2.36E-04 | AP-42 Table 1.3-9 | 3.39E-06 | 1.5E-05 | 3.39E-06 | 1.48E-05 |
| Toluene | 3.40E-03 | 3.33E-06 | AP-42 Table 1.4-3 | 6.7E-06 | 2.9E-05 | 6.20E-03 | AP-42 Table 1.3-9 | 8.90E-05 | 3.9E-04 | 8.90E-05 | 3.90E-04 |
| o-Xylene | | | | | | 1.09E-04 | AP-42 Table 1.3-9 | 1.56E-06 | 6.9E-06 | 1.56E-06 | 6.85E-06 |
| PAH | 6.87E-04 | 6.73E-07 | AP-42 Table 1.4-3 | 1.4E-06 | 5.9E-06 | 1.18E-03 | AP-42 Table 1.3-9 | 1.69E-05 | 7.4E-05 | 1.69E-05 | 7.41E-05 |
| POM* | 1.14E-05 | 1.12E-08 | AP-42 Table 1.4-3 | 2.2E-08 | 9.8E-08 | 1.17E-05 | AP-42 Table 1.3-9 | 1.68E-07 | 7.3E-07 | 1.68E-07 | 7.34E-07 |
| *Metals* | | | | | | (lb/MMBtu/hr) | | | | | |
| Arsenic | 2.00E-04 | 1.96E-07 | AP-42 Table 1.4-4 | 3.9E-07 | 1.7E-06 | 4.00E-06 | AP-42 Table 1.3-10 | 8.0E-06 | 3.5E-05 | 8.04E-06 | 3.52E-05 |
| Barium | 4.40E-03 | 4.31E-06 | AP-42 Table 1.4-4 | 8.7E-06 | 3.8E-05 | | | | | 8.67E-06 | 3.80E-05 |
| Beryllium | 1.20E-05 | 1.18E-08 | AP-42 Table 1.4-4 | 2.4E-08 | 1.0E-07 | 3.00E-06 | AP-42 Table 1.3-10 | 6.0E-06 | 2.6E-05 | 6.03E-06 | 2.64E-05 |
| Cadmium | 1.10E-03 | 1.08E-06 | AP-42 Table 1.4-4 | 2.2E-06 | 9.5E-06 | 3.00E-06 | AP-42 Table 1.3-10 | 6.0E-06 | 2.6E-05 | 6.03E-06 | 2.64E-05 |
| Chromium | 1.40E-03 | 1.37E-06 | AP-42 Table 1.4-4 | 2.8E-06 | 1.2E-05 | 3.00E-06 | AP-42 Table 1.3-10 | 6.0E-06 | 2.6E-05 | 6.03E-06 | 2.64E-05 |
| Cobalt | 8.40E-05 | 8.24E-08 | AP-42 Table 1.4-4 | 1.7E-07 | 7.2E-07 | - | - | - | - | 1.65E-07 | 7.25E-07 |
| Copper | 8.50E-04 | 8.33E-07 | AP-42 Table 1.4-4 | 1.7E-06 | 7.3E-06 | 6.00E-06 | AP-42 Table 1.3-10 | 1.2E-05 | 5.3E-05 | 1.21E-05 | 5.28E-05 |
| Lead | 5.0E-04 | 4.90E-07 | AP-42 Table 1.4-4 | 9.8E-07 | 4.3E-06 | 9.00E-06 | AP-42 Table 1.3-10 | 1.8E-05 | 7.9E-05 | 1.81E-05 | 7.92E-05 |
| Manganese | 3.80E-04 | 3.73E-07 | AP-42 Table 1.4-4 | 7.5E-07 | 3.3E-06 | 6.00E-06 | AP-42 Table 1.3-10 | 1.2E-05 | 5.3E-05 | 1.21E-05 | 5.28E-05 |
| Mercury | 2.60E-04 | 2.55E-07 | AP-42 Table 1.4-4 | 5.1E-07 | 2.2E-06 | 3.00E-06 | AP-42 Table 1.3-10 | 6.0E-06 | 2.6E-05 | 6.03E-06 | 2.64E-05 |
| Molybdenum | 1.10E-03 | 1.08E-06 | AP-42 Table 1.4-4 | 2.2E-06 | 9.5E-06 | | | | | 2.17E-06 | 9.49E-06 |
| Nickel | 2.10E-03 | 2.06E-06 | AP-42 Table 1.4-4 | 4.1E-06 | 1.8E-05 | 3.00E-06 | AP-42 Table 1.3-10 | 6.0E-06 | 2.6E-05 | 6.03E-06 | 2.64E-05 |
| Selenium | 2.40E-05 | 2.35E-08 | AP-42 Table 1.4-4 | 4.7E-08 | 2.1E-07 | 1.50E-05 | AP-42 Table 1.3-10 | 3.0E-05 | 1.3E-04 | 3.01E-05 | 1.32E-04 |
| Vanadium | 2.30E-03 | 2.25E-06 | AP-42 Table 1.4-4 | 4.5E-06 | 2.0E-05 | | | | | 4.53E-06 | 1.98E-05 |
| Zinc | 2.90E-02 | 2.84E-05 | AP-42 Table 1.4-4 | 5.7E-05 | 2.5E-04 | 4.00E-06 | AP-42 Table 1.3-10 | 8.0E-06 | 3.5E-05 | 5.71E-05 | 2.50E-04 |
| Total HAPs | | | | 0.02 | 0.10 | | | 0.00 | 0.00 | 0.02 | 0.10 |

*POM is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. PAH conservatively includes all other PAHs.

| GHG Emission Factors | | Natural Gas | | No. 2 Diesel | | |
|---|---|---|---|---|---|---|
| Pollutant | Global Warming | EF (kg/MMBtu) | EF (lb/MMBtu) | EF (kg/MMBtu) | EF (lb/MMBtu) | Emission Factor |
| $CO_2$ | 1 | 53.06 | 117.0 | 73.96 | 163.1 | 40 CFR Part 98 Subpart C Table C-1 |
| $CH_4$ | 25 | 1.00E-03 | 2.20E-03 | 3.00E-03 | 6.61E-03 | 40 CFR Part 98 Subpart C Table C-2 |
| $N_2O$ | 298 | 1.00E-04 | 2.20E-04 | 6.00E-04 | 1.32E-03 | 40 CFR Part 98 Subpart C Table C-2 |

St Alphonsus Medical Center

500kW Generator (Source ID XX)

Stationary Source: Emergency Generator

| Engine Information | | | |
|---|---|---|---|
| Assumptions: | | | Notes: |
| Operating Hours | 100 | hr/yr | |
| Kilowatt Rating | 500 | kW | |
| Horsepower Rating | 671 | hp | HP is Approximated |
| Diesel Brake Specific Fuel Consumption (BSFC) | 7,000 | btu/Hp-hr | AP-42 Section 3.3 |
| Diesel Heating Value (HV) | 19,300 | btu/lb | AP-42 Section 3.3 |
| Density of Diesel | 7.05 | lb/gal | AP-42 Appendix A |
| Diesel Throughput | 34.50 | gal/hr | Generator HI / Diesel HV / Density of Diesel * 10^6 |
| Generator Heat Input (HI) | 4.69 | MMbtu/hr | Horsepower Rating * BSFC / 10^6 |
| Sulfur Content | 0.0015 | % | Assuming use of ULSD |

| Emissions | | | | | |
|---|---|---|---|---|---|
| Pollutant | Emission Factor | Emission Factor Unit | Emission Factor Source | Potential Emissions (lb/hr) | Potential to Emit (tpy) |
| PM | 0.31 | lb/MMBtu | AP-42 Table 3.3-1 | 1.46 | 0.07 |
| $PM_{10}$ | 0.30 | lb/MMBtu | AP-42 Table 3.3-1 | 1.40 | 0.07 |
| $PM_{2.5}$ | 0.28 | lb/MMBtu | AP-42 Table 3.3-1 | 1.31 | 0.07 |
| $SO_x$ | 0.29 | lb/MMBtu | AP-42 Table 3.3-1 | 1.36 | 0.07 |
| $NO_x$ | 4.41 | lb/MMBtu | AP-42 Table 3.3-1 | 20.70 | 1.03 |
| CO | 0.95 | lb/MMBtu | AP-42 Table 3.3-1 | 4.46 | 0.22 |
| VOC | 0.36 | lb/MMBtu | AP-42 Table 3.3-1 | 1.69 | 0.08 |
| $CO_2$ | 163.05 | lb/MMBtu | 40 CFR Part 98 | 765.30 | 38.26 |
| $CH_4$ | 0.01 | lb/MMBtu | 40 CFR Part 98 | 0.03 | 0.00 |
| $N_2O$ | 0.00 | lb/MMBtu | 40 CFR Part 98 | 0.01 | 0.00 |
| $CO_2e$ | - | - | 40 CFR Part 98 | 767.92 | 38.40 |
| *HAPS* | | | | | |
| Acetaldehyde | 7.67E-04 | lb/MMbtu | AP-42 Table 3.3-2 | 3.60E-03 | 9.00E-04 |
| Acrolein | 9.25E-05 | lb/MMbtu | AP-42 Table 3.3-2 | 4.34E-04 | 1.09E-04 |
| Benzene | 9.33E-04 | lb/MMbtu | AP-42 Table 3.3-2 | 4.38E-03 | 1.09E-03 |
| Formaldehyde | 1.18E-03 | lb/MMbtu | AP-42 Table 3.3-2 | 5.54E-03 | 1.38E-03 |
| Naphthalene | 8.48E-05 | lb/MMbtu | AP-42 Table 3.3-2 | 3.98E-04 | 9.95E-05 |
| Toluene | 4.09E-04 | lb/MMbtu | AP-42 Table 3.3-2 | 1.92E-03 | 4.80E-04 |
| Xylenes | 2.85E-04 | lb/MMbtu | AP-42 Table 3.3-2 | 1.34E-03 | 3.34E-04 |
| 1,3-Butadiene | 3.91E-05 | lb/MMbtu | AP-42 Table 3.3-2 | 1.84E-04 | 4.59E-05 |
| Acenaphthylene | 5.06E-06 | lb/MMbtu | AP-42 Table 3.3-2 | 2.37E-05 | 5.94E-06 |
| Acenaphthene | 1.42E-06 | lb/MMbtu | AP-42 Table 3.3-2 | 6.66E-06 | 1.67E-06 |
| Fluorene | 2.92E-05 | lb/MMbtu | AP-42 Table 3.3-2 | 1.37E-04 | 3.43E-05 |
| Phenanthrene | 2.94E-05 | lb/MMbtu | AP-42 Table 3.3-2 | 1.38E-04 | 3.45E-05 |
| Anthracene | 1.87E-06 | lb/MMbtu | AP-42 Table 3.3-2 | 8.78E-06 | 2.19E-06 |
| Fluoranthene | 7.61E-06 | lb/MMbtu | AP-42 Table 3.3-2 | 3.57E-05 | 8.93E-06 |
| Pyrene | 4.78E-06 | lb/MMbtu | AP-42 Table 3.3-2 | 2.24E-05 | 5.61E-06 |
| Benz(a)anthracene | 1.68E-06 | lb/MMbtu | AP-42 Table 3.3-2 | 7.89E-06 | 1.97E-06 |
| Chrysene | 3.53E-07 | lb/MMbtu | AP-42 Table 3.3-2 | 1.66E-06 | 4.14E-07 |
| Benzo(b)fluoranthene | 9.91E-08 | lb/MMbtu | AP-42 Table 3.3-2 | 4.65E-07 | 1.16E-07 |
| Benzo(k)fluoranthene | 1.55E-07 | lb/MMbtu | AP-42 Table 3.3-2 | 7.28E-07 | 1.82E-07 |
| Benzo(a)pyrene | 1.88E-07 | lb/MMbtu | AP-42 Table 3.3-2 | 8.82E-07 | 2.21E-07 |
| Indeno(123-cd)pyrene | 3.75E-07 | lb/MMbtu | AP-42 Table 3.3-2 | 1.76E-06 | 4.40E-07 |
| Dibenz(a,h)anthracene | 5.83E-07 | lb/MMbtu | AP-42 Table 3.3-2 | 2.74E-06 | 6.84E-07 |
| Benzo(g,h,i)perylene | 4.89E-07 | lb/MMbtu | AP-42 Table 3.3-2 | 2.30E-06 | 5.74E-07 |
| PAH | 1.65E-04 | lb/MMbtu | AP-42 Table 3.3-2 | 7.73E-04 | 1.93E-04 |
| POM* | 3.43E-06 | lb/MMbtu | AP-42 Table 3.3-2 | 1.61E-05 | 4.03E-06 |
| **Total HAPs** | --- | --- | | **1.82E-02** | **4.55E-03** |

Note: $PM_{10}$ and $PM_{2.5}$ are speciated based on Speciation in App. B.2 from AP-42 for Category 1 (Stationary Internal Cobustion Engines-gasoline and diesel fuel).

*POM is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. PAH conservatively

| GHG Emissions | | | | |
|---|---|---|---|---|
| Pollutant | Global Warming Potential | EF (kg/MMBtu) | EF (lb/MMBtu) | Emission Factor Source |
| $CO_2$ | 1 | 73.96 | 163.05 | 40 CFR Part 98 Subpart C Table C-1 |
| $CH_4$ | 25 | 3.00E-03 | 6.61E-03 | 40 CFR Part 98 Subpart C Table C-2 |
| $N_2O$ | 298 | 6.00E-04 | 1.32E-03 | 40 CFR Part 98 Subpart C Table C-2 |

St Alphonsus Medical Center

250kW Generator (Source ID XX)

Stationary Source: Emergency Generator

| Engine Information | | | |
|---|---|---|---|
| Assumptions: | | | Notes: |
| Operating Hours | 100 | hr/yr | |
| Kilowatt Rating | 250 | kW | |
| Horsepower Rating | 335 | hp | HP is Approximated |
| Diesel Brake Specific Fuel Consumption (BSFC) | 7,000 | btu/Hp-hr | AP-42 Section 3.3 |
| Diesel Heating Value (HV) | 19,300 | btu/lb | AP-42 Section 3.3 |
| Density of Diesel | 7.05 | lb/gal | AP-42 Appendix A |
| Diesel Throughput | 17.25 | gal/hr | Generator HI / Diesel HV / Density of Diesel * 10^6 |
| Generator Heat Input (HI) | 2.35 | MMbtu/hr | Horsepower Rating * BSFC / 10^6 |
| Sulfur Content | 0.0015 | % | Assuming use of ULSD |

| Emissions | | | | | |
|---|---|---|---|---|---|
| Pollutant | Emission Factor | Emission Factor Unit | Emission Factor Source | Potential Emissions (lb/hr) | Potential to Emit (tpy) |
| PM | 0.31 | lb/MMBtu | AP-42 Table 3.3-1 | 0.73 | 0.04 |
| $PM_{10}$ | 0.30 | lb/MMBtu | AP-42 Table 3.3-1 | 0.70 | 0.03 |
| $PM_{2.5}$ | 0.28 | lb/MMBtu | AP-42 Table 3.3-1 | 0.65 | 0.03 |
| $SO_x$ | 0.29 | lb/MMBtu | AP-42 Table 3.3-1 | 0.68 | 0.03 |
| $NO_x$ | 4.41 | lb/MMBtu | AP-42 Table 3.3-1 | 10.35 | 0.52 |
| CO | 0.95 | lb/MMBtu | AP-42 Table 3.3-1 | 2.23 | 0.11 |
| VOC | 0.36 | lb/MMBtu | AP-42 Table 3.3-1 | 0.84 | 0.04 |
| $CO_2$ | 163.05 | lb/MMBtu | 40 CFR Part 98 | 382.65 | 19.13 |
| $CH_4$ | 0.01 | lb/MMBtu | 40 CFR Part 98 | 0.02 | 0.00 |
| $N_2O$ | 0.00 | lb/MMBtu | 40 CFR Part 98 | 0.00 | 0.00 |
| $CO_2e$ | - | - | 40 CFR Part 98 | 383.96 | 19.20 |
| *HAPS* | | | | | |
| Acetaldehyde | 7.67E-04 | lb/MMBtu | AP-42 Table 3.3-2 | 1.80E-03 | 4.50E-04 |
| Acrolein | 9.25E-05 | lb/MMBtu | AP-42 Table 3.3-2 | 2.17E-04 | 5.43E-05 |
| Benzene | 9.33E-04 | lb/MMBtu | AP-42 Table 3.3-2 | 2.19E-03 | 5.47E-04 |
| Formaldehyde | 1.18E-03 | lb/MMBtu | AP-42 Table 3.3-2 | 2.77E-03 | 6.92E-04 |
| Naphthalene | 8.48E-05 | lb/MMBtu | AP-42 Table 3.3-2 | 1.99E-04 | 4.98E-05 |
| Toluene | 4.09E-04 | lb/MMBtu | AP-42 Table 3.3-2 | 9.60E-04 | 2.40E-04 |
| Xylenes | 2.85E-04 | lb/MMBtu | AP-42 Table 3.3-2 | 6.69E-04 | 1.67E-04 |
| 1,3-Butadiene | 3.91E-05 | lb/MMBtu | AP-42 Table 3.3-2 | 9.18E-05 | 2.29E-05 |
| Acenaphthylene | 5.06E-06 | lb/MMBtu | AP-42 Table 3.3-2 | 1.19E-05 | 2.97E-06 |
| Acenaphthene | 1.42E-06 | lb/MMBtu | AP-42 Table 3.3-2 | 3.33E-06 | 8.33E-07 |
| Fluorene | 2.92E-05 | lb/MMBtu | AP-42 Table 3.3-2 | 6.85E-05 | 1.71E-05 |
| Phenanthrene | 2.94E-05 | lb/MMBtu | AP-42 Table 3.3-2 | 6.90E-05 | 1.72E-05 |
| Anthracene | 1.87E-06 | lb/MMBtu | AP-42 Table 3.3-2 | 4.39E-06 | 1.10E-06 |
| Fluoranthene | 7.61E-06 | lb/MMBtu | AP-42 Table 3.3-2 | 1.79E-05 | 4.46E-06 |
| Pyrene | 4.78E-06 | lb/MMBtu | AP-42 Table 3.3-2 | 1.12E-05 | 2.80E-06 |
| Benz(a)anthracene | 1.68E-06 | lb/MMBtu | AP-42 Table 3.3-2 | 3.94E-06 | 9.86E-07 |
| Chrysene | 3.53E-07 | lb/MMBtu | AP-42 Table 3.3-2 | 8.28E-07 | 2.07E-07 |
| Benzo(b)fluoranthene | 9.91E-08 | lb/MMBtu | AP-42 Table 3.3-2 | 2.33E-07 | 5.81E-08 |
| Benzo(k)fluoranthene | 1.55E-07 | lb/MMBtu | AP-42 Table 3.3-2 | 3.64E-07 | 9.09E-08 |
| Benzo(a)pyrene | 1.88E-07 | lb/MMBtu | AP-42 Table 3.3-2 | 4.41E-07 | 1.10E-07 |
| Indeno(123-cd)pyrene | 3.75E-07 | lb/MMBtu | AP-42 Table 3.3-2 | 8.80E-07 | 2.20E-07 |
| Dibenz(a,h)anthracene | 5.83E-07 | lb/MMBtu | AP-42 Table 3.3-2 | 1.37E-06 | 3.42E-07 |
| Benzo(g,h,i)perylene | 4.89E-07 | lb/MMBtu | AP-42 Table 3.3-2 | 1.15E-06 | 2.87E-07 |
| PAH | 1.65E-04 | lb/MMBtu | AP-42 Table 3.3-2 | 3.86E-04 | 9.66E-05 |
| POM* | 3.43E-06 | lb/MMBtu | AP-42 Table 3.3-2 | 8.06E-06 | 2.01E-06 |
| **Total HAPs** | --- | --- | | **9.09E-03** | **2.27E-03** |

Note: $PM_{10}$ and $PM_{2.5}$ are speciated based on Speciation in App. B.2 from AP-42 for Category 1 (Stationary Internal Cobustion Engines-gasoline and diesel fuel).

*POM is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. PAH conservatively

| GHG Emissions | | | | |
|---|---|---|---|---|
| Pollutant | Global Warming Potential | EF (kg/MMBtu) | EF (lb/MMBtu) | Emission Factor Source |
| $CO_2$ | 1 | 73.96 | 163.05 | 40 CFR Part 98 Subpart C Table C-1 |
| $CH_4$ | 25 | 3.00E-03 | 6.61E-03 | 40 CFR Part 98 Subpart C Table C-2 |
| $N_2O$ | 298 | 6.00E-04 | 1.32E-03 | 40 CFR Part 98 Subpart C Table C-2 |

Natural gas emission factos for POM and PAH based on AP-42 Table 1.4-3

| | lb/10^6scf | |
|---|---|---|
| 1 | 2.40E-05 | 2-Methylnaphthalene |
| 2 | 1.80E-06 | 3-Methylchloranthrene |
| 3 | 1.60E-05 | 7,12- Dimethylbenz(a)anthracen |
| 4 | 1.80E-06 | Acenaphthene |
| 5 | 1.80E-06 | Acenaphthylene |
| 6 | 2.40E-06 | Anthracene |
| 7 | 1.80E-06 | Benz(a)anthracene |
| 8 | 1.20E-06 | Benzo(a)pyrene |
| 9 | 1.80E-06 | Benzo(b)fluoranthene |
| 10 | 1.20E-06 | Benzo(g,h,i)perylene |
| 11 | 1.80E-06 | Benzo(k)fluoranthene |
| 12 | 1.80E-06 | Chrysene |
| 13 | 1.20E-06 | Dibenzo(a,h)anthracene |
| 14 | 3.00E-06 | Fluoranthene |
| 15 | 2.80E-06 | Fluorene |
| 16 | 1.80E-06 | Indeno(1,2,3-cd)pyrene |
| 17 | 1.70E-05 | Phenanathrene |
| 18 | 5.00E-06 | Pyrene |
| 19 | 6.10E-04 | Naphthalene |
| | 1.14E-05 | POM-in ID includes seven |
| | 6.87E-04 | other PAH |

*POM is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoran

St. Alphonsus Medical Center-Nampa, ID
CPP-8886
Cooling Tower 1 (CT1)

Annual limit (hrs) 8760

| 3a) Fugative Particulate Source (ID number) | 3b) Emission Factor [a] (state units) | 3c) Maximum Operating Parameter [b] (state units) | 3d) Maximum Uncontrolled Emission Rate (lb/hr) | 3e) Maximum Uncontrolled Emissions (tons/yr) |
|---|---|---|---|---|
| CT-1 | 3.44E-05 (lbs/gal) | 2,040 (gal/min) | 4.21 | 18.43 |

[a] PM emission factor is from AP-42 Section 13.4 (01/95)
A drift rate of 0.02%, total flow of 2,040 gal/min, and an average TDS of 20,600 ppm w
Emission Factor = 20600 g /1,000,000 mL * 3,785.412 mL/gallon , 453.59 g/lb * 0.02%
TDS Drift Rate of 20,600 from Table 13.4-2 and drift rate of 0.02% from Table 13.4-1,
[b] From manufacturer's specification

4) Calculation Summary for Fugitive $PM_{10}$ Emissions:
Potential Emissions (Do not complete this table is using this form for Registration Perm
Emissions Table below.)

| 4a) Fugative Particulate Source (ID number) | 4b) Emission Factor (state units) | 4c) Maximum Operating Parameter (state units) | 4d) Maximum Uncontrolled Emission Rate [b] (lb/hr) | 4e) Maximum Uncontrolled Emissions (tons/yr) |
|---|---|---|---|---|
| CT-1 | --- | --- | 0.0 | 0.0 |

[b] $PM_{10}$ calculated as fraction of PM emissions using emission calculation procedu
by Reisman and Frisbie, Environmental Progress, Vol. 21, No.2.

| EPRI Droplet Diameter (µm) | Droplet Volume ($µm^3$) | Droplet Mass (µg) | Particle Mass (Solids) (µg) | Solid Particle Volume ($µm^3$) |
|---|---|---|---|---|
| 10 | 524 | 5.24E-04 | 1.08E-05 | 4.90 |
| 20 | 4189 | 4.19E-03 | 8.63E-05 | 39.22 |
| 30 | 14137 | 1.41E-02 | 2.91E-04 | 132.38 |

| | | | | |
|---|---|---|---|---|
| 40 | 33510 | 3.35E-02 | 6.90E-04 | 313.78 |
| 50 | 65450 | 6.54E-02 | 1.35E-03 | 612.85 |
| 60 | 113097 | 1.13E-01 | 2.33E-03 | 1059.00 |
| 70 | 179594 | 1.80E-01 | 3.70E-03 | 1681.66 |
| 90 | 381704 | 3.82E-01 | 7.86E-03 | 3574.13 |
| 110 | 696910 | 6.97E-01 | 1.44E-02 | 6525.61 |
| 130 | 1150347 | 1.15E+00 | 2.37E-02 | 10771.43 |
| 150 | 1767146 | 1.77E+00 | 3.64E-02 | 16546.91 |
| 180 | 3053628 | 3.05E+00 | 6.29E-02 | 28593.06 |
| 210 | 4849048 | 4.85E+00 | 9.99E-02 | 45404.72 |
| 240 | 7238229 | 7.24E+00 | 1.49E-01 | 67776.15 |
| 270 | 10305995 | 1.03E+01 | 2.12E-01 | 96501.59 |
| 300 | 14137167 | 1.41E+01 | 2.91E-01 | 132375.29 |
| 350 | 22449298 | 2.24E+01 | 4.62E-01 | 210207.06 |
| 400 | 33510322 | 3.35E+01 | 6.90E-01 | 313778.47 |
| 450 | 47712938 | 4.77E+01 | 9.83E-01 | 446766.61 |
| 500 | 65449847 | 6.54E+01 | 1.35E+00 | 612848.57 |
| 600 | 113097336 | 1.13E+02 | 2.33E+00 | 1059002.32 |
| | assumptions: | | TDS: | 20600 |
| | | | water density: | 1 |
| | | | particle density: | 2.2 |

| Pollutant | Emission Factor (lb/gal) | Maximum Operating Parameter (gal/min) | Maximum Uncontrolled Emission Rate (lb/hr) | **Limited** Uncontrolled Emissions (tons/yr) |
|---|---|---|---|---|
| PM2.5 | --- | --- | 1.54E-03 | 6.72E-03 |
| PM10 | --- | --- | 6.24E-02 | 2.73E-01 |
| PM | --- | --- | 4.21E+00 | 1.84E+01 |

# APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

*MEMORANDUM*

**DATE:** December 1, 2016

**TO:** Tom Burnham, Permit Writer, Air Program

**FROM:** Darrin Mehr, Analyst, Air Program

**PROJECT:** P-2016.00478 PROJ 61767 – Permit to Construct (PTC) Application for Saint Alphonsus Medical Center (SAMC) for the Expansion Project at the Existing Facility in Nampa, Idaho

**SUBJECT:** Demonstration of Compliance with IDAPA 58.01.01.203.02 (NAAQS) and 203.03 (TAPs)

---

# Contents

## Acronyms, Units, and Chemical Nomenclature

| | |
|---|---|
| AAC | Acceptable Ambient Concentration of a Non-Carcinogenic TAP |
| AACC | Acceptable Ambient Concentration of a Carcinogenic TAP |
| ACFM | Actual cubic feet per minute |
| AERMAP | The terrain data preprocessor for AERMOD |
| AERMET | The meteorological data preprocessor for AERMOD |
| AERMOD | American Meteorological Society/Environmental Protection Agency Regulatory Model |
| Appendix W | 40 CFR 51, Appendix W – Guideline on Air Quality Models |
| ARM | Ambient Ratio Method |
| BPIP | Building Profile Input Program |
| BRC | Below Regulatory Concern |
| Btu/hr | British Thermal Units per hour |
| CFR | Code of Federal Regulations |
| CMAQ | Community Multi-Scale Air Quality Modeling System |
| CO | Carbon Monoxide |
| CPP | CPP, Inc. (Saint Alphonsus' permitting and modeling consultant) |
| °F | Degrees Fahrenheit |
| DEQ | Idaho Department of Environmental Quality |
| EL | Emissions Screening Level of a TAP |
| EPA | United States Environmental Protection Agency |
| ft | Feet |
| fps | Feet per second |
| GEP | Good Engineering Practice |
| hr | Hours |
| Idaho Air Rules | Rules for the Control of Air Pollution in Idaho, located in the Idaho Administrative Procedures Act 58.01.01 |
| ISCST3 | Industrial Source Complex Short Term 3 dispersion model |
| K | Kelvin |
| m | Meters |
| m/s | Meters per second |
| MMBtu | Million British Thermal Units |
| NAAQS | National Ambient Air Quality Standards |
| NED | National Elevation Dataset |
| NO | Nitrogen Oxide |
| $NO_2$ | Nitrogen Dioxide |
| $NO_x$ | Oxides of Nitrogen |
| NWS | National Weather Service |
| $O_3$ | Ozone |
| Pb | Lead |
| $PM_{10}$ | Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 10 micrometers |
| $PM_{2.5}$ | Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 2.5 micrometers |
| ppb | Parts Per Billion |
| PRIME | Plume Rise Model Enhancement |
| PTC | Permit to Construct |
| PTE | Potential to Emit |

| | |
|---|---|
| SAMC | Saint Alphonsus Medical Center |
| SIL | Significant Impact Level |
| $SO_2$ | Sulfur Dioxide |
| TAP | Toxic Air Pollutant |
| tons/year | Ton(s) per year |
| T/yr | Tons per year |
| USGS | United States Geological Survey |
| UTM | Universal Transverse Mercator |
| VCU | Vapor Control Unit |
| VOCs | Volatile Organic Compounds |
| $\mu g/m^3$ | Micrograms per cubic meter |

# 1.0 Summary

## *1.1 General Project Summary*

On August 1, 2016, Saint Alphonsus Medical Center (SAMC) submitted an application for a Permit to Construct (PTC) with, 15-Day Pre-Permit Construction Approval, to expand the existing medical facility located at the corner of East Flamingo Avenue and Garrity Boulevard in Nampa. The existing facility's emissions units were presumably exempt from air permit requirements. This project involved adding one cooling tower, four natural gas-fired boilers with backup distillate fuel capability (three of which are operational at any time), two diesel-fired emergency generator engines, and the relocation of one existing diesel-fired emergency generator engine.

Project-specific air quality impact analyses involving atmospheric dispersion modeling of estimated emissions associated with the facility were submitted to DEQ to demonstrate that the facility would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02 and 203.03 [Idaho Air Rules Section 203.02 and 203.03]). CPP, Inc. (CPP), SAMC's permitting and modeling consultant, submitted analyses and applicable information and data to enable DEQ to evaluate potential impacts to ambient air.

CPP performed project-specific air quality impact analyses to demonstrate compliance for facility-wide allowable emissions with air quality standards. The DEQ review summarized by this memorandum addressed only the rules, policies, methods, and data pertaining to the pollutant dispersion modeling analyses used to demonstrate that the estimated emissions associated with operation of the facility as modified will not cause or significantly contribute to a violation of the applicable air quality standards. This review did not evaluate compliance with other rules or analyses that do not pertain to the air impact analyses. This modeling review also did not evaluate the accuracy of emissions estimates. Evaluation of emissions estimates was the responsibility of the permit writer and is addressed in the main body of the DEQ Statement of Basis.

The submitted air quality impact analyses: 1) utilized appropriate methods and models according to established DEQ/EPA rules, policies, guidance, and procedures; 2) was conducted using reasonably accurate or conservative model parameters and input data (review of emissions estimates was addressed by the DEQ permit writer); 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that estimated potential/allowable emissions are at a level defined as below regulatory concern (BRC) and do not require a NAAQS compliance demonstration; b) that predicted pollutant concentrations from emissions associated with the facility as modeled were below Significant Impact Levels (SILs) or other applicable regulatory thresholds; or c) that predicted pollutant concentrations from applicable emissions associated with the project as modeled, when appropriately combined with co-contributing sources and background concentrations, were below applicable National Ambient Air Quality Standards (NAAQS) at ambient air locations where and when the project has a significant impact; 5) showed that Toxic Air Pollutant (TAP) emissions increases associated with the project do not result in ambient air impacts exceeding allowable TAPs increments. Table 1 presents key assumptions and results to be considered in the development of the permit.

| Table 1. KEY CONDITIONS USED IN MODELING ANALYSES | |
|---|---|
| **Criteria/Assumption/Result** | **Explanation/Consideration** |
| **Boiler Backup Distillate Fuel Oil Firing Testing and Maintenance Operations**<br><br>**New Boilers B1 and B2**<br>These boilers were modeled for compliance with TAPs and criteria pollutants assuming the boiler will operate while using fuel oil up to 2 hours per incident from 11 am to 1 pm, for up to 52 weekly testing and maintenance operating events, or a total of 104 hours per year.<br><br>**Limitations for Shared Stack Boilers**<br>Boilers B3 and B4 will share a common stack and were modeled for compliance with TAPs and criteria pollutants assuming only one boiler may operate at any time.<br><br>This limits either or both boilers exhausting to a shared stack to 2 hours per incident from 11 am to 1 pm for up to 52 weekly testing and maintenance operating events, or a total of 104 hours per year while operating on No. 2 distillate fuel oil (diesel fuel).<br><br>**Boilers NC1, NC2, C1, and F1/F2 (model ID F1)**<br>All existing boilers were modeled based on the worst-case distillate fuel oil for 24 hours per day and 8,760 hours per year. Operation on either natural gas or distillate fuel oil is allowed at any time of day or in any combination for these boilers. Boilers F1 and F2 exhaust to a common stack. Only one boiler was modeled as operational at any time.<br><br>**Boiler K1**<br>Boiler K1 (Existing Kewanee Boiler) is fired exclusively on natural gas and will not operate on diesel fuel. | DEQ policy[1] excludes emergency electricity generation engines from 1-hour $NO_2$ impact analyses. Emissions of other pollutants from operation of emergency generators and all pollutant emissions from other sources must be included in the impact analyses. The analyses must represent worst-case potential/allowable emissions and exhaust parameters under fuel types that will be used during emergency and normal operating conditions (including testing and maintenance). The SAMC facility's dual fuel-fired boilers, which operate primarily on natural gas with emergency backup capability on No. 2 distillate fuel oil, were appropriately included in the air impact analyses.<br><br>All existing dual fuel-fired boilers were modeled for 24 hours per day for all days in the year on distillate fuel oil, so operations for testing, maintenance, and any normal operations on the worst-case distillate fuel oil is unlimited for Boilers C1, NC1, NC2, and F1 (either F1 or F2 at any time but no concurrent operation). |
| **Release Parameters for Existing Boilers**<br><br>All existing boilers were modeled with uninterrupted vertical release points with a release height of 8 feet above roofline.<br><br>The actual measured height for at least one boiler was approximately 4 feet above roofline. All existing boiler stacks are equipped with rain caps, which inhibit dispersion of the exhaust plume of each source.<br><br>Modeling a stack with a higher release height and uninterrupted vertical release orientation improves dispersion for exhaust plumes. | SAMC proposed to alter existing stack terminations to match the modeling analyses assumptions. Rain caps for all existing boilers will be removed and all existing boiler stack release heights will be physically altered as necessary to achieve a release height of at least 8 feet above roofline to match the assumptions applied in the facility's NAAQS demonstration. The stack height increase applies to Boiler K1 (Existing Kewanee Boiler) and possibly other boiler stacks.<br><br>The ambient impact analyses supporting issuance of the facility-wide Permit to Construct (PTC) are not valid without these physical changes. These items are appropriate to include as operating requirements in the facility's PTC. |
| **Stack Diameters for New Sources**<br><br>Hurst Boilers 1 and 2 were modeled with an exit diameter of 1.67 feet (or 20 inches) for each boiler. These two stacks were modeled with release heights of one foot above the roofline. Installation of a stack with a diameter greater than 20 inches will reduce dispersion and could increase ambient impacts. Installation of a stack with a smaller diameter than 20 inches will improve plume dispersion and should reduce impacts near these sources. | SAMC must install stacks with an unimpeded and vertical release and an exit diameter of 20 inches or less for Boilers 1 and 2 (model IDs B1 and B2). |

| | |
|---|---|
| **Generator Engine Testing**<br><br>Annual hours of operation were 100 hours per year for each of the four emergency generator engines, which reflects the annual limitation regarded by DEQ permitting staff for potential to emit on an annual basis. | Emergency generator engines are excluded from modeling per DEQ policy for compliance with the 1-hour $NO_2$ standard. The engines were appropriately modeled for 100 hours per year for the annual $NO_2$ NAAQS. |

Air impact analyses are required by Idaho Air Rules to be conducted according to methods outlined in 40 CFR 51, Appendix W (Guideline on Air Quality Models). Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition. The submitted information and analyses demonstrated to the satisfaction of the Department, using DEQ/EPA established guidance, policies, and procedures, that operation of the proposed facility or modification will not cause or significantly contribute to a violation of any ambient air quality standard, provided the key conditions in Table 1 are representative of facility design capacity or operations as limited by a federally enforceable permit condition.

### *1.2 Summary of Submittals and Actions*

May 9, 2016: DEQ, CPP, and a representative of SAMC attended a pre-application meeting for the project.

June 10, 2016: DEQ received a modeling protocol from CPP, on behalf of SAMC.

July 7, 2016: A 15-day pre-permit PTC meeting was held between representatives of SAMC, CPP, and DEQ.

August 1, 2016: DEQ received a 15-day pre-permit PTC application from SAMC.

August 11, 2016: DEQ issued a 15-day pre-permit construction authorization to SAMC for the project.

August 17, 2016: DEQ declared the PTC application incomplete.

August 31, 2016: DEQ received a response via email regarding the incompleteness items.

September 7, 2016: DEQ declared the application complete.

## 2.0 Background Information

### *2.1 Permit Requirements for Permits to Construct*

PTCs are issued to authorize the construction of a new source or modification of an existing source or permit. Idaho Air Rules Section 203.02 requires that emissions from the new source or modification not cause or significantly contribute to a violation of an air quality standard, and Idaho Air Rules Section 203.03 requires that emissions from a new source or modification comply with applicable toxic air pollutant (TAP) increments of Idaho Air Rules Sections 585 and 586.

### *2.2 Project Location and Area Classification*

The facility is located in Nampa, Idaho, in Canyon County. The area is designated as attainment or

unclassifiable for all pollutants.

## 2.3 Modeling Applicability for Criteria Pollutants

### 2.3.1 Below Regulatory Concern and DEQ Modeling Guideline Level I and II Thresholds

Idaho Air Rules Section 203.02 state that a PTC cannot be issued unless the application demonstrates to the satisfaction of DEQ that the new source or modification will not cause or significantly contribute to a NAAQS violation. Atmospheric dispersion modeling is used to evaluate the potential impact of a proposed project to ambient air and demonstrate NAAQS compliance. However, if the emissions associated with a project are very small, project-specific modeling analyses may not be necessary.

If the emissions increases associated with a project are below modeling applicability thresholds established in the *Idaho Air Modeling Guideline* ("State of Idaho Guideline for Performing Air Quality Impact Analyses," available at http://www.deq.idaho.gov/media/1029/modeling-guideline.pdf, then a project-specific analysis is not required. Modeling applicability emissions thresholds were developed by DEQ based on modeling of a hypothetical source and were designed to reasonably ensure that impacts are below the applicable SIL. DEQ has established two threshold levels: Level 1 thresholds are unconditional thresholds, requiring no approval for use by DEQ; Level 2 thresholds are conditional upon DEQ approval, which depends on evaluation of the project and the site, including emissions quantities, stack parameters, number of sources emissions are distributed amongst, distance between the sources and the ambient air boundary, and the presence of sensitive receptors near the ambient air boundary. Level I model thresholds are applicable to the SAMC Nampa project due to the proximity of ambient air to the modeled emissions sources. There is no setback distance from the sources to the discrete receptors representing ambient air in these ambient air impact analyses.

A NAAQS compliance demonstration, per Idaho Air Rules Section 203.02, was required for emissions of NOx. If project-wide potential to emit (PTE) values for criteria pollutants would qualify for a below regulatory concern (BRC) permit exemption as per Idaho Air Rules Section 221 if it were not for potential emissions of one or more criteria pollutants exceeding the BRC threshold of 10 percent of emissions defined by Idaho Air Rules as significant, then an air impact analysis may not be required for those pollutants. DEQ's regulatory interpretation policy of exemption provisions of Idaho Air Rules Section 221 is that: "A DEQ NAAQS compliance assertion will not be made by the DEQ modeling group for specific criteria pollutants having a project emissions increase below BRC levels, provided the proposed project would have qualified for a Category I Exemption for BRC emissions quantities except for the emissions of another criteria pollutant.[1]" The interpretation policy also states that the exemption criteria of uncontrolled PTE not to exceed 100 ton/year (Idaho Air Rules Section 220.01.a.i) is not applicable when evaluating whether a NAAQS impact analyses is required. A permit will be issued limiting PTE below 100 tons per year, thereby negating the need to maintain calculated uncontrolled PTE under 100 tons per year. Table 2 presents the BRC modeling applicability for this project.

Modeling applicability is established on a project-specific basis. This project addresses a request for an expansion to an existing facility. Potential to emit for the existing emissions units is not included in this project's emissions increase provided the existing emissions units were properly permitted or exempted from the requirements to obtain a PTC at the time of initial construction. SAMC and DEQ permitting staff indicated that the existing emissions units, consisting of boilers and emergency electrical generators, were appropriately exempted at the time of each emissions unit's construction at

this Nampa SAMC site. These sources were treated as existing sources for emission increase estimates for criteria air pollutants and TAPs.

**Table 2. CRITERIA POLLUTANT NAAQS COMPLIANCE DEMONSTRATION APPLICABILITY**

| Criteria Pollutant | Below Regulatory Concern Level (ton/year) | Project Potential Emissions Increase (ton/year) | NAAQS Compliance Exempted per BRC Policy? |
|---|---|---|---|
| $PM_{10}$[a] | 1.5 | 1.47 | Yes |
| $PM_{2.5}$[b] | 1.0 | 0.7 | Yes |
| Carbon Monoxide (CO) | 10.0 | 4.2 | Yes |
| Sulfur Dioxide ($SO_2$) | 4.0 | 0.2 | Yes |
| Nitrogen Oxides (NOx) | 4.0 | 13.7 | No |
| Lead (Pb) | 0.06 | 0.0009 | Yes |
| Ozone as VOC or NOx | 4.0 | 3.6 T/yr VOCs | Yes |

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.

Emissions of NOx exceeded the BRC threshold and the Level I total NOx modeling threshold for 1-hour $NO_2$ of 0.20 lb/hr and annual average NOx Level I modeling threshold of 1.2 ton/year. Modeling was required for the 1-hour and annual $NO_2$ SILs and NAAQS.

Emissions of VOCs were below the BRC threshold of 4.0 T/yr. Section 2.3.2 discusses additional points regarding modeling requirements for ozone modeling.

### *2.3.2 Ozone Modeling Applicability*

Ozone ($O_3$) differs from other criteria pollutants in that it is not typically emitted directly into the atmosphere. $O_3$ is formed in the atmosphere through reactions of VOCs, $NO_x$, and sunlight. Atmospheric dispersion models used in stationary source air permitting analyses (see Section 3.3.3) cannot be used to estimate $O_3$ impacts resulting from VOC and NOx emissions from an industrial facility. $O_3$ concentrations resulting from area-wide emissions are predicted by using more complex airshed models such as the Community Multi-Scale Air Quality (CMAQ) modeling system. Use of the CMAQ model is very resource intensive and DEQ asserts that performing a CMAQ analysis for a particular permit application is not typically a reasonable or necessary requirement for air quality permitting.

Addressing secondary formation of $O_3$ has been somewhat addressed in EPA regulation and policy. As stated in a letter from Gina McCarthy of EPA to Robert Ukeiley, acting on behalf of the Sierra Club (letter from Gina McCarthy, Assistant Administrator, United States Environmental Protection Agency, to Robert Ukeiley, January 4, 2012):

> *. . . footnote 1 to sections 51.166(I)(5)(I) of the EPA's regulations says the following: "No de minimis air quality level is provided for ozone. However, any net emission increase of 100 tons per year or more of volatile organic compounds or nitrogen oxides subject to PSD would be required to perform an ambient impact analysis, including the gathering of air quality data."*
>
> *The EPA believes it unlikely a source emitting below these levels would contribute to such a violation of the 8-hour ozone NAAQS, but consultation with an EPA Regional Office should*

*still be conducted in accordance with section 5.2.1.c. of Appendix W when reviewing an application for sources with emissions of these ozone precursors below 100 TPY."*

Allowable emissions estimates of VOCs of 3.9 T/yr facility-wide and 20.1 T/yr facility-wide of NOx are well below the 100 tons/year threshold, and DEQ determined it was not appropriate or necessary to require a quantitative source specific $O_3$ impact analysis.

### *2.3.3 Secondary Particulate Formation Modeling Applicability*

The impact from secondary particulate formation resulting from emissions of NOx, $SO_2$, and/or VOCs was assumed by DEQ to be negligible based on the magnitude of emissions and the short distance from emissions sources to modeled receptors where maximum $PM_{10}$ and $PM_{2.5}$ impacts would be anticipated.

## *2.4 Significant and Cumulative NAAQS Impact Analyses*

If maximum modeled pollutant impacts to ambient air from emissions sources associated with a new facility or the emissions increase associated with a modification exceed the SILs of Idaho Air Rules Section 006 (referred to as a significant contribution in Idaho Air Rules) or as incorporated by reference as per Idaho Air Rules Section 107.03.b, then a cumulative NAAQS impact analysis is necessary to demonstrate compliance with NAAQS and Idaho Air Rules Section 203.02. A cumulative NAAQS impact analysis may also be required for permit revisions driven by compliance/enforcement actions, any correction of emissions limits or other operational parameters that may affect pollutant impacts to ambient air, or other cases where DEQ believes NAAQS may be threatened by the emissions associated with the facility or proposed project.

A cumulative NAAQS impact analysis for attainment area pollutants involves assessing ambient impacts, according to established DEQ/EPA guidance, policies, and procedures, from applicable facility-wide emissions and emissions from any nearby co-contributing sources. A DEQ-approved background concentration value is then added to the modeled result that is appropriate for the criteria pollutant/averaging-time at the facility location and the area of significant impact. The resulting pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 3. Table 3 also lists SILs and specifies the modeled design value that must be used for comparison to the NAAQS. NAAQS compliance is evaluated on a receptor-by-receptor basis.

| Table 3. APPLICABLE REGULATORY LIMITS | | | | |
|---|---|---|---|---|
| **Pollutant** | **Averaging Period** | **Significant Impact Levels[a] ($\mu g/m^3$)[b]** | **Regulatory Limit[c] ($\mu g/m^3$)** | **Modeled Design Value Used[d]** |
| $PM_{10}$[e] | 24-hour | 5.0 | 150[f] | Maximum 6th highest[g] |
| $PM_{2.5}$[h] | 24-hour | 1.2 | 35[i] | Mean of maximum 8th highest[j] |
| | Annual | 0.3 | 12[k] | Mean of maximum 1st highest[l] |
| Carbon monoxide (CO) | 1-hour | 2,000 | 40,000[m] | Maximum 2nd highest[n] |
| | 8-hour | 500 | 10,000[m] | Maximum 2nd highest[n] |
| Sulfur Dioxide ($SO_2$) | 1-hour | 3 ppb[o] (7.8 $\mu g/m^3$) | 75 ppb[p] (196 $\mu g/m^3$) | Mean of maximum 4th highest[q] |
| | 3-hour | 25 | 1,300[m] | Maximum 2nd highest[n] |
| Nitrogen Dioxide ($NO_2$) | 1-hour | 4 ppb (7.5 $\mu g/m^3$) | 100 ppb[s] (188 $\mu g/m^3$) | Mean of maximum 8th highest[t] |
| | Annual | 1.0 | 100[r] | Maximum 1st highest[n] |
| Lead (Pb) | 3-month[u] | NA | 0.15[r] | Maximum 1st highest[n] |
| | Quarterly | NA | 1.5[r] | Maximum 1st highest[n] |
| Ozone ($O_3$) | 8-hour | 40 TPY VOC[v] | 75 ppb[w] | Not typically modeled |

a. Idaho Air Rules Section 006 (definition for significant contribution) or as incorporated by reference as per Idaho Air Rules Section 107.03.b.
b. Micrograms per cubic meter.
c. Incorporated into Idaho Air Rules by reference, as per Idaho Air Rules Section 107.
d. The maximum 1st highest modeled value is always used for the significant impact analysis unless indicated otherwise. Modeled design values are calculated for each ambient air receptor.
e. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
f. Not to be exceeded more than once per year on average over 3 years.
g. Concentration at any modeled receptor when using five years of meteorological data.
h. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
i. 3-year mean of the upper 98th percentile of the annual distribution of 24-hour concentrations.
j. 5-year mean of the 8th highest modeled 24-hour concentrations at the modeled receptor for each year of meteorological data modeled. For the SIL analysis, the 5-year mean of the 1st highest modeled 24-hour impacts at the modeled receptor for each year.
k. 3-year mean of annual concentration.
l. 5-year mean of annual averages at the modeled receptor.
m. Not to be exceeded more than once per year.
n. Concentration at any modeled receptor.
o. Interim SIL established by EPA policy memorandum.
p. 3-year mean of the upper 99th percentile of the annual distribution of maximum daily 1-hour concentrations.
q. 5-year mean of the 4th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of 1st highest modeled 1-hour impacts for each year is used.
r. Not to be exceeded in any calendar year.
s. 3-year mean of the upper 98th percentile of the annual distribution of maximum daily 1-hour concentrations.
t. 5-year mean of the 8th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of maximum modeled 1-hour impacts for each year is used.
u. 3-month rolling average.
v. An annual emissions rate of 40 ton/year of VOCs is considered significant for $O_3$.
w. Annual 4th highest daily maximum 8-hour concentration averaged over three years. The $O_3$ standard was revised (the notice was signed by the EPA Administrator on October 1, 2015) to 70 ppb. However, this standard will not be applicable for permitting purposes until it is incorporated by reference *sine die* into Idaho Air Rules.

If the cumulative NAAQS impact analysis shows a violation of the standard, the permit cannot be issued if the proposed project or facility has a significant contribution (exceeding the SIL) to the modeled violation. This evaluation is made specific to both time and space. The facility or project does not have a significant contribution to a violation if impacts are below the SIL at all specific receptors showing violations during the time periods when modeled violations occurred.

Compliance with Idaho Air Rules Section 203.02 is demonstrated if: a) specific applicable criteria pollutant emissions increases are at a level defined as Below Regulatory Concern (BRC), using the criteria established by DEQ regulatory interpretation[1]; or b) all modeled impacts of the SIL analysis

are below the applicable SIL or other level determined to be inconsequential to NAAQS compliance; or c) modeled design values of the cumulative NAAQS impact analysis (modeling applicable emissions from the facility and co-contributing sources, and adding a background concentration) are less than applicable NAAQS at receptors where impacts from the proposed facility/modification exceeded the SIL or other identified level of consequence; or d) if the cumulative NAAQS analysis showed NAAQS violations, the impact of proposed facility/modification to any modeled violation was inconsequential (typically assumed to be less than the established SIL) for that specific receptor and for the specific modeled time when the violation occurred.

### 2.5 Toxic Air Pollutant Analyses

Emissions of toxic substances are generally addressed by Idaho Air Rules Section 161:

> *Any contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation.*

Permitting requirements for toxic air pollutants (TAPs) from new or modified sources are specifically addressed by Idaho Air Rules Section 203.03 and require the applicant to demonstrate to the satisfaction of DEQ the following:

> *Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Per Section 210, if the total project-wide emissions increase of any TAP associated with a new source or modification exceeds screening emission levels (ELs) of Idaho Air Rules Section 585 or 586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of Idaho Air Rules Section 585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of Idaho Air Rules Section 586, then compliance with TAP requirements has been demonstrated.

Idaho Air Rules Section 210.20 states that if TAP emissions from a specific source are regulated by the Department or EPA under 40 CFR 60, 61, or 63, then a TAP impact analysis under Section 210 is not required for that TAP. The DEQ permit writer evaluates the applicability of specific TAPs to the Section 210.20 exclusion.

TAPs modeling was triggered for this project for carcinogenic TAPs.

## 3.0 Analytical Methods and Data

### 3.1 Modeling Methodology

This section describes the modeling methods used by the applicant's consultant, CPP, to demonstrate compliance with applicable air quality standards.

### *3.1.1 Overview of Analyses*

CPP performed project-specific air impact analyses that were determined by DEQ to be reasonably representative of the facility, using established DEQ policies, guidance, and procedures. Results of the submitted analyses, in combination with DEQ's analyses, demonstrated compliance with applicable air quality standards to DEQ's satisfaction, provided the facility is operated as described in the submitted application and in this memorandum.

Table 4 provides a brief description of parameters used in the modeling analyses.

**Table 4. MODELING PARAMETERS**

| Parameter | Description/Values | Documentation/Addition Description |
|---|---|---|
| General Facility Location | Nampa, Idaho | The area is an attainment or unclassified area for all criteria pollutants. |
| Model | AERMOD | AERMOD with the PRIME downwash algorithm, version 15181. |
| Meteorological Data | Boise | 2011-2015—See Section 3.3 of this memorandum. Surface data from the Boise airport and upper air data from Boise, Idaho. |
| Terrain | Considered | Receptor elevations were determined using USGS 1/3 arc second National Elevation Dataset (NED) files based on the NAD83 datum. The facility is located within Zone 11. |
| Building Downwash | Considered | Plume downwash was considered for the structures associated with the facility and appropriate nearby structures. |
| Receptor Grid | **Criteria Air Pollutants and Toxic Air Pollutants** | |
| | Grid 1 | 10-meter spacing exterior to the facility's buildings in a square grid measuring 390 meters (x) by 390 meters (y) centered on the facility. |
| | Grid 2 | 25-meter spacing exterior to the facility's buildings in a square grid measuring 1,000 meters (x) by 1,000 meters (y) centered on the facility and overlapping Grid 1. |
| | Grid 3 | 50-meter spacing in a 3,000-meter (x) by 3,000-meter (y) grid centered on Grid 2. |

### *3.1.2 Modeling Protocol*

A modeling protocol was submitted to DEQ by CPP on June 10, 2016, on behalf of SAMC. A protocol report and electronic modeling files were made available to DEQ on CPP's FTP site. DEQ issued a modeling protocol approval letter dated July 5, 2016, via email. Project-specific modeling was conducted using data and methods described in the modeling protocol and the *Idaho Air Modeling Guideline*[2].

### *3.1.3 Model Selection*

Idaho Air Rules Section 202.02 requires that estimates of ambient concentrations be based on air quality models specified in 40 CFR 51, Appendix W (Guideline on Air Quality Models). The refined, steady-state, multiple-source, Gaussian dispersion model AERMOD was promulgated as the replacement model for ISCST3 in December 2005. AERMOD retains the single straight line trajectory of ISCST3, but includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD Version 15181 was used by CPP for the modeling analyses to evaluate impacts of the facility. This is the current version of this regulatory guideline model.

$NO_2$ 1-hour impacts can be assessed using a tiered approach to account for $NO/NO_2/O_3$ chemistry.

Tier 1 assumes full conversion of NO to $NO_2$. Tier 2 ARM assumes a 0.80 default ambient ratio of $NO_2/NO_x$ for 1-hour $NO_2$ and 0.75 for annual average $NO_2$.

Tier 2 ARM2 is a more refined method of estimating the conversion of NO to $NO_2$ for the 1-hour $NO_2$ standard than the established Tier 2 ARM. Tier 2 ARM2 relies on a considerable body of EPA Air Quality System (AQS) monitoring data analyzing the $NO_2/NO_x$ ratios of the nationwide data. As described in the underlying technical paper submitted to EPA[3] and EPA's related guidance,[4] the nationwide EPA data was separated into groups or "bins" of data values spaced in increments of 10 parts per billion (ppb) where NOx monitoring values were less than 200 ppb and 20 ppb "bins" for values greater than 200 ppb. Within each 10 ppb and 20 ppb bin, the 98$^{th}$ percentile value for the $NO_2/NO_x$ ratio was determined and used in the dataset to create a sixth order polynomial regression equation that is used to calculate a $NO_2/NO_x$ ratio based on total $NO_x$.

Tier 3 is a more refined assessment of the NO to $NO_2$ conversion, using a supplemental modeling program with AERMOD to better account for $NO/NO_2/O_3$ atmospheric chemistry. Either the Plume Volume Molar Ratio Method (PVMRM) or the Ozone Limiting Method (OLM) can be specified within the AERMOD input file for the Tier 3 approach. EPA guidance (Memorandum: from Tyler Fox, Leader, Air Quality Modeling Group, C439-01, Office of Air Quality Planning and Standards, USEPA; to Regional Air Division Directors. *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour $NO_2$ National Ambient Air Quality Standard.* March 01, 2011) has not indicated a preference for one option over the other (PVMRM vs OLM) for particular applications. The Tier 2 ARM2 and both Tier 3 methods are considered to be non-regulatory guideline methods and must be approved by DEQ for the applicant's use on a case-by-case basis. The Tier 2 ARM2 compliance method was approved by DEQ in the conditional modeling protocol approval letter; however, CPP elected to use a Tier 2 ARM approach for the 1-hr $NO_2$ NAAQS analyses. A discussion of the Tier 2 ARM2 justification and approval is included in the pre-application modeling protocol and protocol approval materials and is not readdressed in this memorandum.

### 3.2 Background Concentrations

A background concentration tool was used to establish ambient background concentrations for this project. A beta version of the background concentration tool was developed by the Northwest International Air Quality Environmental Science and Technology Consortium (NW AIRQUEST) and provided through Washington State University (located at http://lar.wsu.edu/nw-AIRQUEST/lookup.html). The tool uses regional scale modeling of pollutants in Washington, Oregon, and Idaho, with modeling results adjusted according to available monitoring data. The background concentration is added to the design value for each pollutant and averaging period.

DEQ provided ambient background concentrations to CPP in emails dated February 19, 2016 and February 29, 2016. Those backgrounds were limited to 24-hour $PM_{10}$, 24-hour and annual $PM_{2.5}$, 1-hour and annual $NO_2$, and 1-hour $SO_2$. Background values for other pollutants were obtained by DEQ from the NW AIRQUEST ambient background resource and historical DEQ ambient background documentation. Only the annual average and 1-hour average $NO_2$ background values were used in this project, and the DEQ-generated background values relevant for this project are listed in Table 5.

| Table 5. DEQ-RECOMMENDED AMBIENT BACKGROUND CONCENTRATIONS | | |
|---|---|---|
| **Pollutant** | **Averaging Period** | **Background Concentration ($\mu g/m^3$)[a]** |
| $NO_2$[c] | 1-hour | 70.0[b] |
| | Annual | 11.7[b] |

a. Micrograms per cubic meter, except where noted otherwise.
b. Email correspondence dated February 19, 2016 and February 29, 2016, Kevin Schilling, DEQ to Sergio Guerra, CPP.
c. Nitrogen dioxide.

### 3.3 Meteorological Data

DEQ provided CPP with a model-ready meteorological dataset processed from Boise airport surface and Boise upper air meteorological data covering the years 2011-2015. The model-ready dataset for this project was generated from monitored data collected at the Boise airport (FAA airport code KBOI) for surface and Automated Surface Observing System (ASOS) data and upper air data from the National Weather Service (NWS) Station site (site ID 726810-24131). Surface characteristics were determined by DEQ staff using AERSURFACE version 13016. DEQ modeling staff evaluated annual moisture conditions for the AERSURFACE runs based on thirty years of Boise airport precipitation data. Conditions were determined to be "wet" for 2014 only. Years 2011, 2012, 2013, and 2015 were determined to be "average" years for precipitation. Continuous snow cover at the Boise airport site was determined to not have existed during any period from 2011-2015. AERMINUTE version 15271 was used to process ASOS wind data for use in AERMET. AERMET Version 15181 was used to process surface and upper air data and to generate a model-ready meteorological data input file. DEQ determined these data were representative for the Nampa SAMC site and approved use of this dataset for the project.

### 3.4 Terrain Effects

CPP used a National Elevation Dataset (NED) file in "tif" format in the WGS84 datum, to calculate elevations of receptors. The model setup was converted to NAD83 coordinates in the AERMOD model setup. A 1/3rd arc second file provided 10-meter resolution of elevation data. The terrain preprocessor AERMAP version 11103 was used to extract the elevations from the NED file and assign them to receptors in the modeling domain in a format usable by AERMOD. AERMAP also determined the hill-height scale for each receptor. The hill-height scale is an elevation value based on the surrounding terrain which has the greatest effect on that individual receptor. AERMOD uses those heights to evaluate whether the emissions plume has sufficient energy to travel up and over the terrain or if the plume will travel around the terrain.

The NED terrain data file provided elevation data for a 6.2 mile (x) by 7.2 mile (y) area, or just under 45 square miles.

### 3.5 Building Downwash Effects on Modeled Impacts

Potential downwash effects on the emissions plume were accounted for in the model by using building parameters as described by CPP. The Building Profile Input Program for the PRIME downwash algorithm (BPIP-PRIME) was used to calculate direction-specific dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and release parameters for input to AERMOD. Building and stack source base elevations were established by CPP using uniform base elevations of either 2,594 feet above sea level or 2,595 feet above sea level rather than using AERMAP and the terrain data.

Multiple individual "buildings" were used in the BPIP setup to represent the complex multiple-level existing and expansion sections of the facility's medical center building. The permit application contains the building identification number, base elevation, building height, and number of tiers for that subsection of the building in Form MI4 (page 24 of 204 of the Adobe PDF permit application). Building tier heights were also presented in the building schematic shown on page 21 of 204 of the permit application.

DEQ review concluded that the building downwash was appropriately evaluated.

### *3.6 Facility Layout*

Figures 1 and 2 below show the facility's emission sources and all structures in the modeling analyses. Ambient air is considered to exist anywhere exterior to the facility's buildings. An expansion will be added to the existing building. Multiple "buildings" were used in BPIP to represent the complex multi-tier structure.

**Figure 1. SAINT ALPHONSUS NAMPA MEDICAL CENTER LAYOUT**

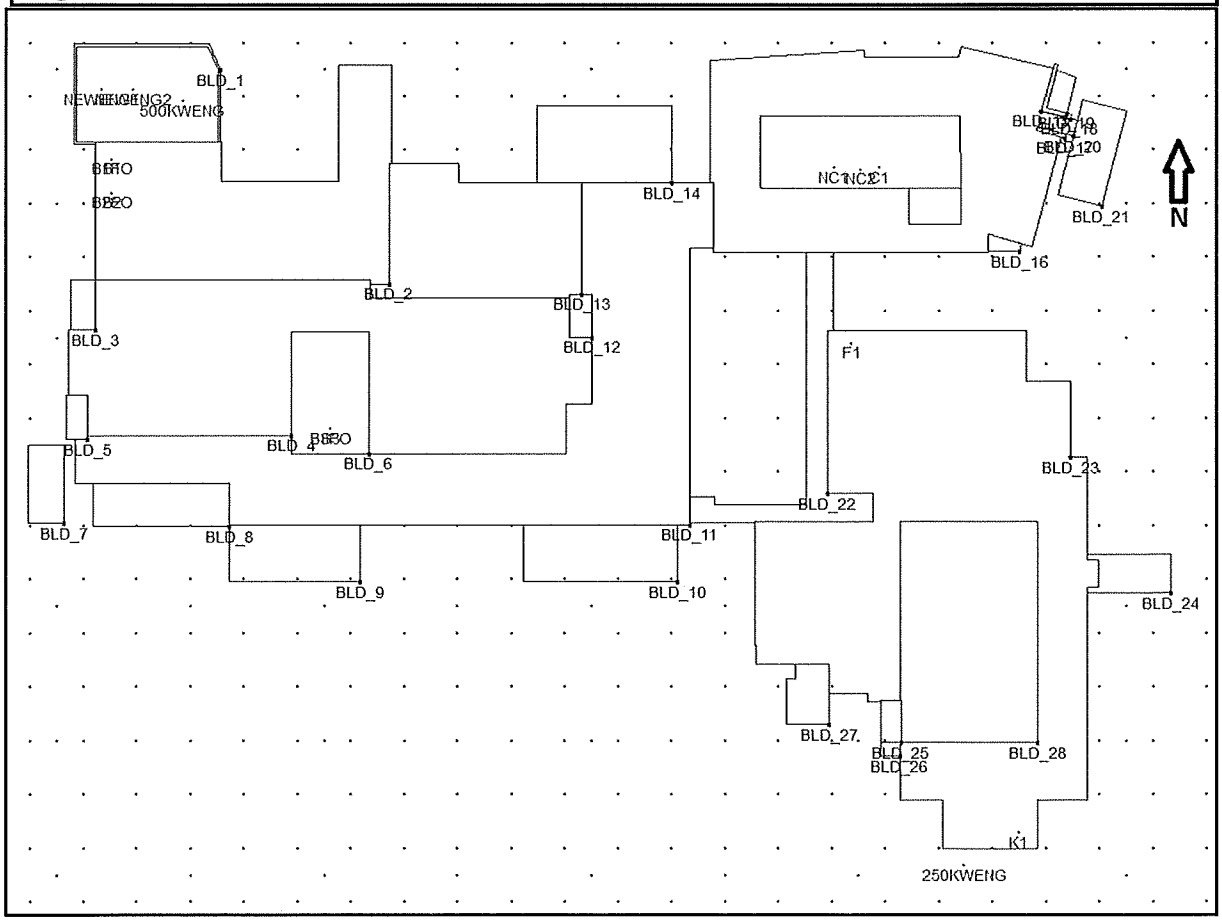
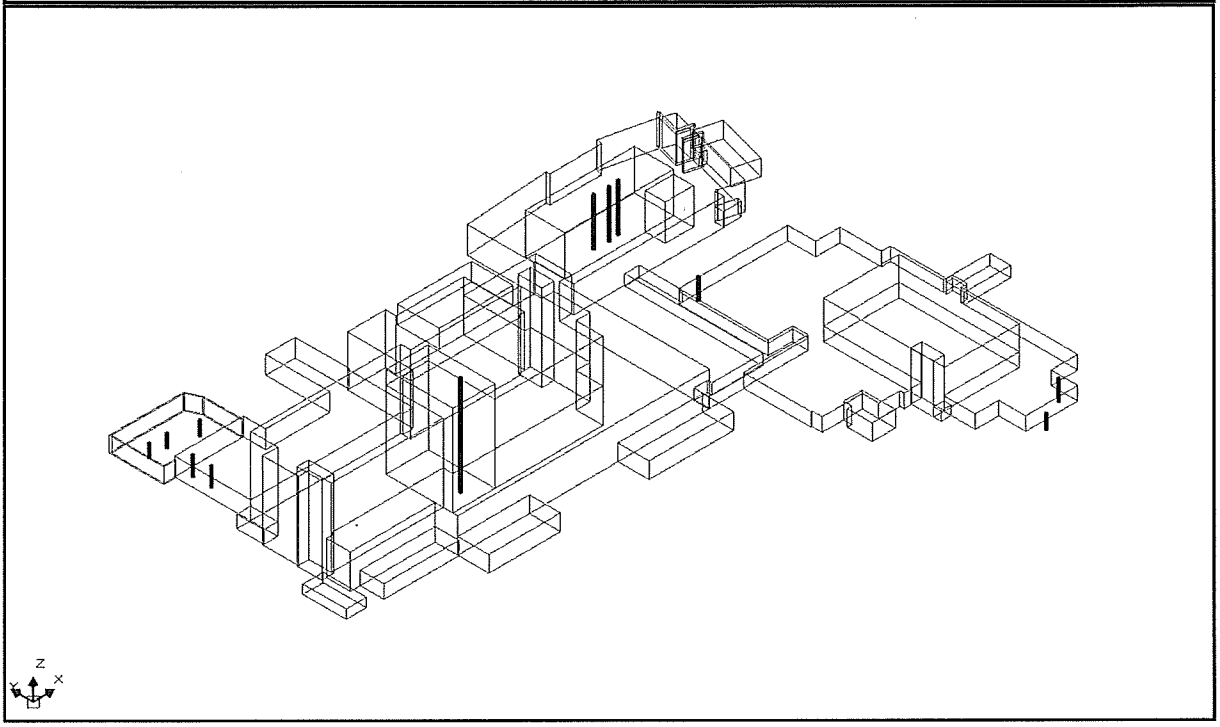


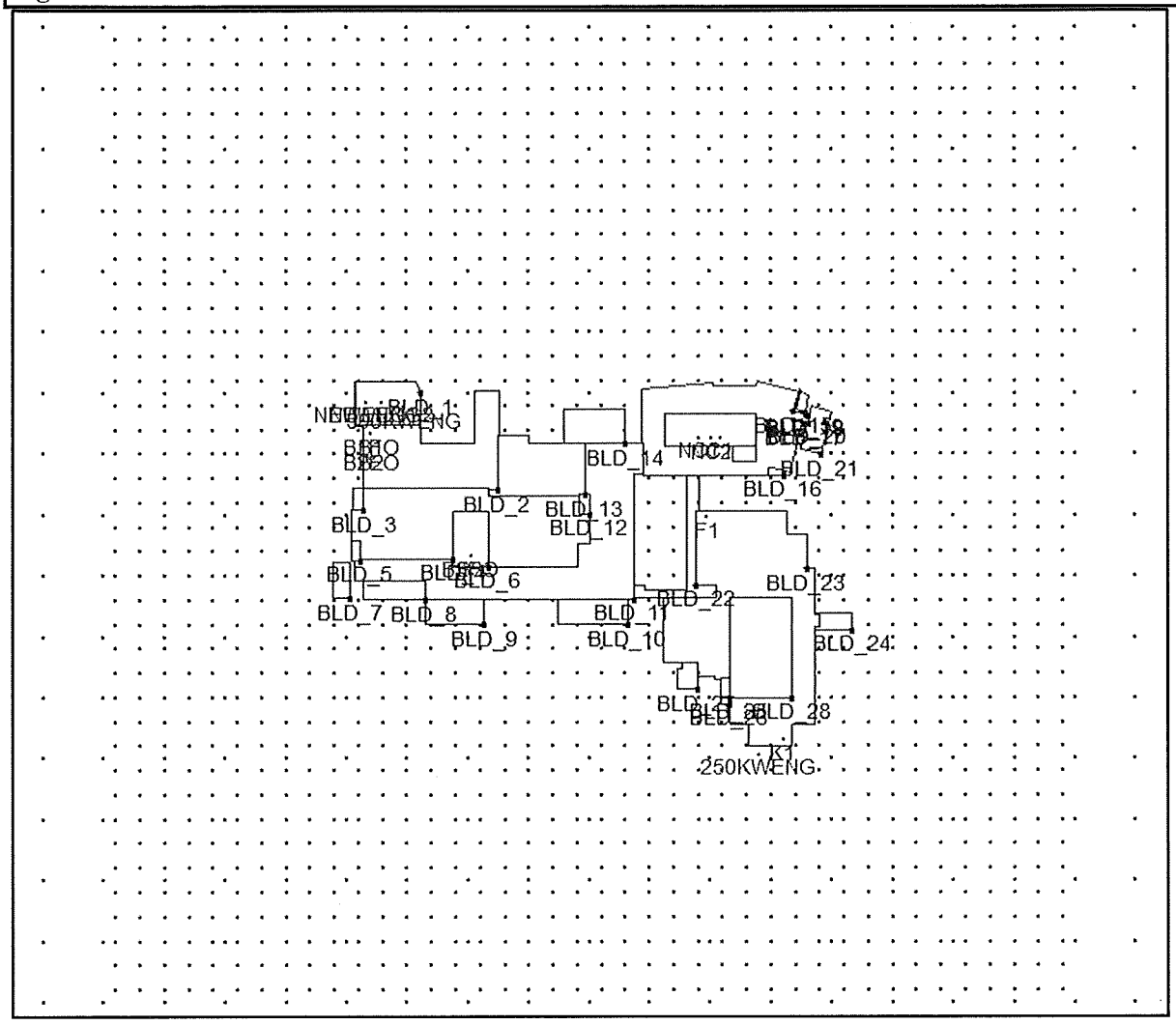
**Figure 2. SAINT ALPHONSUS NAMPA MEDICAL CENTER ORTHOGONAL VIEW**




### *3.7 Ambient Air Boundary*

The ambient air boundary used for this project was established immediately exterior to the SAMC building. Figure 3 below shows that discrete receptors were placed along the perimeter of the structure and in a grid exterior to the buildings. DEQ review concluded that the ambient air boundary was established based on the criteria contained in DEQ's *Modeling Guideline*[2]. CPP appropriately addressed air pollutant impacts to areas considered to be ambient air.

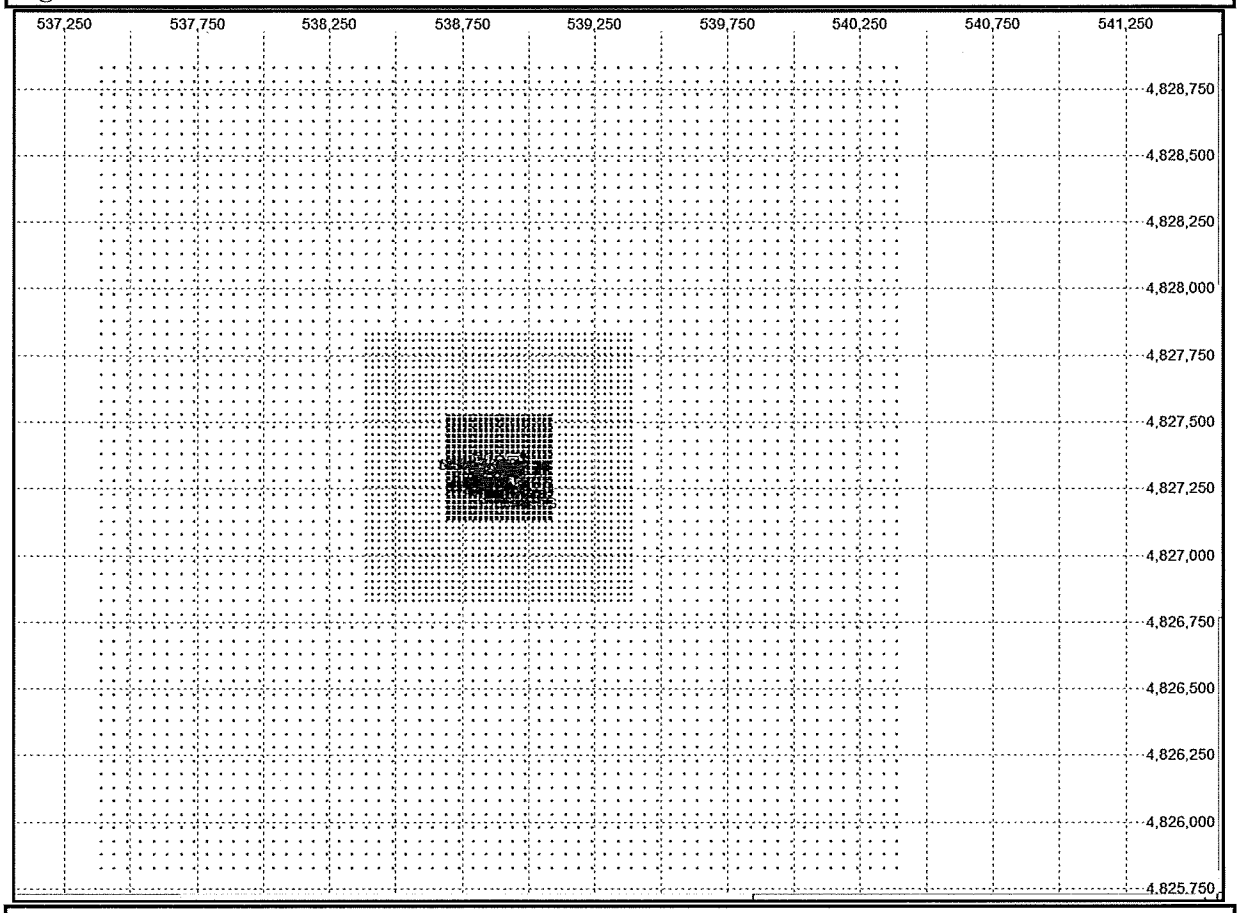
**Figure 3. SAINT ALPHONSUS MODEL SETUP AND FINE GRID OF RECEPTORS**




### *3.8 Receptor Network*

Table 3 describes the receptor network used in the submitted modeling analyses. The receptor grids used in the model provided good resolution of the maximum design concentrations for the project and provided extensive coverage. The full receptor grid covering a region of 3 kilometers by 3 kilometers was used for the NAAQS and TAPs ambient air impact analyses. DEQ determined that the receptor network was effective in reasonably assuring compliance with applicable air quality standards at all ambient air locations. The complete extent of the receptor grid is depicted below in Figure 4.

**Figure 4. SAINT ALPHONSUS NAMPA FULL RECEPTOR GRID**




**UTM Coordinates in NAD83 Datum, Facility is located in Zone 11, Coordinates are in units of meters**

## *3.9 Emission Rates*

Review and approval of estimated emissions is the responsibility of the DEQ permit writer, and the representativeness and accuracy of emissions estimates is not addressed in this modeling review memorandum. DEQ air impact analyses review included verification that the potential emissions rates provided in the emissions inventory were properly used in the model. The rates listed must represent the maximum allowable rate as averaged over the specified period.

Emissions rates used for the SAMC Nampa facility in the dispersion modeling analyses, as listed in this memorandum, should be reviewed by the DEQ permit writer and compared with those in the final emissions inventory. All modeled criteria air pollutant and TAP emissions rates must be equal to or greater than the facility's potential emissions calculated in the PTC emissions inventory or proposed permit allowable emissions rates.

### *3.9.1 Criteria Pollutant Emissions Rates for Significant Impact Level and Cumulative Analyses*

A significant impact level (SIL) analysis was not submitted as part of the air quality NAAQS compliance demonstration. Cumulative NAAQS analyses were conducted for NOx emissions to demonstrate compliance with the 1-hour and annual average $NO_2$ NAAQS.

Table 6 lists criteria pollutant continuous (24 hours per day) emissions rates used to evaluate NAAQS compliance for standards with averaging periods of 24 hours or less. Table 7 lists criteria pollutant continuous (8,760 hours/year) emissions rates used to evaluate NAAQS compliance for standards with an annual averaging period. These modeled rates must be equal or greater than permit allowable facility-wide emissions for the listed averaging period.

**Table 6. SAINT ALPHONSUS SHORT-TERM CRITERIA POLLUTANT EMISSIONS RATES**

| Emissions Point | Description | $NO_x$[a] (lb/hr)[b] | |
|---|---|---|---|
| | | Natural Gas | Distillate Fuel |
| B1 | Proposed Dual Fuel Boiler B1 – Natural Gas Firing -10 MMBtu/hr | 0.33 | 0 |
| B2 | Proposed Dual Fuel Boiler B2 – Natural Gas Firing – 10 MMBtu/hr | 0.33 | 0 |
| B3 | Proposed Dual Fuel Boiler B3 – Natural Gas Firing – 2 MMBtu/hr (Either Boiler 3 or Boiler 4)[c] | 0.20 | 0 |
| B1FO[d] | Proposed Dual Fuel Boiler B1 – Backup Fuel Distillate Fuel Oil Firing | 0 | 1.21 |
| B2FO[d] | Proposed Dual Fuel Boiler B2 – Backup Fuel Distillate Fuel Oil Firing | 0 | 1.21 |
| B3FO[d] | Proposed Dual Fuel Boiler B3 – Backup Fuel Distillate Fuel Oil Firing | 0 | 0.29 |
| NC1 | Existing Noncondensing Boiler 1 – 2 MMBtu/hr | 0.29 | 0 |
| NC2 | Existing Noncondensing Boiler 2 – 2 MMBtu/hr | 0.29 | 0 |
| C1 | Existing Condensing Boiler 1 – 2 MMBtu/hr | 0.11 | 0 |
| F1 | Existing Fulton Boiler – 2 MMBtu/hr (Either Boiler F1 or F2)[c] | 0.29 | 0 |
| K1 | Existing Kewannee Boiler – 1.35 MMBtu/hr | 0.13 | 0 |

a. Nitrogen oxides.
b. Pounds per hour.
c. Two identical boilers exhaust to a common stack. Only one boiler is to operate at any time while the other remains available as a backup.
d. Testing of dual fuel boiler on distillate fuel oil was assumed to occur once per week for two hours (11 am – 1 pm). Natural gas and distillate fuel oil combustion emissions are emitted from the same stack.

**Table 7. SAINT ALPHONSUS ANNUAL CRITERIA POLLUTANT EMISSIONS RATES**

| Emissions Point | Description | $NO_x$[a] (lb/hr)[b] |
|---|---|---|
| B1 | Proposed Dual Fuel Boiler B1 – Natural Gas Firing -10 MMBtu/hr | 0.33 |
| B2 | Proposed Dual Fuel Boiler B2 – Natural Gas Firing – 10 MMBtu/hr | 0.33 |
| B3 | Proposed Dual Fuel Boiler B3 – Natural Gas Firing – 2 MMBtu/hr (Either Boiler 3 or Boiler 4)[c] | 0.20 |
| B1FO[e] | Proposed Dual Fuel Boiler B1 – Backup Fuel Distillate Fuel Oil Firing | 1.20 |
| B2FO[e] | Proposed Dual Fuel Boiler B2 – Backup Fuel Distillate Fuel Oil Firing | 1.20 |
| B3FO[e] | Proposed Dual Fuel Boiler B3 – Backup Fuel Distillate Fuel Oil Firing | 0.29 |
| NC1 | Existing Noncondensing Boiler 1 – 2 MMBtu/hr | 0.29 |
| NC2 | Existing Noncondensing Boiler 2 – 2 MMBtu/hr | 0.29 |
| C1 | Existing Condensing Boiler 1 – 2 MMBtu/hr | 0.11 |
| F1 | Existing Fulton Boiler – 2 MMBtu/hr (Either Boiler F1 or F2)[c] | 0.29 |
| K1 | Existing Kewannee Boiler – 1.35 MMBtu/hr | 0.13 |
| NEWENG1 | Proposed 1,600 kW Emergency Diesel Generator Engine | 0.22 |
| NEWENG2 | Proposed 1,600 kW Emergency Diesel Generator Engine | 0.22 |
| 500KWENG | Existing 500 kW Emergency Diesel Generator Engine (Relocated) | 0.24 |
| 250KWENG | Existing 250 kW Emergency Diesel Generator Engine | 0.12 |

a. Nitrogen oxides.
b. Pounds per hour.
c. Two identical boilers exhaust to a common stack. Only one boiler is to operate at any time while the other remains available as a backup.

### *3.9.2 Toxic Air Pollutant Emissions*

The increase in emissions from the proposed project are required to demonstrate compliance with the toxic air pollutant (TAP) increments, with an ambient impact analyses required for any TAP having a requested potential emission rate that exceeds the screening emissions level (EL) specified by Idaho Air Rules Section 585 or 586. Review of the TAPs emissions inventory, and authority to request alterations to the inventory, is the responsibility of the DEQ permit writer/project manager.

Six TAPs with emission rates that exceeded the carcinogenic TAP ELs were modeled for the proposed project. Hourly TAPs emission rates listed in Table 8 were modeled for 8,760 hours per year. The hourly emission rates reflect total annual emissions averaged uniformly over 8,760 hours per year.

**Table 8. TOXIC AIR POLLUTANT EMISSIONS RATES**

| Pollutant | Chemical Abstract Service Number | Emissions Source | | | | | |
|---|---|---|---|---|---|---|---|
| | | B1[a] (lb/hr)[b] | B1FO[c] (lb/hr) | B2[a] (lb/hr) | B2FO[c] (lb/hr) | B3[d] (lb/hr) | B3FO[e] (lb/hr) |
| Arsenic | 7440-38-2 | 1.97E-06 | 4.02E-05 | 1.97E-06 | 4.02E-05 | 3.94E-07 | 8.04E-06 |
| Beryllium | 7440-41-7 | 1.18E-07 | 3.01E-05 | 1.18E-07 | 3.01E-05 | 2.36E-08 | 6.03E-06 |
| Cadmium | 7440-43-9 | 1.08E-05 | 3.01E-05 | 1.08E-05 | 3.01E-05 | 2.17E-06 | 6.03E-06 |
| Formaldehyde | 50-00-0 | 7.38E-04 | 0.0024 | 7.38E-04 | 0.0024 | 1.48E-04 | 4.74E-04 |
| Nickel | 7440-02-0 | 2.07E-05 | 3.01E-05 | 2.07E-05 | 3.01E-05 | 4.14E-06 | 6.03E-06 |
| Naphthalene as a PAH[f] | NA[g] | 6.76E-06 | 8.46E-05 | 6.76E-06 | 8.46E-05 | 1.35E-06 | 1.69E-05 |

a. Boilers designated as B1 and B2, representing each boiler fired on natural gas at rated capacity for 8,656 hours per year. Annual emissions were averaged over 8,760 hours per year to establish the modeled hourly emission rate.
b. Pounds per hour.
c. Boilers B1 and B2, representing each boiler fired on Number 2 distillate fuel oil (diesel) for maintenance and testing purposes for each boiler operating at rated capacity for 104 hours per year at the listed hourly emission rate. Annual emissions were averaged over 8,760 hours per year to establish the modeled hourly emission rate.
d. Boiler 3 and Boiler 4 are identical boilers that exhaust to a common stack. Only one boiler is operational at any time. These two boilers share 8,656 hours per year of operation while fired on natural gas at rated capacity. Annual emissions were averaged over 8,760 hours per year to establish the modeled hourly emission rate.
e. Boiler 3 and Boiler 4 are identical boilers that exhaust to a common stack. Only one boiler is operational at any time. These two boilers share 104 hours per year of operation at rated capacity while fired on diesel. Annual emissions were averaged over 8,760 hours per year to establish the modeled hourly emission rate.
f. Polyaromatic hydrocarbon regulated under Section 586 of the Idaho *Air Rules*.
g. A chemical abstract service number is not assigned to polyaromatic hydrocarbons or naphthalene regarded as a polyaromatic hydrocarbon.

## *3.10 Emission Release Parameters*

Tables 9 and 10 list emissions release parameters for modeled sources for the SAMC Nampa facility.

**Table 9. SAINT ALPHONSUS POINT SOURCE EMISSIONS RELEASE PARAMETERS – METRIC UNITS**

| Release Point | Description | UTM[a] Coordinates, NAD 83, Zone 11 | | Stack Base Elevation (m) | Stack Height (m) | Modeled Diameter (m) | Stack Gas Temp (K)[c] | Stack Flow Velocity (m/s)[d] | Stack Release Type |
|---|---|---|---|---|---|---|---|---|---|
| | | Easting (m)[b] | Northing (m) | | | | | | |
| B1 | Proposed Dual Fuel Boiler B1 – Natural Gas Firing -10 MMBtu/hr | 538,799.91 | 4,827,365.28 | 791.0 | 6.44 | 0.508 | 449.82 | 9.55 (6.79)[f] | Vertical and uninterrupted |
| B2 | Proposed Dual Fuel Boiler B2 – | 538,799.91 | 4,827,358.99 | 791.0 | 6.44 | 0.508 | 449.82 | 9.55 (6.79)[f] | Vertical and |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Natural Gas Firing – 10 MMBtu/hr | | | | | | | | uninterrupted |
| B3 | Proposed Dual Fuel Boiler B3 – Natural Gas Firing – 2 MMBtu/hr (Either Boiler 3 or Boiler 4)[e] | 538,840.78 | 4,827,315.05 | 791.0 | 33.83 | 0.356 | 449.82 | 0.001 | Capped |
| B1FO | Proposed Dual Fuel Boiler B1 – Backup Fuel Distillate Fuel Oil | 538,799.91 | 4,827,365.28 | 791.0 | 6.44 | 0.508 | 449.82 | 9.55 | Vertical and uninterrupted |
| B2FO | Proposed Dual Fuel Boiler B2 – Backup Fuel Distillate Fuel Oil | 538,799.91 | 4,827,358.99 | 791.0 | 6.44 | 0.508 | 449.82 | 9.55 | Vertical and uninterrupted |
| B3FO | Proposed Dual Fuel Boiler B3 – Backup Fuel Distillate Fuel Oil | 538,840.78 | 4,827,315.05 | 791.0 | 33.83 | 0.356 | 449.82 | 0.001 | Capped |
| NC1 | Existing Noncondensing Boiler 1 – 2 MMBtu/hr | 538,935.04 | 4,827,363.71 | 791.0 | 16.15 | 0.305 | 449.82 | 2.23 | Vertical and uninterrupted |
| NC2 | Existing Noncondensing Boiler 2 – 2 MMBtu/hr | 538,939.96 | 4,827,363.36 | 791.0 | 16.15 | 0.305 | 449.82 | 2.23 | Vertical and uninterrupted |
| C1 | Existing Condensing Boiler 1 – 2 MMBtu/hr | 538,943.48 | 4,827,363.71 | 791.0 | 16.15 | 0.305 | 449.82 (302.6)[g] | 0.83 (0.39)[g] | Vertical and uninterrupted |
| F1 | Existing Fulton Boiler – 2 MMBtu/hr (Either Boiler F1 or F2)[e] | 538,938.20 | 4,827,330.98 | 790.7 | 7.01 | 0.305 | 449.82 | 2.24 | Vertical and uninterrupted |
| K1 | Existing Kewannee Boiler – 1.35 MMBtu/hr | 538,969.53 | 4,827,239.83 | 790.7 | 7.01 | 0.305 | 449.82 | 1.5 | Vertical and uninterrupted |
| NEWENG1 | Proposed 1,600 kW Emergency Diesel Engine | 538,797.96 | 4,827,378.22 | 791.0 | 4.47 | 0.406 | 777.59 | 50 | Vertical and uninterrupted |
| NEWENG2 | Proposed 1,600 kW Emergency Diesel Engine | 538,803.86 | 4,827,378.22 | 791.0 | 4.47 | 0.406 | 777.59 | 50 | Vertical and uninterrupted |
| 500KWENG | Existing 500 kW Emergency Diesel Engine | 538,813.02 | 4,827,376.15 | 791.0 | 4.8 | 0.122 | 410.43 | 10.88 | Vertical and uninterrupted |
| 250KWENG | Existing 250 kW Emergency Diesel Engine | 538,959.30 | 4,827,233.70 | 790.7 | 4.8 | 0.122 | 410.43 | 10.88 | Vertical and uninterrupted |

a. Universal Transverse Mercator.
b. Meters.
c. Kelvin.
d. Meters per second.
e. Two identical boilers exhaust to a common stack. Only one boiler is to operate at any time while the other remains available as a backup.
f. Velocity value used in DEQ sensitivity analyses based on the exhaust volumetric flow rate calculated using the heat input rating of the unit and the EPA diesel fuel combustion product flow rate F-Factor.
g. Conservative value applied in DEQ sensitivity analysis to evaluate worst-case impacts.

| Table 10. SAINT ALPHONSUS POINT SOURCE EMISSIONS RELEASE PARAMETERS – ENGLISH UNITS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Release Point | Description | UTM[a] Coordinates, NAD 83, Zone 11 | | Stack Base Elevation (ft) | Stack Height (ft) | Modeled Diameter (ft) | Stack Gas Temp (deg F)[c] | Stack Flow Velocity (fps)[d] | Stack Release Type |
| | | Easting (m)[b] | Northing (m) | | | | | | |
| B1 | Proposed Dual Fuel Boiler B1 – Natural Gas Firing -10 MMBtu/hr | 538,799.91 | 4,827,365.28 | 2,595.0 | 21.1 | 1.67 | 350.0 | 31.33 (22.28)[f] | Vertical and uninterrupted |
| B2 | Proposed Dual Fuel Boiler B2 – Natural Gas Firing – 10 MMBtu/hr | 538,799.91 | 4,827,358.99 | 2,595.0 | 21.1 | 1.67 | 350.0 | 31.33 (22.28)[f] | Vertical and uninterrupted |
| B3 | Proposed Dual Fuel Boiler B3 – Natural Gas Firing – 2 MMBtu/hr (Either Boiler 3 or Boiler 4)[e] | 538,840.78 | 4,827,315.05 | 2,595.0 | 111.0 | 1.17 | 350.0 | 0.0033 | Capped |
| B1FO | Proposed Dual Fuel Boiler B1 – Backup Fuel Distillate Fuel Oil Firing | 538,799.91 | 4,827,365.28 | 2,595.0 | 21.1 | 1.67 | 350.0 | 31.33 | Vertical and uninterrupted |
| B2FO | Proposed Dual Fuel Boiler B2 – Backup Fuel Distillate Fuel Oil Firing | 538,799.91 | 4,827,358.99 | 2,595.0 | 21.1 | 1.67 | 350.0 | 31.33 | Vertical and uninterrupted |
| B3FO | Proposed Dual Fuel Boiler B3 – Backup Fuel Distillate Fuel Oil Firing | 538,840.78 | 4,827,315.05 | 2,595.0 | 111.0 | 1.17 | 350.0 | 0.0033 | Capped |
| NC1 | Existing Noncondensing Boiler 1 – 2 MMBtu/hr | 538,935.04 | 4,827,363.71 | 2,595.0 | 53.0 | 1.00 | 350.0 | 7.32 | Vertical and uninterrupted |
| NC2 | Existing Noncondensing Boiler 2 – 2 MMBtu/hr | 538,939.96 | 4,827,363.36 | 2,595.0 | 53.0 | 1.00 | 350.0 | 7.32 | Vertical and uninterrupted |
| C1 | Existing Condensing Boiler 1 – 2 MMBtu/hr | 538,943.48 | 4,827,363.71 | 2,595.0 | 53.0 | 1.00 | 350.0 (85)[g] | 2.72 (1.27)[g] | Vertical and uninterrupted |
| F1 | Existing Fulton Boiler – 2 MMBtu/hr (Either Boiler F1 or F2)[e] | 538,938.20 | 4,827,330.98 | 2,594.0 | 23.0 | 1.00 | 350.0 | 7.35 | Vertical and uninterrupted |
| K1 | Existing Kewannee Boiler – 1.35 MMBtu/hr | 538,969.53 | 4,827,239.83 | 2,594.0 | 23.0 | 1.00 | 350.0 | 4.92 | Vertical and uninterrupted |
| NEWENG1 | Proposed 1,600 kW Emergency Diesel Engine | 538,797.96 | 4,827,378.22 | 2,595.0 | 14.67 | 1.33 | 940.0 | 164.04 | Vertical and uninterrupted |
| NEWENG2 | Proposed 1,600 kW Emergency Diesel Engine | 538,803.86 | 4,827,378.22 | 2,595.0 | 14.7 | 1.33 | 940.0 | 164.04 | Vertical and uninterrupted |
| 500KWENG | Existing 500 kW Emergency Diesel Engine | 538,813.02 | 4,827,376.15 | 2,595.0 | 15.8 | 0.40 | 279.1 | 35.70 | Vertical and uninterrupted |
| 250KWENG | Existing 250 kW | 538,959.30 | 4,827,233.70 | 2,594.0 | 15.8 | 0.40 | 279.1 | 35.70 | Vertical and |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Emergency Diesel Engine | | | | | | | | uninterrupted |

a. Universal Transverse Mercator.
b. Meters.
c. Degrees Fahrenheit.
d. Feet per second.
e. Two identical boilers exhaust to a common stack. Only one boiler is to operate at any time while the other remains available as a backup.
f. Velocity value used in DEQ sensitivity analyses based on the exhaust volumetric flow rate calculated using the heat input rating of the unit and the EPA diesel fuel combustion product flow rate F-Factor.
g. Conservative value applied in DEQ sensitivity analysis to evaluate worst-case impacts.

DEQ's permitting policies and guidance require that each permit application have stand-alone documentation to support the appropriateness of release parameters used in the air impact analyses. The SAMC Nampa modeling report and additional email submittals provided justification and documentation of assumptions and data supporting key release parameters used to model these point sources.

**Emergency Electrical Generator Engines**

The facility will operate existing and new sources upon issuance of the PTC. Existing sources included the 250 kW and 500 kW diesel-fired emergency generator engines (model IDs 250KWENG and 500KWEG). Two new 1,600 kW emergency generator sets equipped with 2,346 horsepower diesel-fired engines (model IDs NEWENG1 and NEWENG2) will be installed with this project.

CPP submitted Kohler manufacturer specification sheets supporting the release parameters for the two new 1,600 kW diesel generator engines. An exit temperature of 940 degrees Fahrenheit (°F) was listed in the specification sheet and this value was applied in the model. An exit diameter of 16 inches was applied as the intended construction diameter. An exhaust manifold diameter of 17 inches in the Kohler specification sheet supports the 16-inch diameter as a reasonable value. An exhaust flow rate of 13,715 actual cubic feet per minute (ACFM) was used for these engines in place of the specification sheet value of 15,642 ACFM to add conservatism and to match the exit velocity threshold of 50 m/s. An exit velocity of 50 m/s establishes a point where Idaho DEQ requires additional justification for the velocity value. The modeled release height for each new emergency generator of 14.7 feet above grade indicates that stack extensions will not be installed on these generators.

The existing generator engines were not supported with manufacturer's specification exhaust data and additional data was not available to CPP. CPP applied conservative assumptions for flow velocity and release temperature for both of these engines, using identical release height, exit diameter, exit velocity, and temperature considering the difference in engine displacement between a 250 kW and a 500 kW engine. Stack diameter was assumed to be 4.8 inches for these engines, which could be an underestimation and thus not conservative, for at least the 500 kW engine. However, CPP applied an exit temperature of 279°F, an exit velocity of 10.9 meters per second (m/s), and release height of 15.7 feet above grade. These release parameters provide a conservative volumetric exhaust flow rate of 270 ACFM for a low-level release. DEQ determined that the release parameters applied for the two existing generator engines were appropriate for the ambient air impact analyses.

The emergency generator engines for this project only required modeling for the annual average $NO_2$ NAAQS ambient air impact analyses, and based on a 100 hours per year operating limitation, the generator engines reflect operation at 1.1% of the calendar year, so ambient impacts are minimal for these sources. The effect of variations in release parameters for the generator engines will be minimized and DEQ concludes that the generator engine release parameters used in the modeling

analyses were adequately supported and appropriate for this project.

**Boilers**
Existing boilers were modeled using an assumed release height of 8 feet above roofline of the stack's location on each structure as presented in the project's electronic spreadsheet. SAMC and CPP submitted additional documentation consisting of photographs of SAMC staff physically measuring the existing stacks for the Condensing Boiler C1and Non-condensing Boilers, including model IDs NC1, NC2, Fulton Boilers venting to a common stack (model ID F1) with one of two boilers in-operational as a backup at all times, and the Kewanee Boiler (model ID K1). Those photographs showed stacks that were all equipped with raincaps, with termination points at approximately 8 feet or greater above roofline, except for the Kewannee Boiler (model ID K1), which CPP indicated had a measured height of approximately 4 feet above roofline. The modeling used a vertical and uninterrupted point release for all existing boiler stacks. SAMC submitted an addendum to the permit application that addressed the physical release parameters where the actual monitored assumptions did not match assumptions applied in the ambient impact analyses.

The following statement was presented by CPP on behalf of SAMC, in an August 31, 2016, email, an official submittal for this project:

> **Bullet 6:** The stack height modeled for the existing boilers was 8 ft. The attached images document that the stacks for these boilers are at least 8 ft with the exception of the Kewanee boiler stack which seems to be 48-50 inches tall. SAMC will remove the caps on all of these boiler stacks and the Kewanee boiler stack will be extended to at least 8 ft.

DEQ determined the existing boiler release heights and release orientations are adequately supported based on the applicant's submittal.

Each of the existing boiler stacks was modeled with an assumed diameter of 12 inches. Based upon SAMC's photographic documentation, this is a relatively accurate assumption for some stacks, but is quite conservative for other stacks, as the diameters of certain stacks are obviously less than 12 inches at the termination point. Use of a larger diameter in the model setup will reduce dispersion of the exhaust plume. DEQ modeling staff determined that existing boiler stack diameter values are adequately supported for this project.

Existing boiler exhaust flow rates were estimated using the EPA fuel oil combustion F-Factor, listed in 40 Code of Federal Regulations 60, Appendix A Table 19-2. The F-Factor for natural gas is 2.7% greater than the F-Factor for fuel oil, so the fuel oil F-Factor produces the more conservative exhaust flow rate. CPP indicated that the manufacturer's specification data was not available and the F-Factor method is regarded by DEQ as a suitable method of estimating combustion process exhaust flow rates for ambient impact analyses.

The existing Condensing Boiler (model ID C1) was modeled with a vertical and uninterrupted release point. The exhaust flow of 129 ACFM was established using the EPA F-Factor for natural gas, and the exit diameter was modeled at 1.0 feet. This exit diameter is likely to be quite conservative given the heat input is only 0.75 MMBtu/hr for this unit. An exit velocity of 0.83 m/s resulted from these assumptions. Because this source is a condensing boiler that is designed to recover more heat in the exhaust stream than a typical boiler, the exit temperature should be lower than the modeled 350°F.

DEQ conducted a simple sensitivity analysis to cover two issues in question in the analysis. First, DEQ used worst-case assumptions for Condensing Boiler C1 release parameters and secondly, used more

conservative exhaust flow rates, and thus, more conservative exit velocities for Boilers B1 and B2. This sensitivity run is discussed in Section 4.4 of this memorandum.

Existing Non-Condensing Boilers NC1 and NC2 are each rated at 2 MMBtu/hr. Kewanee Boiler K1 is an existing 1.35 MM Btu/hr boiler and Fulton Boilers F1 and F2 are existing 2 MMBtu/hr boilers. Each boiler is a dual fuel boiler capable of being fired on natural gas or No. 2 distillate fuel oil, except for Kewanee Boiler K1, which is only fired on natural gas.

Four boilers are new boilers for this facility. New Hurst Boilers B1 and B2, which are 10 MMBtu/hr dual-fuel boilers, were modeled with release heights of 1.1 feet above roofline, or 21.1 feet above grade. The exit diameter of 1.67 feet was accepted as the intended design diameter without any additional documentation. This value is consistent with boilers of this size, and any stack of smaller diameter would improve exhaust plume dispersion characteristics. The volumetric flow rate for Boilers B1 and B2 was listed as 4,101 ACFM for each boiler stack. Additional documentation, such as vendor design or manufacturer's specification sheet information was not provided in the application materials. DEQ estimated that the F-Factor-derived flow rate would be approximately 2,916 ACFM, corrected to 350°F and Nampa's elevation above sea level. This was based on the 10 MMBtu/hr input capacity and the EPA wet-basis F-Factor of 10,320 scf per million Btu of fuel input. This value is almost 30% less than the modeled flow rate. DEQ performed a simple sensitivity analysis as described in Section 4.4 of this memorandum to verify that compliance at a lower flow rate and stack velocity would still demonstrate NAAQS compliance, and would therefore eliminate the need to include a modeling memo permit recommendation requiring a minimum volumetric flow rate for the units while operating at rated capacity. DEQ's conclusion reached in Section 4.4 is that release parameters for Boilers B1 and B2 are suitable for these ambient impact analyses.

The common stack for proposed Boilers 3 and 4 (model ID B3) was modeled with a release height of 111 feet above grade. These boilers will be located on an upper floor of the expanded building. The common stack will be equipped with a rain cap, and the stack will terminate 10 feet above roofline with a 14-inch diameter. Beta algorithms were not used by CPP in the air impact modeling analysis, and an exit velocity of 0.001 meters per second was modeled to account for the rain cap. Justification of the flow rate and temperature are not necessary for this assumption since the minimal flow velocity effectively negates any momentum or thermal buoyancy plume rise. A 350°F release temperature was modeled without additional supporting documentation. This temperature is in the region of appropriate values for non-condensing boilers and is appropriate as a general exit temperature for non-condensing boilers. DEQ determined that the release parameters for Boiler 3 and Boiler 4, venting to a common stack, are appropriate for this project.

**Cooling Tower**
Review of the cooling tower release parameters is unnecessary given the project was exempted from the requirement to demonstrate $PM_{10}$ and $PM_{2.5}$ NAAQS compliance based on the BRC permitting exemptions.

## 4.0 Results for Air Impact Analyses

This section provides discussion of results obtained from the air impact analyses submitted in support of the proposed project.

### 4.1 Results for Significant Impact Analyses

CPP stated in the modeling report that analyses were not presented in the modeling report for the annual and 1-hour $NO_2$ significant impacts levels (SILs) because impacts were believed to exceed the SILs. Cumulative 1-hour and annual $NO_2$ NAAQS impact analyses were required and were presented to support the permit application.

### 4.2 Results for Cumulative NAAQS Impact Analyses

CPP presented cumulative impact analyses for the 1-hour and annual $NO_2$ NAAQS. The results for the cumulative impact analyses are listed in Table 11. Ambient impacts for the facility, when combined with approved ambient backgrounds were below the allowable annual and 1-hour $NO_2$ NAAQS.

**Table 11. RESULTS FOR CUMULATIVE IMPACT ANALYSES**

| Pollutant | Averaging Period | Modeled Design Value Concentration ($\mu g/m^3$)[a] | Background Concentration ($\mu g/m^3$) | Total Ambient Impact ($\mu g/m^3$) | NAAQS[b] ($\mu g/m^3$) | Percent of NAAQS |
|---|---|---|---|---|---|---|
| $NO_2$[c] | 1-hour | 103.1[d] | 70.0 | 173.1 | 188 | 92% |
| | Annual | 17.7[e] | 11.7 | 29.4 | 100 | 29% |

a. Micrograms per cubic meter.
b. National ambient air quality standards.
c. Nitrogen dioxide.
d. Modeled design value is the maximum 5-year mean of 8th highest 24-hour values from each year of a 5-year meteorological dataset. The design impact of 128.78 $\mu g/m^3$, 1-hour average, was multiplied by the Tier 2 ARM factor of 0.80 to calculate the design value.
e. Modeled design value is the maximum of annual values from each individual year of 5 years of data. The design impact of 23.53 $\mu g/m^3$, annual average, was multiplied by the Tier 2 ARM factor of 0.75 to calculate the design value.

### 4.3 Results for Toxic Air Pollutant Impact Analyses

Table 12 presents results for TAPs modeling. The impacts listed below are attributed to the new boilers—B1, B2, and B3/B4. All design impacts are the maximum impacts. Annual average carcinogenic TAP impacts used the maximum impact from five individual years of meteorological data. All TAP impacts were below the applicable increments.

**Table 12. RESULTS FOR TOXIC AIR POLLUTANT ANALYSES**

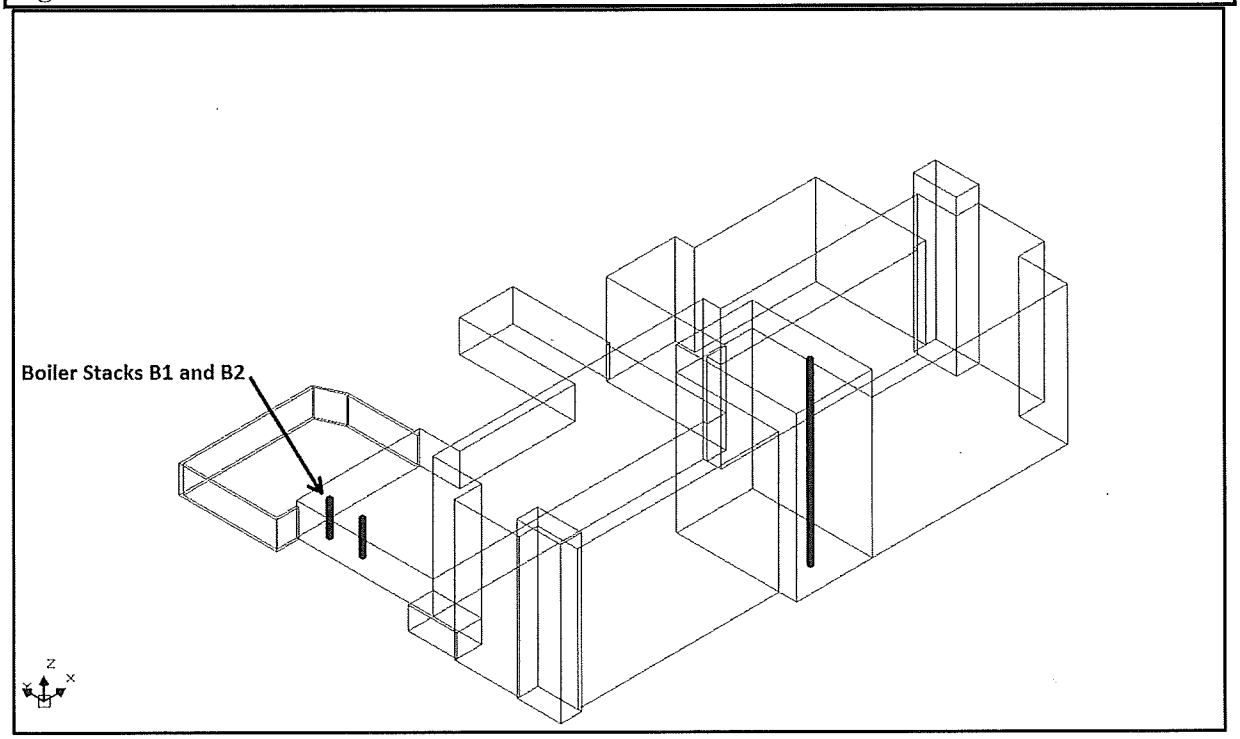
| Pollutant | CAS[a] Number | Averaging Period | Maximum Modeled Concentration ($\mu g/m^3$)[b] | AACC[c] ($\mu g/m^3$) | Percent of Increment |
|---|---|---|---|---|---|
| Arsenic | 7440-38-2 | Annual | 7E-05 | 2.3E-04 | 30% |
| Cadmium | 7440-43-9 | Annual | 3.0E-04 | 5.6E-04 | 54% |
| Formaldehyde | 50-00-0 | Annual | 2.0E-03 | 7.7E-02 | 3% |
| Nickel | 7440-02-0 | Annual | 5.5E-04 | 4.2E-03 | 13% |
| Beryllium | 7440-41-7 | Annual | 2E-05 | 4.2E-03 | <1% |
| Naphthalene as a Polyaromatic Hydrocarbon (PAH) | Not Applicable | Annual | 2.2E-04 | 1.4E-02 | 2% |

a. Chemical Abstract Service
b. Micrograms per cubic meter.
c. Ambient Concentration for Carcinogens (Toxic Air Pollutant allowable increments listed in Idaho Air Rules Section 586).

### *4.4 Sensitivity Analyses*

DEQ conducted an analysis to evaluate model sensitivity to exhaust flow rates and exit temperatures used in the 1-hour average $NO_2$ NAAQS compliance demonstration. DEQ determined this was necessary after noting that manufacturer's specification documentation for the exhaust flow rates for the 10 MMBtu/hr dual fuel-fired Hurst Boilers (model IDs B1 and B2) was not adequate. Boilers B1 and B2 are equipped with stacks that terminate at a height of 1 foot above the portion of the building where the emissions units are to be located, as shown in Figure 5. Considering ambient air exists everywhere external to the building and considering how close modeled 1-hour $NO_2$ impacts are to the NAAQS, the exit velocities for these stacks could be an important factor for the NAAQS compliance demonstration.

**Figure 5. STACK HEIGHTS OF BOILERS B1 & B2 VERSUS SURROUNDING BUILDINGS**




The submitted application also stated that the Condensing Boiler, C1, was modeled with an exit temperature of 350°F. Condensing boilers are extremely efficient in heat recovery, which results in reduction of the exhaust stream temperature and the volume of the exhaust due to the temperature drop. Worst-case conservatively low values for Condensing Boiler C1 exit temperature and flow rate were also altered for the sensitivity analysis. DEQ obtained exhaust temperature profiles for a 0.750 MMBtu/hr condensing boiler from Fulton, a boiler manufacturer's website at the following address: https://www.fulton.com/product-profile.php?ptc=hw&uid=44. This information—included as Attachment A to this memorandum—was used to obtain a worst-case fuel gas temperature of 85°F and assumed a 50% reduction in flow rate. These values are overly conservative because the 85°F temperature is accurate for 11% of rated heat input. The conservative 100% load exhaust temperature is 115°F. The exhaust flow rate value calculated by CPP for this project was based on standard temperature and was not corrected for the permit application's 350°F assumed exit temperature; thus, flow rate used for the sensitivity analysis is quite conservative, as it is an underestimation of the expected flow rate.

DEQ's sensitivity analysis focused on the 1-hour $NO_2$ NAAQS because the impacts for this standard were predicted to be the closest to the allowable NAAQS. The margins of compliance for the annual $NO_2$ NAAQS and annual average carcinogenic TAPs were far greater than the 1-hour $NO_2$ NAAQS, so an adequate assurance of compliance for the 1-hour $NO_2$ NAAQS will also assure compliance for the annual average standard and increments.

DEQ found that the 1-hour $NO_2$ NAAQS design ambient impact was only increased by approximately 0.4 $\mu g/m^3$, after applying the 0.80 Tier 2 ARM factor to the maximum 8th highest maximum daily 1-hour average total $NO_x$ impact. DEQ concludes that NAAQS and TAPs compliance has been adequately demonstrated with the submitted ambient air impact analyses. The design concentration plus ambient background for the sensitivity analysis is listed in Table 13. The design impacts for SAMC's submitted NAAQS compliance demonstration and DEQ's verification analyses were predicted to occur at the same discrete receptor, located at UTM coordinates 538,864.56 meters Easting and 4,827,297.00 meters Northing, Zone 11.

**Table 13. RESULTS FOR DEQ SENSITIVITY ANALYSES**

| Pollutant | Averaging Period | Modeled Design Value Concentration ($\mu g/m^3$)[a] | Background Concentration ($\mu g/m^3$) | Total Ambient Impact ($\mu g/m^3$) | NAAQS[b] ($\mu g/m^3$) | Percent of NAAQS |
|---|---|---|---|---|---|---|
| $NO_2$[c] | 1-hour | 103.5[d] | 70 | 173.5 | 188 | 92% |

a. Micrograms per cubic meter.
b. National ambient air quality standards.
c. Nitrogen dioxide.
d. Modeled design value is the maximum 5-year mean of 8th highest 24-hour values from each year of a 5-year meteorological dataset. A design impact of 129.34 $\mu g/m^3$, 1-hour average, was multiplied by the Tier 2 ARM factor of 0.80 to calculate the design value.

## 5.0 Conclusions

The ambient air impact analyses demonstrated to DEQ's satisfaction that emissions from the SAMC Nampa facility will not cause or significantly contribute to a violation of any NAAQS and will not exceed allowable TAP increments.

**References**


1. *Policy on NAAQS Compliance Demonstration Requirements of IDAPA 58.01.01.203.02 and 01.403.02.* Idaho Department of Environmental Quality Policy Memorandum. Tiffany Floyd, Administrator, Air Quality Division, June 10, 2014.

2. *State of Idaho Guideline for Performing Air Quality Impact Analyses.* Idaho Department of Environmental Quality. September 2013. State of Idaho DEQ Air Doc. ID AQ-011. Available at http://www.deq.idaho.gov/media/1029/modeling-guideline.pdf.

3. *Ambient Ratio Method Version 2(ARM2) for use with AERMOD for1-hr $NO_2$ Modeling Development and Evaluation Report,* Prepared for American Petroleum Institute, 1220 L Street NW, Washington, DC 20005, by M. Podrez, RTP Environmental Associates, Inc., 2031 Broadway, Suite 2, Boulder, Colorado 80302, September 20, 2013.

4. *Clarification on the Use of AERMOD Dispersion Modeling for Demonstrating Compliance with the $NO_2$ National Ambient Air Quality Standard,* R. Chris Owen and Roger Brode, Environmental Protection Agency, Office of Air Quality Planning and Standards, September 30, 2014.

# Attachment A

Fulton Companies - Fulton Heating Solutions, Inc.

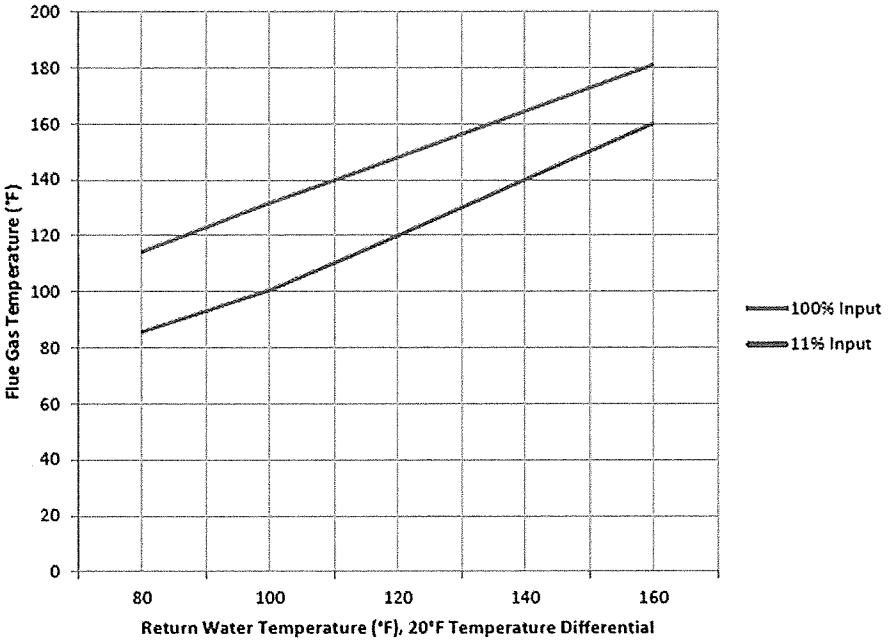
Flue Gas Temperature Profiles for a 0.750 MMBtu/hr

Condensing Boiler

Fulton
Engineering Data

## Flue Gas Temperature

Endura Condensing Hydronic Boilers
Model: EDR-750




Notes:

1. Fuel is standard natural gas.

Fulton
Fulton Heating Solutions, Inc.
972 Centerville Road, Pulaski, NY 13142
Phone: (315) 298-5121 • Fax: (315) 298-6390
www.fulton.com

# APPENDIX C – FORM FRA BREAKDOWN

***This NSPS applies to two of the proposed 10MMBtu/hr boilers (B1 and B2) only.***

# SUBPART DC—STANDARDS OF PERFORMANCE FOR SMALL INDUSTRIAL-COMMERCIAL-INSTITUTIONAL STEAM GENERATING UNITS

## §60.40C APPLICABILITY AND DELEGATION OF AUTHORITY.

(a) Except as provided in paragraphs (d), (e), (f), and (g) of this section, the affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/h)) or less, but greater than or equal to 2.9 MW (10 MMBtu/h).

***St. Alphonsus Medical Center is proposing to install two boilers (B1 and B2) of 10 MMBtu/hr each commencing construction after June 9, 1989.***

(b) In delegating implementation and enforcement authority to a State under section 111(c) of the Clean Air Act, §60.48c(a)(4) shall be retained by the Administrator and not transferred to a State.

~~(c) Steam generating units that meet the applicability requirements in paragraph (a) of this section are not subject to the sulfur dioxide ($SO_2$) or particulate matter (PM) emission limits, performance testing requirements, or monitoring requirements under this subpart (§§60.42c, 60.43c, 60.44c, 60.45c, 60.46c, or 60.47c) during periods of combustion research, as defined in §60.41c.~~

~~(d) Any temporary change to an existing steam generating unit for the purpose of conducting combustion research is not considered a modification under §60.14.~~

~~(e) Affected facilities (*i.e.* heat recovery steam generators and fuel heaters) that are associated with stationary combustion turbines and meet the applicability requirements of subpart KKKK of this part are not subject to this subpart. This subpart will continue to apply to all other heat recovery steam generators, fuel heaters, and other affected facilities that are capable of combusting more than or equal to 2.9 MW (10 MMBtu/h) heat input of fossil fuel but less than or equal to 29 MW (100 MMBtu/h) heat input of fossil fuel. If the heat recovery steam generator, fuel heater, or other affected facility is subject to this subpart, only emissions resulting from combustion of fuels in the steam generating unit are subject to this subpart. (The stationary combustion turbine emissions are subject to subpart GG or KKKK, as applicable, of this part.)~~

~~(f) Any affected facility that meets the applicability requirements of and is subject to subpart AAAA or subpart CCCC of this part is not subject to this subpart.~~

~~(g) Any facility that meets the applicability requirements and is subject to an EPA approved State or Federal section 111(d)/129 plan implementing subpart BBBB of this part is not subject to this subpart.~~

~~(h) Affected facilities that also meet the applicability requirements under subpart J or subpart Ja of this part are subject to the PM and $NO_x$ standards under this subpart and the $SO_2$ standards under subpart J or subpart Ja of this part, as applicable.~~

~~(i) Temporary boilers are not subject to this subpart.~~

[72 FR 32759, June 13, 2007, as amended at 74 FR 5090, Jan. 28, 2009; 77 FR 9461, Feb. 16, 2012]

Back to Top

## §60.41C DEFINITIONS.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Clean Air Act and in subpart A of this part.

~~*Annual capacity factor* means the ratio between the actual heat input to a steam generating unit from an individual fuel or combination of fuels during a period of 12 consecutive calendar months and the potential heat input to the steam generating unit from all fuels had the steam generating unit been operated for 8,760 hours during that 12-month period at the maximum design heat input capacity. In the case of steam generating units that are rented or leased, the actual heat input shall be determined based on the combined heat input from all operations of the affected facility during a period of 12 consecutive calendar months.~~

~~*Coal* means all solid fuels classified as anthracite, bituminous, subbituminous, or lignite by the American Society of Testing and Materials in ASTM D388 (incorporated by reference, see §60.17), coal refuse, and petroleum coke. Coal-derived synthetic fuels derived from coal for the purposes of creating useful heat, including but not limited to solvent refined coal, gasified coal not meeting the definition of natural gas, coal-oil mixtures, and coal-water mixtures, are also included in this definition for the purposes of this subpart.~~

~~*Coal refuse* means any by-product of coal mining or coal cleaning operations with an ash content greater than 50 percent (by weight) and a heating value less than 13,900 kilojoules per kilogram (kJ/kg) (6,000 Btu per pound (Btu/lb) on a dry basis.~~

~~*Combined cycle system* means a system in which a separate source (such as a stationary gas turbine, internal combustion engine, or kiln) provides exhaust gas to a steam generating unit.~~

~~*Combustion research* means the experimental firing of any fuel or combination of fuels in a steam generating unit for the purpose of conducting research and development of more efficient combustion or more effective prevention or control of air pollutant emissions from combustion, provided that, during these periods of research and development, the heat generated is not used for any purpose other than preheating combustion air for use by that steam generating unit (*i.e.*, the heat generated is released to the atmosphere without being used for space heating, process heating, driving pumps, preheating combustion air for other units, generating electricity, or any other purpose).~~

~~*Conventional technology* means wet flue gas desulfurization technology, dry flue gas desulfurization technology, atmospheric fluidized bed combustion technology, and oil hydrodesulfurization technology.~~

*Distillate oil* means fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396 (incorporated by reference, see §60.17), diesel fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D975 (incorporated by reference, see §60.17), kerosine, as defined by the American Society of Testing and Materials in ASTM D3699 (incorporated by reference, see §60.17), biodiesel as defined by the American Society of Testing and Materials in ASTM D6751 (incorporated by reference, see §60.17), or biodiesel blends as defined by the American Society of Testing and Materials in ASTM D7467 (incorporated by reference, see §60.17).

~~*Dry flue gas desulfurization technology* means a $SO_2$ control system that is located between the steam generating unit and the exhaust vent or stack, and that removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gases with an alkaline reagent and water, whether introduced separately or as a premixed slurry or solution and forming a dry powder material. This definition includes devices where the dry powder material is subsequently converted to another form. Alkaline reagents used in dry flue gas desulfurization systems include, but are not limited to, lime and sodium compounds.~~

~~*Duct burner* means a device that combusts fuel and that is placed in the exhaust duct from another source (such as a stationary gas turbine, internal combustion engine, kiln, etc.) to allow the firing of additional fuel to heat the exhaust gases before the exhaust gases enter a steam generating unit.~~

~~*Emerging technology* means any $SO_2$ control system that is not defined as a conventional technology under this section, and for which the owner or operator of the affected facility has received approval from the Administrator to operate as an emerging technology under §60.48c(a)(4).~~

*Federally enforceable* means all limitations and conditions that are enforceable by the Administrator, including the requirements of 40 CFR parts 60 and 61, requirements within any applicable State

implementation plan, and any permit requirements established under 40 CFR 52.21 or under 40 CFR 51.18 and 51.24.

~~*Fluidized bed combustion technology* means a device wherein fuel is distributed onto a bed (or series of beds) of limestone aggregate (or other sorbent materials) for combustion; and these materials are forced upward in the device by the flow of combustion air and the gaseous products of combustion. Fluidized bed combustion technology includes, but is not limited to, bubbling bed units and circulating bed units.~~

~~*Fuel pretreatment* means a process that removes a portion of the sulfur in a fuel before combustion of the fuel in a steam generating unit.~~

*Heat input* means heat derived from combustion of fuel in a steam generating unit and does not include the heat derived from preheated combustion air, recirculated flue gases, or exhaust gases from other sources (such as stationary gas turbines, internal combustion engines, and kilns).

*Heat transfer medium* means any material that is used to transfer heat from one point to another point.

*Maximum design heat input capacity* means the ability of a steam generating unit to combust a stated maximum amount of fuel (or combination of fuels) on a steady state basis as determined by the physical design and characteristics of the steam generating unit.

*Natural gas* means:

(1) A naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in geologic formations beneath the earth's surface, of which the principal constituent is methane; or

~~(2) Liquefied petroleum (LP) gas, as defined by the American Society for Testing and Materials in ASTM D1835 (incorporated by reference, see §60.17); or~~

~~(3) A mixture of hydrocarbons that maintains a gaseous state at ISO conditions. Additionally, natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 34 and 43 megajoules (MJ) per dry standard cubic meter (910 and 1,150 Btu per dry standard cubic foot).~~

~~*Noncontinental area* means the State of Hawaii, the Virgin Islands, Guam, American Samoa, the Commonwealth of Puerto Rico, or the Northern Mariana Islands.~~

*Oil* means crude oil or petroleum, or a liquid fuel derived from crude oil or petroleum, including distillate oil and residual oil.

*Potential sulfur dioxide emission rate* means the theoretical $SO_2$ emissions (nanograms per joule (ng/J) or lb/MMBtu heat input) that would result from combusting fuel in an uncleaned state and without using emission control systems.

~~*Process heater* means a device that is primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst.~~

~~*Residual oil* means crude oil, fuel oil that does not comply with the specifications under the definition of distillate oil, and all fuel oil numbers 4, 5, and 6, as defined by the American Society for Testing and Materials in ASTM D396 (incorporated by reference, see §60.17).~~

*Steam generating unit* means a device that combusts any fuel and produces steam or heats water or heats any heat transfer medium. This term includes any duct burner that combusts fuel and is part of a combined cycle system. This term does not include process heaters as defined in this subpart.

*Steam generating unit operating day* means a 24-hour period between 12:00 midnight and the following midnight during which any fuel is combusted at any time in the steam generating unit. It is not necessary for fuel to be combusted continuously for the entire 24-hour period.

*Temporary boiler* means a steam generating unit that combusts natural gas or distillate oil with a potential $SO_2$ emissions rate no greater than 26 ng/J (0.060 lb/MMBtu), and the unit is designed to, and is capable of, being carried or moved from one location to another by means of, for example, wheels, skids, carrying handles, dollies, trailers, or platforms. A steam generating unit is not a temporary boiler if any one of the following conditions exists:

(1) The equipment is attached to a foundation.

(2) The steam generating unit or a replacement remains at a location for more than 180 consecutive days. Any temporary boiler that replaces a temporary boiler at a location and performs the same or similar function will be included in calculating the consecutive time period.

(3) The equipment is located at a seasonal facility and operates during the full annual operating period of the seasonal facility, remains at the facility for at least 2 years, and operates at that facility for at least 3 months each year.

(4) The equipment is moved from one location to another in an attempt to circumvent the residence time requirements of this definition.

*Wet flue gas desulfurization technology* means an $SO_2$ control system that is located between the steam generating unit and the exhaust vent or stack, and that removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gases with an alkaline slurry or solution and forming a liquid material. This definition includes devices where the liquid material is subsequently converted to another form. Alkaline reagents used in wet flue gas desulfurization systems include, but are not limited to, lime, limestone, and sodium compounds.

*Wet scrubber system* means any emission control device that mixes an aqueous stream or slurry with the exhaust gases from a steam generating unit to control emissions of PM or $SO_2$.

*Wood* means wood, wood residue, bark, or any derivative fuel or residue thereof, in any form, including but not limited to sawdust, sanderdust, wood chips, scraps, slabs, millings, shavings, and processed pellets made from wood or other forest residues.

[72 FR 32759, June 13, 2007, as amended at 74 FR 5090, Jan. 28, 2009; 77 FR 9461, Feb. 16, 2012]

Back to Top

## §60.42C STANDARD FOR SULFUR DIOXIDE ($SO_2$).

***Boilers will not combust coal so section does not apply.***

(a) Except as provided in paragraphs (b), (c), and (e) of this section, on and after the date on which the performance test is completed or required to be completed under §60.8, whichever date comes first, the owner or operator of an affected facility that combusts only coal shall neither: cause to be discharged into the atmosphere from the affected facility any gases that contain $SO_2$ in excess of 87 ng/J (0.20 lb/MMBtu) heat input or 10 percent (0.10) of the potential $SO_2$ emission rate (90 percent reduction), nor cause to be discharged into the atmosphere from the affected facility any gases that contain $SO_2$ in excess of 520 ng/J (1.2 lb/MMBtu) heat input. If coal is combusted with other fuels, the affected facility shall neither: cause to be discharged into the atmosphere from the affected facility any gases that contain $SO_2$ in excess of 87 ng/J (0.20 lb/MMBtu) heat input or 10 percent (0.10) of the potential $SO_2$ emission rate (90 percent reduction), nor cause to be discharged into the atmosphere from the affected facility any gases that contain $SO_2$ in excess of the emission limit is determined pursuant to paragraph (e)(2) of this section.

~~(b) Except as provided in paragraphs (c) and (e) of this section, on and after the date on which the performance test is completed or required to be completed under §60.8, whichever date comes first, the owner or operator of an affected facility that:~~

~~(1) Combusts only coal refuse alone in a fluidized bed combustion steam generating unit shall neither:~~

~~(i) Cause to be discharged into the atmosphere from that affected facility any gases that contain $SO_2$ in excess of 87 ng/J (0.20 lb/MMBtu) heat input or 20 percent (0.20) of the potential $SO_2$ emission rate (80 percent reduction); nor~~

~~(ii) Cause to be discharged into the atmosphere from that affected facility any gases that contain $SO_2$ in excess of $SO_2$in excess of 520 ng/J (1.2 lb/MMBtu) heat input. If coal is fired with coal refuse, the affected facility subject to paragraph (a) of this section. If oil or any other fuel (except coal) is fired with coal refuse, the affected facility is subject to the 87 ng/J (0.20 lb/MMBtu) heat input $SO_2$ emissions limit or the 90 percent $SO_2$ reduction requirement specified in paragraph (a) of this section and the emission limit is determined pursuant to paragraph (e)(2) of this section.~~

~~(2) Combusts only coal and that uses an emerging technology for the control of $SO_2$ emissions shall neither:~~

~~(i) Cause to be discharged into the atmosphere from that affected facility any gases that contain $SO_2$ in excess of 50 percent (0.50) of the potential $SO_2$ emission rate (50 percent reduction); nor~~

~~(ii) Cause to be discharged into the atmosphere from that affected facility any gases that contain $SO_2$ in excess of 260 ng/J (0.60 lb/MMBtu) heat input. If coal is combusted with other fuels, the affected facility is subject to the 50 percent $SO_2$reduction requirement specified in this paragraph and the emission limit determined pursuant to paragraph (e)(2) of this section.~~

~~(c) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that combusts coal, alone or in combination with any other fuel, and is listed in paragraphs (c)(1), (2), (3), or (4) of this section shall cause to be discharged into the atmosphere from that affected facility any gases that contain $SO_2$ in excess of the emission limit determined pursuant to paragraph (e)(2) of this section. Percent reduction requirements are not applicable to affected facilities under paragraphs (c)(1), (2), (3), or (4).~~

~~(1) Affected facilities that have a heat input capacity of 22 MW (75 MMBtu/h) or less;~~

~~(2) Affected facilities that have an annual capacity for coal of 55 percent (0.55) or less and are subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor for coal of 55 percent (0.55) or less.~~

~~(3) Affected facilities located in a noncontinental area; or~~

~~(4) Affected facilities that combust coal in a duct burner as part of a combined cycle system where 30 percent (0.30) or less of the heat entering the steam generating unit is from combustion of coal in the duct burner and 70 percent (0.70) or more of the heat entering the steam generating unit is from exhaust gases entering the duct burner.~~

**Proposed boiler will not use coal fuel so previous subsections do not apply.**

(d) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that combusts oil shall cause to be discharged into the atmosphere from that affected facility any gases that contain $SO_2$ in excess of 215 ng/J (0.50 lb/MMBtu) heat input from oil; or, as an alternative, no owner or operator of an affected facility that combusts oil shall combust oil in the affected facility that contains greater than 0.5 weight percent sulfur. The percent reduction requirements are not applicable to affected facilities under this paragraph.

(e) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that combusts coal, oil, or coal and oil with any other fuel shall cause to be discharged into the atmosphere from that affected facility any gases that contain $SO_2$ in excess of the following:

(1) The percent of potential $SO_2$ emission rate or numerical $SO_2$ emission rate required under paragraph (a) or (b)(2) of this section, as applicable, for any affected facility that

(i) Combusts coal in combination with any other fuel;

(ii) Has a heat input capacity greater than 22 MW (75 MMBtu/h); and

(iii) Has an annual capacity factor for coal greater than 55 percent (0.55); and

(2) The emission limit determined according to the following formula for any affected facility that combusts coal, oil, or coal and oil with any other fuel:

$$E_s = \frac{(K_a H_a + K_b H_b + K_c H_c)}{(H_a + H_b + H_c)}$$

View or download PDF

Where:

$E_s$ = $SO_2$ emission limit, expressed in ng/J or lb/MMBtu heat input;

$K_a$ = 520 ng/J (1.2 lb/MMBtu);

$K_b$ = 260 ng/J (0.60 lb/MMBtu);

$K_c$ = 215 ng/J (0.50 lb/MMBtu);

$H_a$ = Heat input from the combustion of coal, except coal combusted in an affected facility subject to paragraph (b)(2) of this section, in Joules (J) [MMBtu];

$H_b$ = Heat input from the combustion of coal in an affected facility subject to paragraph (b)(2) of this section, in J (MMBtu); and

$H_c$ = Heat input from the combustion of oil, in J (MMBtu).

(f) Reduction in the potential $SO_2$ emission rate through fuel pretreatment is not credited toward the percent reduction requirement under paragraph (b)(2) of this section unless:

(1) Fuel pretreatment results in a 50 percent (0.50) or greater reduction in the potential $SO_2$ emission rate; and

(2) Emissions from the pretreated fuel (without either combustion or post-combustion $SO_2$ control) are equal to or less than the emission limits specified under paragraph (b)(2) of this section.

(g) Except as provided in paragraph (h) of this section, compliance with the percent reduction requirements, fuel oil sulfur limits, and emission limits of this section shall be determined on a 30-day rolling average basis.

(h) For affected facilities listed under paragraphs (h)(1), (2), (3), or (4) of this section, compliance with the emission limits or fuel oil sulfur limits under this section may be determined based on a certification from the fuel supplier, as described under §60.48c(f), as applicable.

(1) Distillate oil-fired affected facilities with heat input capacities between 2.9 and 29 MW (10 and 100 MMBtu/hr).

***St. Alphonsus Medical Center proposes to assess compliance with the emission limits based on certification from the fuel supplier. This is applicable since B1 and B2 are 10 MMBtu/hr in size. Fuel oil is a secondary fuel source for these boilers.***

***If fuel oil is combusted, SAMC must submit a semi-annual report to EPA. The report must contain the following information: the calendar dates of the reporting period; and, a fuel "supplier" certification demonstrating that the fuel used does not exceed the sulfur content limitation of 0.5% by weight.***

~~(2) Residual oil-fired affected facilities with heat input capacities between 2.9 and 8.7 MW (10 and 30 MMBtu/hr).~~

~~(3) Coal-fired affected facilities with heat input capacities between 2.9 and 8.7 MW (10 and 30 MMBtu/h).~~

~~(4) Other fuels-fired affected facilities with heat input capacities between 2.9 and 8.7 MW (10 and 30 MMBtu/h).~~

~~(i) The $SO_2$ emission limits, fuel oil sulfur limits, and percent reduction requirements under this section apply at all times, including periods of startup, shutdown, and malfunction.~~

~~(j) For affected facilities located in noncontinental areas and affected facilities complying with the percent reduction standard, only the heat input supplied to the affected facility from the combustion of coal and oil is counted under this section. No credit is provided for the heat input to the affected facility from wood or other fuels or for heat derived from exhaust gases from other sources, such as stationary gas turbines, internal combustion engines, and kilns.~~

[72 FR 32759, June 13, 2007, as amended at 74 FR 5090, Jan. 28, 2009; 77 FR 9462, Feb. 16, 2012]

Back to Top

## §60.43C STANDARD FOR PARTICULATE MATTER (PM).

***The proposed Boilers are not coal fueled and they are less than 30MMBtu/hr so this section does not apply.***

~~(a) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that commenced construction, reconstruction, or modification on or before February 28, 2005, that combusts coal or combusts mixtures of coal with other fuels and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater, shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of the following emission limits:~~

~~(1) 22 ng/J (0.051 lb/MMBtu) heat input if the affected facility combusts only coal, or combusts coal with other fuels and has an annual capacity factor for the other fuels of 10 percent (0.10) or less.~~

~~(2) 43 ng/J (0.10 lb/MMBtu) heat input if the affected facility combusts coal with other fuels, has an annual capacity factor for the other fuels greater than 10 percent (0.10), and is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor greater than 10 percent (0.10) for fuels other than coal.~~

~~(b) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that commenced construction, reconstruction, or modification on or before February 28, 2005, that combusts wood or combusts mixtures of wood with other fuels (except coal) and has a heat input capacity of 8.7 MW (30 MMBtu/h) or~~

~~greater, shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of the following emissions limits:~~

~~(1) 43 ng/J (0.10 lb/MMBtu) heat input if the affected facility has an annual capacity factor for wood greater than 30 percent (0.30); or~~

~~(2) 130 ng/J (0.30 lb/MMBtu) heat input if the affected facility has an annual capacity factor for wood of 30 percent (0.30) or less and is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor for wood of 30 percent (0.30) or less.~~

~~(c) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that combusts coal, wood, or oil and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. Owners and operators of an affected facility that elect to install, calibrate, maintain, and operate a continuous emissions monitoring system (CEMS) for measuring PM emissions according to the requirements of this subpart and are subject to a federally enforceable PM limit of 0.030 lb/MMBtu or less are exempt from the opacity standard specified in this paragraph (c).~~

***The PM standard applies to boilers with heat input capacity between 30 and 100 MMBtu/hr. Since SAMC boilers B1 and B2 are 10 MMBtu/hr. the PM standard does not apply.***

~~(d) The PM and opacity standards under this section apply at all times, except during periods of startup, shutdown, or malfunction.~~

~~(e)(1) On and after the date on which the initial performance test is completed or is required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that commences construction, reconstruction, or modification after February 28, 2005, and that combusts coal, oil, wood, a mixture of these fuels, or a mixture of these fuels with any other fuels and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of 13 ng/J (0.030 lb/MMBtu) heat input, except as provided in paragraphs (e)(2), (e)(3), and (e)(4) of this section.~~

~~(2) As an alternative to meeting the requirements of paragraph (e)(1) of this section, the owner or operator of an affected facility for which modification commenced after February 28, 2005, may elect to meet the requirements of this paragraph. On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that commences modification after February 28, 2005 shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of both:~~

~~(i) 22 ng/J (0.051 lb/MMBtu) heat input derived from the combustion of coal, oil, wood, a mixture of these fuels, or a mixture of these fuels with any other fuels; and~~

~~(ii) 0.2 percent of the combustion concentration (99.8 percent reduction) when combusting coal, oil, wood, a mixture of these fuels, or a mixture of these fuels with any other fuels.~~

~~(3) On and after the date on which the initial performance test is completed or is required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that commences modification after February 28, 2005, and that combusts over 30 percent wood (by heat input) on an annual basis and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of 43 ng/J (0.10 lb/MMBtu) heat input.~~

~~(4) An owner or operator of an affected facility that commences construction, reconstruction, or modification after February 28, 2005, and that combusts only oil that contains no more than 0.50 weight~~

~~percent sulfur or a mixture of 0.50 weight percent sulfur oil with other fuels not subject to a PM standard under §60.43c and not using a post-combustion technology (except a wet scrubber) to reduce PM or $SO_2$ emissions is not subject to the PM limit in this section.~~

[72 FR 32759, June 13, 2007, as amended at 74 FR 5091, Jan. 28, 2009; 77 FR 9462, Feb. 16, 2012]

Back to Top

## §60.44C COMPLIANCE AND PERFORMANCE TEST METHODS AND PROCEDURES FOR SULFUR DIOXIDE.

***St. Alphonsus Medical Center proposes to meet SO2 compliance with fuel supplier certification [paragraph (h)]. Thus, performance testing requirements do not apply.***

~~(a) Except as provided in paragraphs (g) and (h) of this section and §60.8(b), performance tests required under §60.8 shall be conducted following the procedures specified in paragraphs (b), (c), (d), (e), and (f) of this section, as applicable. Section 60.8(f) does not apply to this section. The 30-day notice required in §60.8(d) applies only to the initial performance test unless otherwise specified by the Administrator.~~

~~(b) The initial performance test required under §60.8 shall be conducted over 30 consecutive operating days of the steam generating unit. Compliance with the percent reduction requirements and $SO_2$ emission limits under §60.42c shall be determined using a 30-day average. The first operating day included in the initial performance test shall be scheduled within 30 days after achieving the maximum production rate at which the affect facility will be operated, but not later than 180 days after the initial startup of the facility. The steam generating unit load during the 30-day period does not have to be the maximum design heat input capacity, but must be representative of future operating conditions.~~

~~(c) After the initial performance test required under paragraph (b) of this section and §60.8, compliance with the percent reduction requirements and $SO_2$ emission limits under §60.42c is based on the average percent reduction and the average $SO_2$ emission rates for 30 consecutive steam generating unit operating days. A separate performance test is completed at the end of each steam generating unit operating day, and a new 30-day average percent reduction and $SO_2$emission rate are calculated to show compliance with the standard.~~

~~(d) If only coal, only oil, or a mixture of coal and oil is combusted in an affected facility, the procedures in Method 19 of appendix A of this part are used to determine the hourly $SO_2$ emission rate ($E_{ho}$) and the 30-day average $SO_2$ emission rate ($E_{ao}$). The hourly averages used to compute the 30-day averages are obtained from the CEMS. Method 19 of appendix A of this part shall be used to calculate $E_{ao}$ when using daily fuel sampling or Method 6B of appendix A of this part.~~

~~(e) If coal, oil, or coal and oil are combusted with other fuels:~~

~~(1) An adjusted $E_{ho}$ ($E_{ho}o$) is used in Equation 19-19 of Method 19 of appendix A of this part to compute the adjusted $E_{ao}$ ($E_{ao}o$). The $E_{ho}o$ is computed using the following formula:~~

$$E_{ho}o = \frac{E_{ho} - E_w(1 - X_j)}{X_j}$$

~~View or download PDF~~

~~Where:~~

~~$E_{ho}o$ = Adjusted $E_{ho}$, ng/J (lb/MMBtu);~~

~~$E_{ho}$ = Hourly $SO_2$ emission rate, ng/J (lb/MMBtu);~~

$E_w$ = $SO_2$ concentration in fuels other than coal and oil combusted in the affected facility, as determined by fuel sampling and analysis procedures in Method 9 of appendix A of this part, ng/J (lb/MMBtu). The value $E_w$ for each fuel lot is used for each hourly average during the time that the lot is being combusted. The owner or operator does not have to measure $E_w$ if the owner or operator elects to assume $E_w$ = 0.

$X_k$ = Fraction of the total heat input from fuel combustion derived from coal and oil, as determined by applicable procedures in Method 19 of appendix A of this part.

(2) The owner or operator of an affected facility that qualifies under the provisions of §60.42c(c) or (d) (where percent reduction is not required) does not have to measure the parameters $E_w$ or $X_k$ if the owner or operator of the affected facility elects to measure emission rates of the coal or oil using the fuel sampling and analysis procedures under Method 19 of appendix A of this part.

(f) Affected facilities subject to the percent reduction requirements under §60.42c(a) or (b) shall determine compliance with the $SO_2$ emission limits under §60.42c pursuant to paragraphs (d) or (e) of this section, and shall determine compliance with the percent reduction requirements using the following procedures:

(1) If only coal is combusted, the percent of potential $SO_2$ emission rate is computed using the following formula:

$$\%P_c = 100\left(1 - \frac{\%R_g}{100}\right)\left(1 - \frac{\%R_f}{100}\right)$$

View or download PDF

Where:

$\%P_c$ = Potential $SO_2$ emission rate, in percent;

$\%R_g$ = $SO_2$ removal efficiency of the control device as determined by Method 19 of appendix A of this part, in percent; and

$\%R_f$ = $SO_2$ removal efficiency of fuel pretreatment as determined by Method 19 of appendix A of this part, in percent.

(2) If coal, oil, or coal and oil are combusted with other fuels, the same procedures required in paragraph (f)(1) of this section are used, except as provided for in the following:

(i) To compute the $\%P_c$, an adjusted $\%R_g$ ($\%R_go$) is computed from $E_{ao}o$ from paragraph (e)(1) of this section and an adjusted average $SO_2$ inlet rate ($E_{ai}o$) using the following formula:

$$\%R_go = 100\left(1 - \frac{E^\circ_{ao}}{E^\circ_{ai}}\right)$$

View or download PDF

Where:

$\%R_go$ = Adjusted $\%R_g$, in percent;

$E_{ao}o$ = Adjusted $E_{ao}$, ng/J (lb/MMBtu); and

$E_{ai}o$ = Adjusted average $SO_2$ inlet rate, ng/J (lb/MMBtu).

(ii) To compute $E_{ai}o$, an adjusted hourly $SO_2$ inlet rate ($E_{hi}o$) is used. The $E_{hi}o$ is computed using the following formula:

$$E_{ho} = \frac{E_{hi} - E_w(1 - X_k)}{X_k}$$

View or download PDF

Where:

$E_{ho}$ = Adjusted $E_{hi}$, ng/J (lb/MMBtu);

$E_{hi}$ = Hourly $SO_2$ inlet rate, ng/J (lb/MMBtu);

$E_w$ = $SO_2$ concentration in fuels other than coal and oil combusted in the affected facility, as determined by fuel sampling and analysis procedures in Method 19 of appendix A of this part, ng/J (lb/MMBtu). The value $E_w$ for each fuel lot is used for each hourly average during the time that the lot is being combusted. The owner or operator does not have to measure $E_w$ if the owner or operator elects to assume $E_w$ = 0; and

$X_k$ = Fraction of the total heat input from fuel combustion derived from coal and oil, as determined by applicable procedures in Method 19 of appendix A of this part.

(g) For oil-fired affected facilities where the owner or operator seeks to demonstrate compliance with the fuel oil sulfur limits under §60.42c based on shipment fuel sampling, the initial performance test shall consist of sampling and analyzing the oil in the initial tank of oil to be fired in the steam generating unit to demonstrate that the oil contains 0.5 weight percent sulfur or less. Thereafter, the owner or operator of the affected facility shall sample the oil in the fuel tank after each new shipment of oil is received, as described under §60.46c(d)(2).

(h) For affected facilities subject to §60.42c(h)(1), (2), or (3) where the owner or operator seeks to demonstrate compliance with the $SO_2$ standards based on fuel supplier certification, the performance test shall consist of the certification from the fuel supplier, as described in §60.48c(f), as applicable.

(i) The owner or operator of an affected facility seeking to demonstrate compliance with the $SO_2$ standards under §60.42c(c)(2) shall demonstrate the maximum design heat input capacity of the steam generating unit by operating the steam generating unit at this capacity for 24 hours. This demonstration shall be made during the initial performance test, and a subsequent demonstration may be requested at any other time. If the demonstrated 24-hour average firing rate for the affected facility is less than the maximum design heat input capacity stated by the manufacturer of the affected facility, the demonstrated 24-hour average firing rate shall be used to determine the annual capacity factor for the affected facility; otherwise, the maximum design heat input capacity provided by the manufacturer shall be used.

(j) The owner or operator of an affected facility shall use all valid $SO_2$ emissions data in calculating $\%P_s$ and $E_{ho}$ under paragraphs (d), (e), or (f) of this section, as applicable, whether or not the minimum emissions data requirements under §60.46c(f) are achieved. All valid emissions data, including valid data collected during periods of startup, shutdown, and malfunction, shall be used in calculating $\%P_s$ or $E_{ho}$ pursuant to paragraphs (d), (e), or (f) of this section, as applicable.

[72 FR 32759, June 13, 2007, as amended at 74 FR 5091, Jan. 28, 2009]

Back to Top

## §60.45c COMPLIANCE AND PERFORMANCE TEST METHODS AND PROCEDURES FOR PARTICULATE MATTER.

***Boilers are not subject to PM and/or opacity requirements. Thus, section does not apply.***

(a) The owner or operator of an affected facility subject to the PM and/or opacity standards under §60.43c shall conduct an initial performance test as required under §60.8, and shall conduct subsequent performance tests as requested by the Administrator, to determine compliance with the standards using the following procedures and reference methods, except as specified in paragraph (c) of this section.

~~(1) Method 1 of appendix A of this part shall be used to select the sampling site and the number of traverse sampling points.~~

~~(2) Method 3A or 3B of appendix A-2 of this part shall be used for gas analysis when applying Method 5 or 5B of appendix A-3 of this part or 17 of appendix A-6 of this part.~~

~~(3) Method 5, 5B, or 17 of appendix A of this part shall be used to measure the concentration of PM as follows:~~

~~(i) Method 5 of appendix A of this part may be used only at affected facilities without wet scrubber systems.~~

~~(ii) Method 17 of appendix A of this part may be used at affected facilities with or without wet scrubber systems provided the stack gas temperature does not exceed a temperature of 160 °C (320 °F). The procedures of Sections 8.1 and 11.1 of Method 5B of appendix A of this part may be used in Method 17 of appendix A of this part only if Method 17 of appendix A of this part is used in conjunction with a wet scrubber system. Method 17 of appendix A of this part shall not be used in conjunction with a wet scrubber system if the effluent is saturated or laden with water droplets.~~

~~(iii) Method 5B of appendix A of this part may be used in conjunction with a wet scrubber system.~~

~~(4) The sampling time for each run shall be at least 120 minutes and the minimum sampling volume shall be 1.7 dry standard cubic meters (dscm) [60 dry standard cubic feet (dscf)] except that smaller sampling times or volumes may be approved by the Administrator when necessitated by process variables or other factors.~~

~~(5) For Method 5 or 5B of appendix A of this part, the temperature of the sample gas in the probe and filter holder shall be monitored and maintained at 160 ±14 °C (320±25 °F).~~

~~(6) For determination of PM emissions, an oxygen ($O_2$) or carbon dioxide ($CO_2$) measurement shall be obtained simultaneously with each run of Method 5, 5B, or 17 of appendix A of this part by traversing the duct at the same sampling location.~~

~~(7) For each run using Method 5, 5B, or 17 of appendix A of this part, the emission rates expressed in ng/J (lb/MMBtu) heat input shall be determined using:~~

~~(i) The $O_2$ or $CO_2$ measurements and PM measurements obtained under this section, (ii) The dry basis F factor, and~~

~~(iii) The dry basis emission rate calculation procedure contained in Method 19 of appendix A of this part.~~

~~(8) Method 9 of appendix A-4 of this part shall be used for determining the opacity of stack emissions.~~

~~(b) The owner or operator of an affected facility seeking to demonstrate compliance with the PM standards under §60.43c(b)(2) shall demonstrate the maximum design heat input capacity of the steam generating unit by operating the steam generating unit at this capacity for 24 hours. This demonstration shall be made during the initial performance test, and a subsequent demonstration may be requested at any other time. If the demonstrated 24-hour average firing rate for the affected facility is less than the maximum design heat input capacity stated by the manufacturer of the affected facility, the demonstrated 24-hour average firing rate shall be used to determine the annual capacity factor for the affected facility; otherwise, the maximum design heat input capacity provided by the manufacturer shall be used.~~

~~(c) In place of PM testing with Method 5 or 5B of appendix A-3 of this part or Method 17 of appendix A-6 of this part, an owner or operator may elect to install, calibrate, maintain, and operate a CEMS for monitoring PM emissions discharged to the atmosphere and record the output of the system. The owner or operator of an affected facility who elects to continuously monitor PM emissions instead of conducting performance testing using Method 5 or 5B of appendix A-3 of this part or Method 17 of appendix A-6 of this part shall~~

~~install, calibrate, maintain, and operate a CEMS and shall comply with the requirements specified in paragraphs (c)(1) through (c)(14) of this section.~~

~~(1) Notify the Administrator 1 month before starting use of the system.~~

~~(2) Notify the Administrator 1 month before stopping use of the system.~~

~~(3) The monitor shall be installed, evaluated, and operated in accordance with §60.13 of subpart A of this part.~~

~~(4) The initial performance evaluation shall be completed no later than 180 days after the date of initial startup of the affected facility, as specified under §60.8 of subpart A of this part or within 180 days of notification to the Administrator of use of CEMS if the owner or operator was previously determining compliance by Method 5, 5B, or 17 of appendix A of this part performance tests, whichever is later.~~

~~(5) The owner or operator of an affected facility shall conduct an initial performance test for PM emissions as required under §60.8 of subpart A of this part. Compliance with the PM emission limit shall be determined by using the CEMS specified in paragraph (d) of this section to measure PM and calculating a 24-hour block arithmetic average emission concentration using EPA Reference Method 19 of appendix A of this part, section 4.1.~~

~~(6) Compliance with the PM emission limit shall be determined based on the 24-hour daily (block) average of the hourly arithmetic average emission concentrations using CEMS outlet data.~~

~~(7) At a minimum, valid CEMS hourly averages shall be obtained as specified in paragraph (c)(7)(i) of this section for 75 percent of the total operating hours per 30-day rolling average.~~

~~(i) At least two data points per hour shall be used to calculate each 1-hour arithmetic average.~~

~~(ii) [Reserved]~~

~~(8) The 1-hour arithmetic averages required under paragraph (c)(7) of this section shall be expressed in ng/J or lb/MMBtu heat input and shall be used to calculate the boiler operating day daily arithmetic average emission concentrations. The 1-hour arithmetic averages shall be calculated using the data points required under §60.13(e)(2) of subpart A of this part.~~

~~(9) All valid CEMS data shall be used in calculating average emission concentrations even if the minimum CEMS data requirements of paragraph (c)(7) of this section are not met.~~

~~(10) The CEMS shall be operated according to Performance Specification 11 in appendix B of this part.~~

~~(11) During the correlation testing runs of the CEMS required by Performance Specification 11 in appendix B of this part, PM and $O_2$ (or $CO_2$) data shall be collected concurrently (or within a 30- to 60-minute period) by both the continuous emission monitors and performance tests conducted using the following test methods.~~

~~(i) For PM, Method 5 or 5B of appendix A-3 of this part or Method 17 of appendix A-6 of this part shall be used; and~~

~~(ii) For O2 (or $CO_2$), Method 3A or 3B of appendix A-2 of this part, as applicable shall be used.~~

~~(12) Quarterly accuracy determinations and daily calibration drift tests shall be performed in accordance with procedure 2 in appendix F of this part. Relative Response Audit's must be performed annually and Response Correlation Audits must be performed every 3 years.~~

(13) When PM emissions data are not obtained because of CEMS breakdowns, repairs, calibration checks, and zero and span adjustments, emissions data shall be obtained by using other monitoring systems as approved by the Administrator or EPA Reference Method 19 of appendix A of this part to provide, as necessary, valid emissions data for a minimum of 75 percent of total operating hours on a 30-day rolling average.

(14) As of January 1, 2012, and within 90 days after the date of completing each performance test, as defined in §60.8, conducted to demonstrate compliance with this subpart, you must submit relative accuracy test audit (*i.e.*, reference method) data and performance test (*i.e.*, compliance test) data, except opacity data, electronically to EPA's Central Data Exchange (CDX) by using the Electronic Reporting Tool (ERT) (see *http://www.epa.gov/ttn/chief/ert/ert tool.html/*) or other compatible electronic spreadsheet. Only data collected using test methods compatible with ERT are subject to this requirement to be submitted electronically into EPA's WebFIRE database.

(d) The owner or operator of an affected facility seeking to demonstrate compliance under §60.43c(e)(4) shall follow the applicable procedures under §60.48c(f). For residual oil-fired affected facilities, fuel supplier certifications are only allowed for facilities with heat input capacities between 2.9 and 8.7 MW (10 to 30 MMBtu/h).

[72 FR 32759, June 13, 2007, as amended at 74 FR 5091, Jan. 28, 2009; 76 FR 3523, Jan. 20, 2011; 77 FR 9463, Feb. 16, 2012]

Back to Top

## §60.46C EMISSION MONITORING FOR SULFUR DIOXIDE.

***This section does not apply per §60.42c(h) (1)***

(a) Except as provided in paragraphs (d) and (e) of this section, the owner or operator of an affected facility subject to the $SO_2$ emission limits under §60.42c shall install, calibrate, maintain, and operate a CEMS for measuring $SO_2$ concentrations and either $O_2$ or $CO_2$ concentrations at the outlet of the $SO_2$ control device (or the outlet of the steam generating unit if no $SO_2$ control device is used), and shall record the output of the system. The owner or operator of an affected facility subject to the percent reduction requirements under §60.42c shall measure $SO_2$ concentrations and either $O_2$ or $CO_2$ concentrations at both the inlet and outlet of the $SO_2$ control device.

(b) The 1-hour average $SO_2$ emission rates measured by a CEMS shall be expressed in ng/J or lb/MMBtu heat input and shall be used to calculate the average emission rates under §60.42c. Each 1-hour average $SO_2$ emission rate must be based on at least 30 minutes of operation, and shall be calculated using the data points required under §60.13(h)(2). Hourly $SO_2$ emission rates are not calculated if the affected facility is operated less than 30 minutes in a 1-hour period and are not counted toward determination of a steam generating unit operating day.

(c) The procedures under §60.13 shall be followed for installation, evaluation, and operation of the CEMS.

(1) All CEMS shall be operated in accordance with the applicable procedures under Performance Specifications 1, 2, and 3 of appendix B of this part.

(2) Quarterly accuracy determinations and daily calibration drift tests shall be performed in accordance with Procedure 1 of appendix F of this part.

(3) For affected facilities subject to the percent reduction requirements under §60.42c, the span value of the $SO_2$ CEMS at the inlet to the $SO_2$ control device shall be 125 percent of the maximum estimated hourly potential $SO_2$ emission rate of the fuel combusted, and the span value of the $SO_2$ CEMS at the outlet from the $SO_2$ control device shall be 50 percent of the maximum estimated hourly potential $SO_2$ emission rate of the fuel combusted.

(4) For affected facilities that are not subject to the percent reduction requirements of §60.42c, the span value of the $SO_2$ CEMS at the outlet from the $SO_2$ control device (or outlet of the steam generating unit if no $SO_2$ control device is used) shall be 125 percent of the maximum estimated hourly potential $SO_2$ emission rate of the fuel combusted.

(d) As an alternative to operating a CEMS at the inlet to the $SO_2$ control device (or outlet of the steam generating unit if no $SO_2$ control device is used) as required under paragraph (a) of this section, an owner or operator may elect to determine the average $SO_2$ emission rate by sampling the fuel prior to combustion. As an alternative to operating a CEMS at the outlet from the $SO_2$ control device (or outlet of the steam generating unit if no $SO_2$ control device is used) as required under paragraph (a) of this section, an owner or operator may elect to determine the average $SO_2$ emission rate by using Method 6B of appendix A of this part. Fuel sampling shall be conducted pursuant to either paragraph (d)(1) or (d)(2) of this section. Method 6B of appendix A of this part shall be conducted pursuant to paragraph (d)(3) of this section.

(1) For affected facilities combusting coal or oil, coal or oil samples shall be collected daily in an as-fired condition at the inlet to the steam generating unit and analyzed for sulfur content and heat content according the Method 19 of appendix A of this part. Method 19 of appendix A of this part provides procedures for converting these measurements into the format to be used in calculating the average $SO_2$ input rate.

(2) As an alternative fuel sampling procedure for affected facilities combusting oil, oil samples may be collected from the fuel tank for each steam generating unit immediately after the fuel tank is filled and before any oil is combusted. The owner or operator of the affected facility shall analyze the oil sample to determine the sulfur content of the oil. If a partially empty fuel tank is refilled, a new sample and analysis of the fuel in the tank would be required upon filling. Results of the fuel analysis taken after each new shipment of oil is received shall be used as the daily value when calculating the 30-day rolling average until the next shipment is received. If the fuel analysis shows that the sulfur content in the fuel tank is greater than 0.5 weight percent sulfur, the owner or operator shall ensure that the sulfur content of subsequent oil shipments is low enough to cause the 30-day rolling average sulfur content to be 0.5 weight percent sulfur or less.

(3) Method 6B of appendix A of this part may be used in lieu of CEMS to measure $SO_2$ at the inlet or outlet of the $SO_2$control system. An initial stratification test is required to verify the adequacy of the Method 6B of appendix A of this part sampling location. The stratification test shall consist of three paired runs of a suitable $SO_2$ and $CO_2$ measurement train operated at the candidate location and a second similar train operated according to the procedures in §3.2 and the applicable procedures in section 7 of Performance Specification 2 of appendix B of this part. Method 6B of appendix A of this part, Method 6A of appendix A of this part, or a combination of Methods 6 and 3 of appendix A of this part or Methods 6C and 3A of appendix A of this part are suitable measurement techniques. If Method 6B of appendix A of this part is used for the second train, sampling time and timer operation may be adjusted for the stratification test as long as an adequate sample volume is collected; however, both sampling trains are to be operated similarly. For the location to be adequate for Method 6B of appendix A of this part 24-hour tests, the mean of the absolute difference between the three paired runs must be less than 10 percent (0.10).

(e) The monitoring requirements of paragraphs (a) and (d) of this section shall not apply to affected facilities subject to §60.42c(h) (1), (2), or (3) where the owner or operator of the affected facility seeks to demonstrate compliance with the $SO_2$ standards based on fuel supplier certification, as described under §60.48c(f), as applicable.

***SAMC will demonstrate that fuel sulfur content is less than or equal to 0.5 percent by weight by obtaining fuel supplier certifications for all fuel oil supplied to the boilers, and maintain certified statements that the fuel certifications represent all of the fuel combusted during the reporting period. Fuel supplier certifications will be maintained for at least two years and made available upon request.***

(f) The owner or operator of an affected facility operating a CEMS pursuant to paragraph (a) of this section, or conducting as-fired fuel sampling pursuant to paragraph (d)(1) of this section, shall obtain emission data for at least 75 percent of the operating hours in at least 22 out of 30 successive steam generating unit operating days. If this minimum data requirement is not met with a single monitoring system, the owner or

operator of the affected facility shall supplement the emission data with data collected with other monitoring systems as approved by the Administrator.

Back to Top

### §60.47C EMISSION MONITORING FOR PARTICULATE MATTER.

***This section does not apply since boilers are not subject to PM monitoring requirements (i.e., not coal fueled and they are less than 30MMBtu/hr)***

(a) Except as provided in paragraphs (c), (d), (e), and (f) of this section, the owner or operator of an affected facility combusting coal, oil, or wood that is subject to the opacity standards under §60.43c shall install, calibrate, maintain, and operate a continuous opacity monitoring system (COMS) for measuring the opacity of the emissions discharged to the atmosphere and record the output of the system. The owner or operator of an affected facility subject to an opacity standard in §60.43c(c) that is not required to use a COMS due to paragraphs (c), (d), (e), or (f) of this section that elects not to use a COMS shall conduct a performance test using Method 9 of appendix A-4 of this part and the procedures in §60.11 to demonstrate compliance with the applicable limit in §60.43c by April 29, 2011, within 45 days of stopping use of an existing COMS, or within 180 days after initial startup of the facility, whichever is later, and shall comply with either paragraphs (a)(1), (a)(2), or (a)(3) of this section. The observation period for Method 9 of appendix A-4 of this part performance tests may be reduced from 3 hours to 60 minutes if all 6-minute averages are less than 10 percent and all individual 15-second observations are less than or equal to 20 percent during the initial 60 minutes of observation.

(1) Except as provided in paragraph (a)(2) and (a)(3) of this section, the owner or operator shall conduct subsequent Method 9 of appendix A-4 of this part performance tests using the procedures in paragraph (a) of this section according to the applicable schedule in paragraphs (a)(1)(i) through (a)(1)(iv) of this section, as determined by the most recent Method 9 of appendix A-4 of this part performance test results.

(i) If no visible emissions are observed, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 12 calendar months from the date that the most recent performance test was conducted or within 45 days of the next day that fuel with an opacity standard is combusted, whichever is later;

(ii) If visible emissions are observed but the maximum 6-minute average opacity is less than or equal to 5 percent, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 6 calendar months from the date that the most recent performance test was conducted or within 45 days of the next day that fuel with an opacity standard is combusted, whichever is later;

(iii) If the maximum 6-minute average opacity is greater than 5 percent but less than or equal to 10 percent, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 3 calendar months from the date that the most recent performance test was conducted or within 45 days of the next day that fuel with an opacity standard is combusted, whichever is later; or

(iv) If the maximum 6-minute average opacity is greater than 10 percent, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 45 calendar days from the date that the most recent performance test was conducted.

(2) If the maximum 6-minute opacity is less than 10 percent during the most recent Method 9 of appendix A-4 of this part performance test, the owner or operator may, as an alternative to performing subsequent Method 9 of appendix A-4 of this part performance tests, elect to perform subsequent monitoring using Method 22 of appendix A-7 of this part according to the procedures specified in paragraphs (a)(2)(i) and (ii) of this section.

(i) The owner or operator shall conduct 10 minute observations (during normal operation) each operating day the affected facility fires fuel for which an opacity standard is applicable using Method 22 of appendix A-7 of this part and demonstrate that the sum of the occurrences of any visible emissions is not in excess of 5 percent of the observation period (*i.e.* , 30 seconds per 10 minute period). If the sum of the occurrence of any

visible emissions is greater than 30 seconds during the initial 10 minute observation, immediately conduct a 30 minute observation. If the sum of the occurrence of visible emissions is greater than 5 percent of the observation period (*i.e.*, 90 seconds per 30 minute period), the owner or operator shall either document and adjust the operation of the facility and demonstrate within 24 hours that the sum of the occurrence of visible emissions is equal to or less than 5 percent during a 30 minute observation (*i.e.*, 90 seconds) or conduct a new Method 9 of appendix A-4 of this part performance test using the procedures in paragraph (a) of this section within 45 calendar days according to the requirements in §60.45c(a)(8).

(ii) If no visible emissions are observed for 10 operating days during which an opacity standard is applicable, observations can be reduced to once every 7 operating days during which an opacity standard is applicable. If any visible emissions are observed, daily observations shall be resumed.

(3) If the maximum 6-minute opacity is less than 10 percent during the most recent Method 9 of appendix A-4 of this part performance test, the owner or operator may, as an alternative to performing subsequent Method 9 of appendix A-4 performance tests, elect to perform subsequent monitoring using a digital opacity compliance system according to a site-specific monitoring plan approved by the Administrator. The observations shall be similar, but not necessarily identical, to the requirements in paragraph (a)(2) of this section. For reference purposes in preparing the monitoring plan, see OAQPS "Determination of Visible Emission Opacity from Stationary Sources Using Computer-Based Photographic Analysis Systems." This document is available from the U.S. Environmental Protection Agency (U.S. EPA); Office of Air Quality and Planning Standards; Sector Policies and Programs Division; Measurement Policy Group (D243-02), Research Triangle Park, NC 27711. This document is also available on the Technology Transfer Network (TTN) under Emission Measurement Center Preliminary Methods.

(b) All COMS shall be operated in accordance with the applicable procedures under Performance Specification 1 of appendix B of this part. The span value of the opacity COMS shall be between 60 and 80 percent.

(c) Owners and operators of an affected facilities that burn only distillate oil that contains no more than 0.5 weight percent sulfur and/or liquid or gaseous fuels with potential sulfur dioxide emission rates of 26 ng/J (0.060 lb/MMBtu) heat input or less and that do not use a post-combustion technology to reduce SO2 or PM emissions and that are subject to an opacity standard in §60.43c(c) are not required to operate a COMS if they follow the applicable procedures in §60.48c(f).

(d) Owners or operators complying with the PM emission limit by using a PM CEMS must calibrate, maintain, operate, and record the output of the system for PM emissions discharged to the atmosphere as specified in §60.45c(c). The CEMS specified in paragraph §60.45c(c) shall be operated and data recorded during all periods of operation of the affected facility except for CEMS breakdowns and repairs. Data is recorded during calibration checks, and zero and span adjustments.

(e) Owners and operators of an affected facility that is subject to an opacity standard in §60.43c(c) and that does not use post-combustion technology (except a wet scrubber) for reducing PM, $SO_2$, or carbon monoxide (CO) emissions, burns only gaseous fuels or fuel oils that contain less than or equal to 0.5 weight percent sulfur, and is operated such that emissions of CO discharged to the atmosphere from the affected facility are maintained at levels less than or equal to 0.15 lb/MMBtu on a boiler operating day average basis is not required to operate a COMS. Owners and operators of affected facilities electing to comply with this paragraph must demonstrate compliance according to the procedures specified in paragraphs (e)(1) through (4) of this section; or

(1) You must monitor CO emissions using a CEMS according to the procedures specified in paragraphs (e)(1)(i) through (iv) of this section.

(i) The CO CEMS must be installed, certified, maintained, and operated according to the provisions in §60.58b(i)(3) of subpart Eb of this part.

(ii) Each 1-hour CO emissions average is calculated using the data points generated by the CO CEMS expressed in parts per million by volume corrected to 3 percent oxygen (dry basis).

~~(iii) At a minimum, valid 1-hour CO emissions averages must be obtained for at least 90 percent of the operating hours on a 30-day rolling average basis. The 1-hour averages are calculated using the data points required in §60.13(h)(2).~~

~~(iv) Quarterly accuracy determinations and daily calibration drift tests for the CO CEMS must be performed in accordance with procedure 1 in appendix F of this part.~~

~~(2) You must calculate the 1-hour average CO emissions levels for each steam generating unit operating day by multiplying the average hourly CO output concentration measured by the CO CEMS times the corresponding average hourly flue gas flow rate and divided by the corresponding average hourly heat input to the affected source. The 24-hour average CO emission level is determined by calculating the arithmetic average of the hourly CO emission levels computed for each steam generating unit operating day.~~

~~(3) You must evaluate the preceding 24-hour average CO emission level each steam generating unit operating day excluding periods of affected source startup, shutdown, or malfunction. If the 24-hour average CO emission level is greater than 0.15 lb/MMBtu, you must initiate investigation of the relevant equipment and control systems within 24 hours of the first discovery of the high emission incident and, take the appropriate corrective action as soon as practicable to adjust control settings or repair equipment to reduce the 24-hour average CO emission level to 0.15 lb/MMBtu or less.~~

~~(4) You must record the CO measurements and calculations performed according to paragraph (e) of this section and any corrective actions taken. The record of corrective action taken must include the date and time during which the 24-hour average CO emission level was greater than 0.15 lb/MMBtu, and the date, time, and description of the corrective action.~~

~~(f) An owner or operator of an affected facility that is subject to an opacity standard in §60.43c(c) is not required to operate a COMS provided that the affected facility meets the conditions in either paragraphs (f)(1), (2), or (3) of this section.~~

~~(1) The affected facility uses a fabric filter (baghouse) as the primary PM control device and, the owner or operator operates a bag leak detection system to monitor the performance of the fabric filter according to the requirements in section §60.48Da of this part.~~

~~(2) The affected facility uses an ESP as the primary PM control device, and the owner or operator uses an ESP predictive model to monitor the performance of the ESP developed in accordance and operated according to the requirements in section §60.48Da of this part.~~

~~(3) The affected facility burns only gaseous fuels and/or fuel oils that contain no greater than 0.5 weight percent sulfur, and the owner or operator operates the unit according to a written site-specific monitoring plan approved by the permitting authority. This monitoring plan must include procedures and criteria for establishing and monitoring specific parameters for the affected facility indicative of compliance with the opacity standard. For testing performed as part of this site-specific monitoring plan, the permitting authority may require as an alternative to the notification and reporting requirements specified in §§60.8 and 60.11 that the owner or operator submit any deviations with the excess emissions report required under §60.48c(c).~~

~~[72 FR 32759, June 13, 2007, as amended at 74 FR 5091, Jan. 28, 2009; 76 FR 3523, Jan. 20, 2011; 77 FR 9463, Feb. 16, 2012]~~

Back to Top

## §60.48C REPORTING AND RECORDKEEPING REQUIREMENTS.

(a) The owner or operator of each affected facility shall submit notification of the date of construction or reconstruction and actual startup, as provided by §60.7 of this part. This notification shall include:

(1) The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

~~(2)~~ If applicable, a copy of any federally enforceable requirement that limits the annual capacity factor for any fuel or mixture of fuels under §60.42c, or §60.43c.

(3) The annual capacity factor at which the owner or operator anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.

(4) Notification if an emerging technology will be used for controlling $SO_2$ emissions. The Administrator will examine the description of the control device and will determine whether the technology qualifies as an emerging technology. In making this determination, the Administrator may require the owner or operator of the affected facility to submit additional information concerning the control device. The affected facility is subject to the provisions of §60.42c(a) or (b)(1), unless and until this determination is made by the Administrator.

~~(b) The owner or operator of each affected facility subject to the $SO_2$ emission limits of §60.42c, or the PM or opacity limits of §60.43c, shall submit to the Administrator the performance test data from the initial and any subsequent performance tests and, if applicable, the performance evaluation of the CEMS and/or COMS using the applicable performance specifications in appendix B of this part.~~

~~(c) In addition to the applicable requirements in §60.7, the owner or operator of an affected facility subject to the opacity limits in §60.43c(c) shall submit excess emission reports for any excess emissions from the affected facility that occur during the reporting period and maintain records according to the requirements specified in paragraphs (c)(1) through (3) of this section, as applicable to the visible emissions monitoring method used.~~

~~(1) For each performance test conducted using Method 9 of appendix A-4 of this part, the owner or operator shall keep the records including the information specified in paragraphs (c)(1)(i) through (iii) of this section.~~

~~(i) Dates and time intervals of all opacity observation periods;~~

~~(ii) Name, affiliation, and copy of current visible emission reading certification for each visible emission observer participating in the performance test; and~~

~~(iii) Copies of all visible emission observer opacity field data sheets;~~

~~(2) For each performance test conducted using Method 22 of appendix A-4 of this part, the owner or operator shall keep the records including the information specified in paragraphs (c)(2)(i) through (iv) of this section.~~

~~(i) Dates and time intervals of all visible emissions observation periods;~~

~~(ii) Name and affiliation for each visible emission observer participating in the performance test;~~

~~(iii) Copies of all visible emission observer opacity field data sheets; and~~

~~(iv) Documentation of any adjustments made and the time the adjustments were completed to the affected facility operation by the owner or operator to demonstrate compliance with the applicable monitoring requirements.~~

~~(3) For each digital opacity compliance system, the owner or operator shall maintain records and submit reports according to the requirements specified in the site-specific monitoring plan approved by the Administrator~~

(d) The owner or operator of each affected facility subject to ~~the $SO_2$ emission limits~~, fuel oil sulfur limits, ~~or percent reduction requirements~~ under §60.42c shall submit reports to the Administrator.

(e) The owner or operator of each affected facility subject to the ~~$SO_2$ emission limits~~, fuel oil sulfur limits, ~~or percent reduction requirements~~ under §60.42c shall keep records and submit reports as required under paragraph (d) of this section, including the following information, as applicable.

(1) Calendar dates covered in the reporting period.

~~(2) Each 30-day average $SO_2$ emission rate (ng/J or lb/MMBtu), or 30-day average sulfur content (weight percent), calculated during the reporting period, ending with the last 30-day period; reasons for any noncompliance with the emission standards; and a description of corrective actions taken.~~

~~(3) Each 30-day average percent of potential $SO_2$ emission rate calculated during the reporting period, ending with the last 30-day period; reasons for any noncompliance with the emission standards; and a description of the corrective actions taken.~~

~~(4) Identification of any steam generating unit operating days for which $SO_2$ or diluent ($O_2$ or $CO_2$) data have not been obtained by an approved method for at least 75 percent of the operating hours; justification for not obtaining sufficient data; and a description of corrective actions taken.~~

~~(5) Identification of any times when emissions data have been excluded from the calculation of average emission rates; justification for excluding data; and a description of corrective actions taken if data have been excluded for periods other than those during which coal or oil were not combusted in the steam generating unit.~~

~~(6) Identification of the F factor used in calculations, method of determination, and type of fuel combusted.~~

~~(7) Identification of whether averages have been obtained based on CEMS rather than manual sampling methods.~~

~~(8) If a CEMS is used, identification of any times when the pollutant concentration exceeded the full span of the CEMS.~~

~~(9) If a CEMS is used, description of any modifications to the CEMS that could affect the ability of the CEMS to comply with Performance Specifications 2 or 3 of appendix B of this part.~~

~~(10) If a CEMS is used, results of daily CEMS drift tests and quarterly accuracy assessments as required under appendix F, Procedure 1 of this part.~~

(11) If fuel supplier certification is used to demonstrate compliance, records of fuel supplier certification as described under paragraph (f)(1), (2), (3), or (4) of this section, as applicable. In addition to records of fuel supplier certifications, the report shall include a certified statement signed by the owner or operator of the affected facility that the records of fuel supplier certifications submitted represent all of the fuel combusted during the reporting period.

(f) Fuel supplier certification shall include the following information:

(1) For distillate oil:

(i) The name of the oil supplier;

(ii) A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in §60.41c; and

(iii) The sulfur content or maximum sulfur content of the oil.

~~(2) For residual oil:~~

~~(i) The name of the oil supplier;~~

~~(ii) The location of the oil when the sample was drawn for analysis to determine the sulfur content of the oil, specifically including whether the oil was sampled as delivered to the affected facility, or whether the sample was drawn from oil in storage at the oil supplier's or oil refiner's facility, or other location;~~

~~(iii) The sulfur content of the oil from which the shipment came (or of the shipment itself); and~~

~~(iv) The method used to determine the sulfur content of the oil.~~

~~(3) For coal:~~

~~(i) The name of the coal supplier;~~

~~(ii) The location of the coal when the sample was collected for analysis to determine the properties of the coal, specifically including whether the coal was sampled as delivered to the affected facility or whether the sample was collected from coal in storage at the mine, at a coal preparation plant, at a coal supplier's facility, or at another location. The certification shall include the name of the coal mine (and coal seam), coal storage facility, or coal preparation plant (where the sample was collected);~~

~~(iii) The results of the analysis of the coal from which the shipment came (or of the shipment itself) including the sulfur content, moisture content, ash content, and heat content; and~~

~~(iv) The methods used to determine the properties of the coal.~~

~~(4) For other fuels:~~

~~(i) The name of the supplier of the fuel;~~

~~(ii) The potential sulfur emissions rate or maximum potential sulfur emissions rate of the fuel in ng/J heat input; and~~

~~(iii) The method used to determine the potential sulfur emissions rate of the fuel.~~

(g)(1) Except as provided under paragraphs (g)(2) and (g)(3) of this section, the owner or operator of each affected facility shall record and maintain records of the amount of each fuel combusted during each operating day.

~~(2) As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility that combusts only natural gas, wood, fuels using fuel certification in §60.48c(f) to demonstrate compliance with the $SO_2$ standard, fuels not subject to an emissions standard (excluding opacity), or a mixture of these fuels may elect to record and maintain records of the amount of each fuel combusted during each calendar month.~~

~~(3) As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility or multiple affected facilities located on a contiguous property unit where the only fuels combusted in any steam generating unit (including steam generating units not subject to this subpart) at that property are natural gas, wood, distillate oil meeting the most current requirements in §60.42C to use fuel certification to demonstrate compliance with the $SO_2$ standard, and/or fuels, excluding coal and residual oil, not subject to an emissions standard (excluding opacity) may elect to record and maintain records of the total amount of each steam generating unit fuel delivered to that property during each calendar month.~~

~~(h) The owner or operator of each affected facility subject to a federally enforceable requirement limiting the annual capacity factor for any fuel or mixture of fuels under §60.42c or §60.43c shall calculate the annual capacity factor individually for each fuel combusted. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of the calendar month.~~

(i) All records required under this section shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record.

(j) The reporting period for the reports required under this subpart is each six-month period. All reports shall be submitted to the Administrator and shall be postmarked by the 30th day following the end of the reporting period.

***SAMC will report and maintain records of the boiler operations. Records will be maintained for at least two years and include notification date of boiler construction or reconstruction, and anticipated and actual startup dates (within the timeframe specified in subpart A of the NSPS), including: 1) The design heat-input capacity of the boiler and identification of the fuels to be combusted in the boiler; 2) the annual capacity at which you anticipate operating the boiler based on all fuels combusted and based on each individual fuel combusted.***

***Records of the amounts of each fuel combusted during each day will be kept. Owners or operators that only burn ultra-low sulfur diesel oil (<5 ppm or 0.0015 weight percent sufur) can record and maintain records of the fuels combusted during each calendar month instead of daily.***

***Since SAMC will use the fuel certification to demonstrate compliance with the SO2 standard, semi-annual reports as described in section 60.48c€(11) will be submitted. These reports must include :1) Calendar dates covered in the report period; 2) A certified statement signed by the owner or operator of the affected facility that the records of fuel supplier certifications submitted represents all of the fuel combusted during the reporting period, and; 3) Records of fuel supplier certifications for the reporting period.***

***The fuel supplier certification will state that the fuel oil complies with the specifications. Under the definition of distillate oil in Subpart Dc 60.41c.***

[72 FR 32759, June 13, 2007, as amended at 74 FR 5091, Jan. 28, 2009]

***This NSPS applies to the two proposed 1600kW emergency engines***

# Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

### §60.4200 Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) and other persons as specified in paragraphs (a)(1) through (4) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

~~(1) Manufacturers of stationary CI ICE with a displacement of less than 30 liters per cylinder where the model year is:~~

(i) 2007 or later, for engines that are not fire pump engines;

***SAMC will use two emergency internal combustion engine generators manufactured by Mitsubishi, Model S16R-Y2PTAW-1 manufactured after 2007***

~~(ii) The model year listed in Table 3 to this subpart or later model year, for fire pump engines.~~

~~(2) Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are:~~

~~(i) Manufactured after April 1, 2006, and are not fire pump engines, or~~

~~(ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.~~

~~(3) Owners and operators of any stationary CI ICE that are modified or reconstructed after July 11, 2005 and any person that modifies or reconstructs any stationary CI ICE after July 11, 2005.~~

~~(4) The provisions of §60.4208 of this subpart are applicable to all owners and operators of stationary CI ICE that commence construction after July 11, 2005.~~

~~(b) The provisions of this subpart are not applicable to stationary CI ICE being tested at a stationary CI ICE test cell/stand.~~

(c) If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart applicable to area sources.

~~(d) Stationary CI ICE may be eligible for exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C (or the exemptions described in 40 CFR part 89, subpart J and 40 CFR part 94, subpart J, for engines that would need to be certified to standards in those parts), except that owners and operators, as well as manufacturers, may be eligible to request an exemption for national security.~~

~~(e) Owners and operators of facilities with CI ICE that are acting as temporary replacement units and that are located at a stationary source for less than 1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this subpart with regard to such engines.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37967, June 28, 2011]

Back to Top

## EMISSION STANDARDS FOR MANUFACTURERS

### §60.4201 What emission standards must I meet for non-emergency engines if I am a stationary CI internal combustion engine manufacturer?

***Engines are for emergency use only. Section does not apply.***

~~(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later non-emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 kilowatt (KW) (3,000 horsepower (HP)) and a displacement of less than 10 liters per cylinder to the certification emission standards for new nonroad CI engines in 40 CFR 89.112, 40 CFR 89.113, 40 CFR 1039.101, 40 CFR 1039.102, 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, and 40 CFR 1039.115, as applicable, for all pollutants, for the same model year and maximum engine power.~~

~~(b) Stationary CI internal combustion engine manufacturers must certify their 2007 through 2010 model year non-emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder to the emission standards in table 1 to this subpart, for all pollutants, for the same maximum engine power.~~

~~(c) Stationary CI internal combustion engine manufacturers must certify their 2011 model year and later non-emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder to the certification emission standards for new nonroad CI engines in 40 CFR 1039.101, 40 CFR 1039.102, 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, and 40 CFR 1039.115, as applicable, for all pollutants, for the same maximum engine power.~~

~~(d) Stationary CI internal combustion engine manufacturers must certify the following non-emergency stationary CI ICE to the certification emission standards for new marine CI engines in 40 CFR 94.8, as applicable, for all pollutants, for the same displacement and maximum engine power:~~

~~(1) Their 2007 model year through 2012 non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder;~~

~~(2) Their 2013 model year non-emergency stationary CI ICE with a maximum engine power greater than or equal to 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and~~

~~(3) Their 2013 model year non-emergency stationary CI ICE with a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.~~

~~(e) Stationary CI internal combustion engine manufacturers must certify the following non-emergency stationary CI ICE to the certification emission standards and other requirements for new marine CI engines in 40 CFR 1042.101, 40 CFR 1042.107, 40 CFR 1042.110, 40 CFR 1042.115, 40 CFR 1042.120, and 40 CFR 1042.145, as applicable, for all pollutants, for the same displacement and maximum engine power:~~

~~(1) Their 2013 model year non-emergency stationary CI ICE with a maximum engine power less than 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and~~

~~(2) Their 2014 model year and later non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder.~~

~~(f) Notwithstanding the requirements in paragraphs (a) through (c) of this section, stationary non-emergency CI ICE identified in paragraphs (a) and (c) may be certified to the provisions of 40 CFR part 94 or,~~

~~if Table 1 to 40 CFR 1042.1 identifies 40 CFR part 1042 as being applicable, 40 CFR part 1042, if the engines will be used solely in either or both of the following locations:~~

~~(1) Areas of Alaska not accessible by the Federal Aid Highway System (FAHS); and~~

~~(2) Marine offshore installations.~~

~~(g) Notwithstanding the requirements in paragraphs (a) through (f) of this section, stationary CI internal combustion engine manufacturers are not required to certify reconstructed engines; however manufacturers may elect to do so. The reconstructed engine must be certified to the emission standards specified in paragraphs (a) through (e) of this section that are applicable to the model year, maximum engine power, and displacement of the reconstructed stationary CI ICE.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37967, June 28, 2011]

Back to Top

**~~§60.4202 What emission standards must I meet for emergency engines if I am a stationary CI internal combustion engine manufacturer?~~**

***Section (a) applies per 60.4205(b)***

(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (a)(1) through (2) of this section.

***Engines have a displacement of ~4.1 Liters per cylinder (65.4 / 16)***

~~(1) For engines with a maximum engine power less than 37 KW (50 HP):~~

~~(i) The certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants for model year 2007 engines, and~~

~~(ii) The certification emission standards for new nonroad CI engines in 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, 40 CFR 1039.115, and table 2 to this subpart, for 2008 model year and later engines.~~

(2) For engines with a maximum engine power greater than or equal to 37 KW (50 HP), the certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants beginning in model year 2007. ***Engine certification meets the emissions standards in Table 1 of CFR 89.112***

Table 1.—Emission Standards (g/kW-hr)

| Rated Power (kW) | Tier | Model Year[1] | NOx | HC | NMHC + NOx | CO | PM |
|---|---|---|---|---|---|---|---|
| kW<8 | Tier 1 | 2000 | — | — | 10.5 | 8.0 | 1.0 |
| | Tier 2 | 2005 | — | — | 7.5 | 8.0 | 0.80 |
| 8≤kW<19 | Tier 1 | 2000 | — | — | 9.5 | 6.6 | 0.80 |
| | Tier 2 | 2005 | — | — | 7.5 | 6.6 | 0.80 |
| 19≤kW<37 | Tier 1 | 1999 | — | — | 9.5 | 5.5 | 0.80 |
| | Tier 2 | 2004 | — | — | 7.5 | 5.5 | 0.60 |
| 37≤kW<75 | Tier 1 | 1998 | 9.2 | — | — | — | — |
| | Tier 2 | 2004 | — | — | 7.5 | 5.0 | 0.40 |
| | Tier 3 | 2008 | — | — | 4.7 | 5.0 | |
| 75≤kW<130 | Tier 1 | 1997 | 9.2 | — | — | — | — |
| | Tier 2 | 2003 | — | — | 6.6 | 5.0 | 0.30 |
| | Tier 3 | 2007 | — | — | 4.0 | 5.0 | |
| 130≤kW<225 | Tier 1 | 1996 | 9.2 | 1.3 | — | 11.4 | 0.54 |
| | Tier 2 | 2003 | — | — | 6.6 | 3.5 | 0.20 |
| | Tier 3 | 2006 | — | — | 4.0 | 3.5 | |
| 225≤kW<450 | Tier 1 | 1996 | 9.2 | 1.3 | — | 11.4 | 0.54 |
| | Tier 2 | 2001 | — | — | 6.4 | 3.5 | 0.20 |
| | Tier 3 | 2006 | — | — | 4.0 | 3.5 | |
| 450≤kW≤560 | Tier 1 | 1996 | 9.2 | 1.3 | — | 11.4 | 0.54 |
| | Tier 2 | 2002 | — | — | 6.4 | 3.5 | 0.20 |
| | Tier 3 | 2006 | — | — | 4.0 | 3.5 | |
| kW>560 | Tier 1 | 2000 | 9.2 | 1.3 | — | 11.4 | 0.54 |
| | Tier 2 | 2006 | — | — | 6.4 | 3.5 | 0.20 |

[1] The model years listed indicate the model years for which the specified tier of standards take effect.

KOHLER Power Systems

**1600REOZMD**

60 HZ. DIESEL INDUSTRIAL GENERATOR SET
EMISSION DATA SHEET

**ENGINE INFORMATION**

| | | | |
|---|---|---|---|
| Model: | Mitsubishi, S16R-Y2PTAW-1 | Bore: | 170mm (6.69 in.) |
| Nameplate BHP @ 1800 RPM: | 2346 | Stroke: | 180mm (7.09 in.) |
| Type: | 4-Cycle, 16-V Cylinder | Displacement: | 65.4 L (3989 cu. In.) |
| Aspiration: | Turbocharged | EPA Family: | FMVXL65.4BBA |
| Compression Ratio | 14.5:1 | EPA Certificate | FMVXL65.4BBA-011 |
| Emission Control Device | Turbocharged and after cooled | | |

| | Table 1 | | | |
|---|---|---|---|---|
| **PERFORMANCE DATA:** | 1/4 Standby | 1/2 Standby | 3/4 Standby | Full Standby |
| Engine bkW @ Stated Load | 438.00 | 845.00 | 1313.00 | 1750.00 |
| Fuel Consupumtion (g/kWh) | 258.00 | 233.00 | 229.00 | 235.00 |
| Exhaust Gas Flow ($m^3/s$) | | | | 7.38 |
| Exhaust Temperature (°C) | | | | 505.00 |

| **EXHAUST EMISSION DATA:** | Table 2 EPA CERTIFICATE DATA |
|---|---|
| HC (Total Unburned Hydrocarbons) | 0.56 |
| NOx (Oxides of Nitrogen as NO2) | 5.36 |
| CO (Carbon Monoxide) | 0.60 |
| PM (Particular Matter) | 0.17 |

Values are in g/kWh

~~(b) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (b)(1) through (2) of this section.~~

~~(1) For 2007 through 2010 model years, the emission standards in table 1 to this subpart, for all pollutants, for the same maximum engine power.~~

~~(2) For 2011 model year and later, the certification emission standards for new nonroad CI engines for engines of the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants.~~

~~(c) [Reserved]~~

~~(d) Beginning with the model years in table 3 to this subpart, stationary CI internal combustion engine manufacturers must certify their fire pump stationary CI ICE to the emission standards in table 4 to this subpart, for all pollutants, for the same model year and NFPA nameplate power.~~

~~(e) Stationary CI internal combustion engine manufacturers must certify the following emergency stationary CI ICE that are not fire pump engines to the certification emission standards for new marine CI engines in 40 CFR 94.8, as applicable, for all pollutants, for the same displacement and maximum engine power:~~

~~(1) Their 2007 model year through 2012 emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder;~~

~~(2) Their 2013 model year and later emergency stationary CI ICE with a maximum engine power greater than or equal to 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder;~~

~~(3) Their 2013 model year emergency stationary CI ICE with a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder; and~~

~~(4) Their 2014 model year and later emergency stationary CI ICE with a maximum engine power greater than or equal to 2,000 KW (2,682 HP) and a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.~~

~~(f) Stationary CI internal combustion engine manufacturers must certify the following emergency stationary CI ICE to the certification emission standards and other requirements applicable to Tier 3 new marine CI engines in 40 CFR 1042.101, 40 CFR 1042.107, 40 CFR 1042.115, 40 CFR 1042.120, and 40 CFR 1042.145, for all pollutants, for the same displacement and maximum engine power:~~

~~(1) Their 2013 model year and later emergency stationary CI ICE with a maximum engine power less than 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and~~

~~(2) Their 2014 model year and later emergency stationary CI ICE with a maximum engine power less than 2,000 KW (2,682 HP) and a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.~~

~~(g) Notwithstanding the requirements in paragraphs (a) through (d) of this section, stationary emergency CI internal combustion engines identified in paragraphs (a) and (c) may be certified to the provisions of 40 CFR part 94 or, if Table 2 to 40 CFR 1042.101 identifies Tier 3 standards as being applicable, the requirements applicable to Tier 3 engines in 40 CFR part 1042, if the engines will be used solely in either or both of the following locations:~~

~~(1) Areas of Alaska not accessible by the FAHS; and~~

~~(2) Marine offshore installations.~~

(h) Notwithstanding the requirements in paragraphs (a) through (f) of this section, stationary CI internal combustion engine manufacturers are not required to certify reconstructed engines; however manufacturers may elect to do so. The reconstructed engine must be certified to the emission standards specified in paragraphs (a) through (f) of this section that are applicable to the model year, maximum engine power and displacement of the reconstructed emergency stationary CI ICE.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37968, June 28, 2011]

Back to Top

**§60.4203 How long must my engines meet the emission standards if I am a manufacturer of stationary CI internal combustion engines?**

Engines manufactured by stationary CI internal combustion engine manufacturers must meet the emission standards as required in §§60.4201 and 60.4202 during the certified emissions life of the engines.

[76 FR 37968, June 28, 2011]

Back to Top

## EMISSION STANDARDS FOR OWNERS AND OPERATORS

Back to Top

**§60.4204 What emission standards must I meet for non-emergency engines if I am an owner or operator of a stationary CI internal combustion engine?**

***Engines are emergency use only. Section does not apply.***

(a) Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of less than 10 liters per cylinder must comply with the emission standards in table 1 to this subpart. Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder must comply with the emission standards in 40 CFR 94.8(a)(1).

(b) Owners and operators of 2007 model year and later non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder must comply with the emission standards for new CI engines in §60.4201 for their 2007 model year and later stationary CI ICE, as applicable.

(c) Owners and operators of non-emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the following requirements:

(1) For engines installed prior to January 1, 2012, limit the emissions of $NO_x$ in the stationary CI internal combustion engine exhaust to the following:

(i) 17.0 grams per kilowatt-hour (g/KW-hr) (12.7 grams per horsepower-hr (g/HP-hr)) when maximum engine speed is less than 130 revolutions per minute (rpm);

(ii) $45 \cdot n^{-0.2}$ g/KW-hr ($34 \cdot n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and

(iii) 9.8 g/KW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.

(2) For engines installed on or after January 1, 2012 and before January 1, 2016, limit the emissions of $NO_x$ in the stationary CI internal combustion engine exhaust to the following:

(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $44 \cdot n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and

(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.

(3) For engines installed on or after January 1, 2016, limit the emissions of $NO_x$ in the stationary CI internal combustion engine exhaust to the following:

(i) 3.4 g/KW-hr (2.5 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $9.0 \cdot n^{-0.20}$ g/KW-hr ($6.7 \cdot n^{-0.20}$ g/HP-hr) where n (maximum engine speed) is 130 or more but less than 2,000 rpm; and

(iii) 2.0 g/KW-hr (1.5 g/HP-hr) where maximum engine speed is greater than or equal to 2,000 rpm.

(4) Reduce particulate matter (PM) emissions by 60 percent or more, or limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.15 g/KW-hr (0.11 g/HP-hr).

(d) Owners and operators of non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the not-to-exceed (NTE) standards as indicated in §60.4212.

(e) Owners and operators of any modified or reconstructed non-emergency stationary CI ICE subject to this subpart must meet the emission standards applicable to the model year, maximum engine power, and displacement of the modified or reconstructed non-emergency stationary CI ICE that are specified in paragraphs (a) through (d) of this section.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37968, June 28, 2011]

Back to Top

### §60.4205 What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement of less than 10 liters per cylinder that are not fire pump engines must comply with the emission standards in Table 1 to this subpart. Owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards in 40 CFR 94.8(a)(1).

(b) Owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new nonroad CI engines in §60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE.

***As shown previously engines have a displacement of ~4.1 Liters per cylinder (65.4 / 16) and they meet the emission limits from Table 1 from 40 CFR 89.112.***

(c) Owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emission standards in table 4 to this subpart, for all pollutants.

(d) Owners and operators of emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the requirements in this section.

~~(1) For engines installed prior to January 1, 2012, limit the emissions of $NO_x$ in the stationary CI internal combustion engine exhaust to the following:~~

~~(i) 17.0 g/KW-hr (12.7 g/HP-hr) when maximum engine speed is less than 130 rpm;~~

~~(ii) $45 \cdot n^{-0.2}$ g/KW-hr ($34 \cdot n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and~~

~~(iii) 9.8 g/kW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.~~

~~(2) For engines installed on or after January 1, 2012, limit the emissions of $NO_x$ in the stationary CI internal combustion engine exhaust to the following:~~

~~(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;~~

~~(ii) $44 \cdot n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and~~

~~(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.~~

~~(3) Limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.40 g/KW-hr (0.30 g/HP-hr).~~

~~(e) Owners and operators of emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the NTE standards as indicated in §60.4212.~~ ***Engines are not subject to performance test requirements since §60.4204(c) and §60.4205(d) do not apply.***

~~(f) Owners and operators of any modified or reconstructed emergency stationary CI ICE subject to this subpart must meet the emission standards applicable to the model year, maximum engine power, and displacement of the modified or reconstructed CI ICE that are specified in paragraphs (a) through (e) of this section.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

### §60.4206 How long must I meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?

Owners and operators of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in §§60.4204 and 60.4205 over the entire life of the engine.

[76 FR 37969, June 28, 2011]

## FUEL REQUIREMENTS FOR OWNERS AND OPERATORS

### §60.4207 What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?

(a) Beginning October 1, 2007, owners and operators of stationary CI ICE subject to this subpart that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(a).

(b) Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted.

***The emergency generators will be required to use ultra-low sulfur diesel with a maximum sulfur content of 15 ppmv.***

~~(c) [Reserved]~~

~~(d) Beginning June 1, 2012, owners and operators of stationary CI ICE subject to this subpart with a displacement of greater than or equal to 30 liters per cylinder are no longer subject to the requirements of paragraph (a) of this section, and must use fuel that meets a maximum per-gallon sulfur content of 1,000 parts per million (ppm).~~

~~(e) Stationary CI ICE that have a national security exemption under §60.4200(d) are also exempt from the fuel requirements in this section.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011; 78 FR 6695, Jan. 30, 2013]

## OTHER REQUIREMENTS FOR OWNERS AND OPERATORS

### §60.4208 What is the deadline for importing or installing stationary CI ICE produced in previous model years?

(a) After December 31, 2008, owners and operators may not install stationary CI ICE (excluding fire pump engines) that do not meet the applicable requirements for 2007 model year engines.

~~(b) After December 31, 2009, owners and operators may not install stationary CI ICE with a maximum engine power of less than 19 KW (25 HP) (excluding fire pump engines) that do not meet the applicable requirements for 2008 model year engines.~~

~~(c) After December 31, 2014, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 19 KW (25 HP) and less than 56 KW (75 HP) that do not meet the applicable requirements for 2013 model year non-emergency engines.~~

~~(d) After December 31, 2013, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 56 KW (75 HP) and less than 130 KW (175 HP) that do not meet the applicable requirements for 2012 model year non-emergency engines.~~

~~(e) After December 31, 2012, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 130 KW (175 HP), including those above 560 KW (750 HP), that do not meet the applicable requirements for 2011 model year non-emergency engines.~~

~~(f) After December 31, 2016, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 560 KW (750 HP) that do not meet the applicable requirements for 2015 model year non-emergency engines.~~

~~(g) After December 31, 2018, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power greater than or equal to 600 KW (804 HP) and less than 2,000 KW (2,680 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that do not meet the applicable requirements for 2017 model year non-emergency engines.~~

~~(h) In addition to the requirements specified in §§60.4201, 60.4202, 60.4204, and 60.4205, it is prohibited to import stationary CI ICE with a displacement of less than 30 liters per cylinder that do not meet the applicable requirements specified in paragraphs (a) through (g) of this section after the dates specified in paragraphs (a) through (g) of this section.~~

~~(i) The requirements of this section do not apply to owners or operators of stationary CI ICE that have been modified, reconstructed, and do not apply to engines that were removed from one existing location and reinstalled at a new location.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

**§60.4209 What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?**

If you are an owner or operator, you must meet the monitoring requirements of this section. In addition, you must also meet the monitoring requirements specified in §60.4211.

(a) If you are an owner or operator of an emergency stationary CI internal combustion engine that does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter prior to startup of the engine.

***A non-resettable hour meter will be installed on each emergency generator.***

~~(b) If you are an owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in §60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.~~

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

## COMPLIANCE REQUIREMENTS

**~~§60.4210 What are my compliance requirements if I am a stationary CI internal combustion engine manufacturer?~~**

~~(a) Stationary CI internal combustion engine manufacturers must certify their stationary CI ICE with a displacement of less than 10 liters per cylinder to the emission standards specified in §60.4201(a) through (c) and §60.4202(a), (b) and (d) using the certification procedures required in 40 CFR part 89, subpart B, or 40 CFR part 1039, subpart C, as applicable, and must test their engines as specified in those parts. For the purposes of this subpart, engines certified to the standards in table 1 to this subpart shall be subject to the same requirements as engines certified to the standards in 40 CFR part 89. For the purposes of this subpart, engines certified to the standards in table 4 to this subpart shall be subject to the same requirements as engines certified to the standards in 40 CFR part 89, except that engines with NFPA nameplate power of less than 37 KW (50 HP) certified to model year 2011 or later standards shall be subject to the same requirements as engines certified to the standards in 40 CFR part 1039.~~

~~(b) Stationary CI internal combustion engine manufacturers must certify their stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder to the emission standards specified in §60.4201(d) and (e) and §60.4202(e) and (f) using the certification procedures required in 40 CFR part 94, subpart C, or 40 CFR part 1042, subpart C, as applicable, and must test their engines as specified in 40 CFR part 94 or 1042, as applicable.~~

~~(c) Stationary CI internal combustion engine manufacturers must meet the requirements of 40 CFR 1039.120, 1039.125, 1039.130, and 1039.135, and 40 CFR part 1068 for engines that are certified to the emission standards in 40 CFR part 1039. Stationary CI internal combustion engine manufacturers must meet the corresponding provisions of 40 CFR part 89, 40 CFR part 94 or 40 CFR part 1042 for engines that would be covered by that part if they were nonroad (including marine) engines. Labels on such engines must refer to stationary engines, rather than or in addition to nonroad or marine engines, as appropriate. Stationary CI internal combustion engine manufacturers must label their engines according to paragraphs (c)(1) through (3) of this section.~~

~~(1) Stationary CI internal combustion engines manufactured from January 1, 2006 to March 31, 2006 (January 1, 2006 to June 30, 2006 for fire pump engines), other than those that are part of certified engine families under the nonroad CI engine regulations, must be labeled according to 40 CFR 1039.20.~~

~~(2) Stationary CI internal combustion engines manufactured from April 1, 2006 to December 31, 2006 (or, for fire pump engines, July 1, 2006 to December 31 of the year preceding the year listed in table 3 to this subpart) must be labeled according to paragraphs (c)(2)(i) through (iii) of this section:~~

~~(i) Stationary CI internal combustion engines that are part of certified engine families under the nonroad regulations must meet the labeling requirements for nonroad CI engines, but do not have to meet the labeling requirements in 40 CFR 1039.20.~~

~~(ii) Stationary CI internal combustion engines that meet Tier 1 requirements (or requirements for fire pumps) under this subpart, but do not meet the requirements applicable to nonroad CI engines must be labeled according to 40 CFR 1039.20. The engine manufacturer may add language to the label clarifying that the engine meets Tier 1 requirements (or requirements for fire pumps) of this subpart.~~

~~(iii) Stationary CI internal combustion engines manufactured after April 1, 2006 that do not meet Tier 1 requirements of this subpart, or fire pumps engines manufactured after July 1, 2006 that do not meet the requirements for fire pumps under this subpart, may not be used in the U.S. If any such engines are manufactured in the U.S. after April 1, 2006 (July 1, 2006 for fire pump engines), they must be exported or must be brought into compliance with the appropriate standards prior to initial operation. The export provisions of 40 CFR 1068.230 would apply to engines for export and the manufacturers must label such engines according to 40 CFR 1068.230.~~

~~(3) Stationary CI internal combustion engines manufactured after January 1, 2007 (for fire pump engines, after January 1 of the year listed in table 3 to this subpart, as applicable) must be labeled according to paragraphs (c)(3)(i) through (iii) of this section.~~

~~(i) Stationary CI internal combustion engines that meet the requirements of this subpart and the corresponding requirements for nonroad (including marine) engines of the same model year and HP must be labeled according to the provisions in 40 CFR parts 89, 94, 1039 or 1042, as appropriate.~~

~~(ii) Stationary CI internal combustion engines that meet the requirements of this subpart, but are not certified to the standards applicable to nonroad (including marine) engines of the same model year and HP must be labeled according to the provisions in 40 CFR parts 89, 94, 1039 or 1042, as appropriate, but the words "stationary" must be included instead of "nonroad" or "marine" on the label. In addition, such engines must be labeled according to 40 CFR 1039.20.~~

~~(iii) Stationary CI internal combustion engines that do not meet the requirements of this subpart must be labeled according to 40 CFR 1068.230 and must be exported under the provisions of 40 CFR 1068.230.~~

~~(d) An engine manufacturer certifying an engine family or families to standards under this subpart that are identical to standards applicable under 40 CFR parts 89, 94, 1039 or 1042 for that model year may certify any such family that contains both nonroad (including marine) and stationary engines as a single engine family and/or may include any such family containing stationary engines in the averaging, banking and trading provisions applicable for such engines under those parts.~~

~~(e) Manufacturers of engine families discussed in paragraph (d) of this section may meet the labeling requirements referred to in paragraph (c) of this section for stationary CI ICE by either adding a separate label containing the information required in paragraph (c) of this section or by adding the words "and stationary" after the word "nonroad" or "marine," as appropriate, to the label.~~

~~(f) Starting with the model years shown in table 5 to this subpart, stationary CI internal combustion engine manufacturers must add a permanent label stating that the engine is for stationary emergency use only to each new emergency stationary CI internal combustion engine greater than or equal to 19 KW (25 HP) that meets all the emission standards for emergency engines in §60.4202 but does not meet all the emission standards for non-emergency engines in §60.4201. The label must be added according to the labeling requirements specified in 40 CFR 1039.135(b). Engine manufacturers must specify in the owner's manual that operation of emergency engines is limited to emergency operations and required maintenance and testing.~~

(g) Manufacturers of fire pump engines may use the test cycle in table 6 to this subpart for testing fire pump engines and may test at the NFPA certified nameplate HP, provided that the engine is labeled as "Fire Pump Applications Only".

(h) Engine manufacturers, including importers, may introduce into commerce uncertified engines or engines certified to earlier standards that were manufactured before the new or changed standards took effect until inventories are depleted, as long as such engines are part of normal inventory. For example, if the engine manufacturers' normal industry practice is to keep on hand a one-month supply of engines based on its projected sales, and a new tier of standards starts to apply for the 2009 model year, the engine manufacturer may manufacture engines based on the normal inventory requirements late in the 2008 model year, and sell those engines for installation. The engine manufacturer may not circumvent the provisions of §60.4201 or §60.4202 by stockpiling engines that are built before new or changed standards take effect. Stockpiling of such engines beyond normal industry practice is a violation of this subpart.

(i) The replacement engine provisions of 40 CFR 89.1003(b)(7), 40 CFR 94.1103(b)(3), 40 CFR 94.1103(b)(4) and 40 CFR 1068.240 are applicable to stationary CI engines replacing existing equipment that is less than 15 years old.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

Back to Top

**§60.4211 What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?**

(a) If you are an owner or operator and must comply with the emission standards specified in this subpart, you must do all of the following, except as permitted under paragraph (g) of this section:

(1) Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;

(2) Change only those emission-related settings that are permitted by the manufacturer; and

(3) Meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply to you.

(b) If you are an owner or operator of a pre-2007 model year stationary CI internal combustion engine and must comply with the emission standards specified in §§60.4204(a) or 60.4205(a), or if you are an owner or operator of a CI fire pump engine that is manufactured prior to the model years in table 3 to this subpart and must comply with the emission standards specified in §60.4205(c), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) through (5) of this section.

(1) Purchasing an engine certified according to 40 CFR part 89 or 40 CFR part 94, as applicable, for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications.

(2) Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

(3) Keeping records of engine manufacturer data indicating compliance with the standards.

(4) Keeping records of control device vendor data indicating compliance with the standards.

(5) Conducting an initial performance test to demonstrate compliance with the emission standards according to the requirements specified in §60.4212, as applicable.

(c) If you are an owner or operator of a 2007 model year and later stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(b) or §60.4205(b), or if you are an owner or operator of a CI fire pump engine that is manufactured during or after the model year that applies to your fire pump engine power rating in table 3 to this subpart and must comply with the emission standards specified in §60.4205(c), you must comply by purchasing an engine certified to the emission standards in §60.4204(b), or §60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications, except as permitted in paragraph (g) of this section.

~~(d) If you are an owner or operator and must comply with the emission standards specified in §60.4204(c) or §60.4205(d), you must demonstrate compliance according to the requirements specified in paragraphs (d)(1) through (3) of this section.~~ ***Engines are not subject to either §60.4204(c) or §60.4205(d)***

~~(1) Conducting an initial performance test to demonstrate initial compliance with the emission standards as specified in §60.4213.~~

~~(2) Establishing operating parameters to be monitored continuously to ensure the stationary internal combustion engine continues to meet the emission standards. The owner or operator must petition the Administrator for approval of operating parameters to be monitored continuously. The petition must include the information described in paragraphs (d)(2)(i) through (v) of this section.~~

~~(i) Identification of the specific parameters you propose to monitor continuously;~~

~~(ii) A discussion of the relationship between these parameters and $NO_x$ and PM emissions, identifying how the emissions of these pollutants change with changes in these parameters, and how limitations on these parameters will serve to limit $NO_x$ and PM emissions;~~

~~(iii) A discussion of how you will establish the upper and/or lower values for these parameters which will establish the limits on these parameters in the operating limitations;~~

~~(iv) A discussion identifying the methods and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments; and~~

~~(v) A discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring these parameters.~~

~~(3) For non-emergency engines with a displacement of greater than or equal to 30 liters per cylinder, conducting annual performance tests to demonstrate continuous compliance with the emission standards as specified in §60.4213.~~

~~(e) If you are an owner or operator of a modified or reconstructed stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(e) or §60.4205(f), you must demonstrate compliance according to one of the methods specified in paragraphs (e)(1) or (2) of this section.~~

~~(1) Purchasing, or otherwise owning or operating, an engine certified to the emission standards in §60.4204(e) or §60.4205(f), as applicable.~~

~~(2) Conducting a performance test to demonstrate initial compliance with the emission standards according to the requirements specified in §60.4212 or §60.4213, as appropriate. The test must be conducted within 60 days after the engine commences operation after the modification or reconstruction.~~

(f) If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (f)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (3) of this section, the engine

will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary ICE in emergency situations.

(2) You may operate your emergency stationary ICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (f)(3) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

***Maintenance and testing hours of operation for the emergency generator will not exceed 100 hr/yr.***

(i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.

(ii) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. Except as provided in paragraph (f)(3)(i) of this section, the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

~~(i) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:~~

~~(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;~~

~~(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.~~

~~(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.~~

~~(D) The power is provided only to the facility itself or to support the local transmission and distribution system.~~

~~(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.~~

(ii) [Reserved]

~~(g) If you do not install, configure, operate, and maintain your engine and control device according to the manufacturer's emission-related written instructions, or you change emission-related settings in a way that is not permitted by the manufacturer, you must demonstrate compliance as follows:~~

~~(1) If you are an owner or operator of a stationary CI internal combustion engine with maximum engine power less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, if you do not install and configure the engine and control device according to the manufacturer's emission-related written instructions, or you change the emission-related settings in a way that is not permitted by the manufacturer, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action.~~

~~(2) If you are an owner or operator of a stationary CI internal combustion engine greater than or equal to 100 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer.~~

~~(3) If you are an owner or operator of a stationary CI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer. You must conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.~~

~~[71 FR 39172, July 11, 2006, as amended at 76 FR 37970, June 28, 2011; 78 FR 6695, Jan. 30, 2013]~~

Back to Top

## TESTING REQUIREMENTS FOR OWNERS AND OPERATORS

Back to Top

### §60.4212 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of less than 30 liters per cylinder?

***Engines are not subject to performance testing requirements since they are not subject to either §60.4204(c) or §60.4205(d)***

~~Owners and operators of stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests pursuant to this subpart must do so according to paragraphs (a) through (e) of this section.~~

~~(a) The performance test must be conducted according to the in-use testing procedures in 40 CFR part 1039, subpart F, for stationary CI ICE with a displacement of less than 10 liters per cylinder, and according to 40 CFR part 1042, subpart F, for stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder.~~

(b) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1039 must not exceed the not-to-exceed (NTE) standards for the same model year and maximum engine power as required in 40 CFR 1039.101(e) and 40 CFR 1039.102(g)(1), except as specified in 40 CFR 1039.104(d). This requirement starts when NTE requirements take effect for nonroad diesel engines under 40 CFR part 1039.

(c) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 or 40 CFR 94.8, as applicable, must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in 40 CFR 89.112 or 40 CFR 94.8, as applicable, determined from the following equation:

$$\text{NTE requirement for each pollutant} = (1.25) \times (\text{STD}) \qquad \text{(Eq. 1)}$$

View or download PDF

Where:

STD = The standard specified for that pollutant in 40 CFR 89.112 or 40 CFR 94.8, as applicable.

Alternatively, stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 or 40 CFR 94.8 may follow the testing procedures specified in §60.4213 of this subpart, as appropriate.

(d) Exhaust emissions from stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in §60.4204(a), §60.4205(a), or §60.4205(c) must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in §60.4204(a), §60.4205(a), or §60.4205(c), determined from the equation in paragraph (c) of this section.

Where:

STD = The standard specified for that pollutant in §60.4204(a), §60.4205(a), or §60.4205(c).

Alternatively, stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in §60.4204(a), §60.4205(a), or §60.4205(c) may follow the testing procedures specified in §60.4213, as appropriate.

(e) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1042 must not exceed the NTE standards for the same model year and maximum engine power as required in 40 CFR 1042.101(c).

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011]

Back to Top

**§60.4213 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of greater than or equal to 30 liters per cylinder?**

Owners and operators of stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder must conduct performance tests according to paragraphs (a) through (f) of this section.

(a) Each performance test must be conducted according to the requirements in §60.8 and under the specific conditions that this subpart specifies in table 7. The test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load.

~~(b) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §60.8(c).~~

~~(c) You must conduct three separate test runs for each performance test required in this section, as specified in §60.8(f). Each test run must last at least 1 hour.~~

~~(d) To determine compliance with the percent reduction requirement, you must follow the requirements as specified in paragraphs (d)(1) through (3) of this section.~~

~~(1) You must use Equation 2 of this section to determine compliance with the percent reduction requirement:~~

$$\frac{C_i - C_o}{C_i} \times 100 = R \qquad \text{(Eq. 2)}$$

~~View or download PDF~~

~~Where:~~

~~$C_i$ = concentration of $NO_x$ or PM at the control device inlet,~~

~~$C_o$ = concentration of $NO_x$ or PM at the control device outlet, and~~

~~R = percent reduction of $NO_x$ or PM emissions.~~

~~(2) You must normalize the $NO_x$ or PM concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen ($O_2$) using Equation 3 of this section, or an equivalent percent carbon dioxide ($CO_2$) using the procedures described in paragraph (d)(3) of this section.~~

$$C_{adj} = C_d \frac{5.9}{20.9 - \%\ O_2} \qquad \text{(Eq. 3)}$$

~~View or download PDF~~

~~Where:~~

~~$C_{adj}$ = Calculated $NO_x$ or PM concentration adjusted to 15 percent $O_2$.~~

~~$C_d$ = Measured concentration of $NO_x$ or PM, uncorrected.~~

~~5.9 = 20.9 percent $O_2$−15 percent $O_2$, the defined $O_2$ correction value, percent.~~

~~$\%O_2$ = Measured $O_2$ concentration, dry basis, percent.~~

~~(3) If pollutant concentrations are to be corrected to 15 percent $O_2$ and $CO_2$ concentration is measured in lieu of $O_2$ concentration measurement, a $CO_2$ correction factor is needed. Calculate the $CO_2$ correction factor as described in paragraphs (d)(3)(i) through (iii) of this section.~~

~~(i) Calculate the fuel-specific $F_o$ value for the fuel burned during the test using values obtained from Method 19, Section 5.2, and the following equation:~~

$$F_o = \frac{0.209_{E_i}}{F_c} \qquad \text{(Eq. 4)}$$

~~View or download PDF~~

Where:

$F_o$ = Fuel factor based on the ratio of $O_2$ volume to the ultimate $CO_2$ volume produced by the fuel at zero percent excess air.

0.209 = Fraction of air that is $O_2$, percent/100.

$F_d$ = Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, $dsm^3/J$ ($dscf/10^6$ Btu).

$F_c$ = Ratio of the volume of $CO_2$ produced to the gross calorific value of the fuel from Method 19, $dsm^3/J$ ($dscf/10^6$ Btu).

(ii) Calculate the $CO_2$ correction factor for correcting measurement data to 15 percent $O_2$, as follows:

$$X_{CO_2} = \frac{5.9}{F_o} \qquad \text{(Eq. 5)}$$

View or download PDF

Where:

$X_{CO2}$ = $CO_2$ correction factor, percent.

5.9 = 20.9 percent $O_2$–15 percent $O_2$, the defined $O_2$ correction value, percent.

(iii) Calculate the $NO_x$ and PM gas concentrations adjusted to 15 percent $O_2$ using $CO_2$ as follows:

$$C_{adj} = C_d \frac{X_{CO_2}}{\%CO_2} \qquad \text{(Eq. 6)}$$

View or download PDF

Where:

$C_{adj}$ = Calculated $NO_x$ or PM concentration adjusted to 15 percent $O_2$.

$C_d$ = Measured concentration of $NO_x$ or PM, uncorrected.

$\%CO_2$ = Measured $CO_2$ concentration, dry basis, percent.

(e) To determine compliance with the $NO_x$ mass per unit output emission limitation, convert the concentration of $NO_x$ in the engine exhaust using Equation 7 of this section:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{\text{KW-hour}} \qquad \text{(Eq. 7)}$$

View or download PDF

Where:

ER = Emission rate in grams per KW-hour.

$C_d$ = Measured $NO_x$ concentration in ppm.

$1.912 \times 10^{-3}$ = Conversion constant for ppm $NO_x$ to grams per standard cubic meter at 25 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour.

T = Time of test run, in hours.

KW-hour = Brake work of the engine, in KW-hour.

(f) To determine compliance with the PM mass per unit output emission limitation, convert the concentration of PM in the engine exhaust using Equation 8 of this section:

$$ER = \frac{C_{adj} \times Q \times T}{KW\text{-}hour} \quad (Eq. 8)$$

View or download PDF

Where:

ER = Emission rate in grams per KW-hour.

$C_{adj}$ = Calculated PM concentration in grams per standard cubic meter.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour.

T = Time of test run, in hours.

KW-hour = Energy output of the engine, in KW.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011]

## NOTIFICATION, REPORTS, AND RECORDS FOR OWNERS AND OPERATORS

### §60.4214 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of non-emergency stationary CI ICE that are greater than 2,237 KW (3,000 HP), or have a displacement of greater than or equal to 10 liters per cylinder, or are pre-2007 model year engines that are greater than 130 KW (175 HP) and not certified, must meet the requirements of paragraphs (a)(1) and (2) of this section.

(1) Submit an initial notification as required in §60.7(a)(1). The notification must include the information in paragraphs (a)(1)(i) through (v) of this section.

(i) Name and address of the owner or operator;

(ii) The address of the affected source;

(iii) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(iv) Emission control equipment; and

(v) Fuel used.

(2) Keep records of the information in paragraphs (a)(2)(i) through (iv) of this section.

(i) All notifications submitted to comply with this subpart and all documentation supporting any notification.

(ii) Maintenance conducted on the engine.

(iii) If the stationary CI internal combustion is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards.

~~(iv) If the stationary CI internal combustion is not a certified engine, documentation that the engine meets the emission standards.~~

(b) If the stationary CI internal combustion engine is an emergency stationary internal combustion engine, the owner or operator is not required to submit an initial notification. Starting with the model years in table 5 to this subpart, if the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.

~~(c) If the stationary CI internal combustion engine is equipped with a diesel particulate filter, the owner or operator must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached.~~

~~(d) If you own or operate an emergency stationary CI ICE with a maximum engine power more than 100 HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §60.4211(f)(2)(ii) and (iii) or that operates for the purposes specified in §60.4211(f)(3)(i), you must submit an annual report according to the requirements in paragraphs (d)(1) through (3) of this section.~~

~~(1) The report must contain the following information:~~

~~(i) Company name and address where the engine is located.~~

~~(ii) Date of the report and beginning and ending dates of the reporting period.~~

~~(iii) Engine site rating and model year.~~

~~(iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.~~

~~(v) Hours operated for the purposes specified in §60.4211(f)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in §60.4211(f)(2)(ii) and (iii).~~

~~(vi) Number of hours the engine is contractually obligated to be available for the purposes specified in §60.4211(f)(2)(ii) and (iii).~~

~~(vii) Hours spent for operation for the purposes specified in §60.4211(f)(3)(i), including the date, start time, and end time for engine operation for the purposes specified in §60.4211(f)(3)(i). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.~~

~~(2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.~~

~~(3) The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (*www.epa.gov/cdx*). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in §60.4.~~

[71 FR 39172, July 11, 2006, as amended at 78 FR 6696, Jan. 30, 2013]

## SPECIAL REQUIREMENTS

**§60.4215 What requirements must I meet for engines used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands?**

(a) Stationary CI ICE with a displacement of less than 30 liters per cylinder that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the applicable emission standards in §§60.4202 and 60.4205.

(b) Stationary CI ICE that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are not required to meet the fuel requirements in §60.4207.

(c) Stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the following emission standards:

(1) For engines installed prior to January 1, 2012, limit the emissions of $NO_x$ in the stationary CI internal combustion engine exhaust to the following:

(i) 17.0 g/KW-hr (12.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $45 \cdot n^{-0.2}$ g/KW-hr ($34 \cdot n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and

(iii) 9.8 g/KW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.

(2) For engines installed on or after January 1, 2012, limit the emissions of $NO_x$ in the stationary CI internal combustion engine exhaust to the following:

(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $44 \cdot n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and

(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.

(3) Limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.40 g/KW-hr (0.30 g/HP-hr).

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011]

Back to Top

**§60.4216 What requirements must I meet for engines used in Alaska?**

(a) Prior to December 1, 2010, owners and operators of stationary CI ICE with a displacement of less than 30 liters per cylinder located in areas of Alaska not accessible by the FAHS should refer to 40 CFR part 69 to determine the diesel fuel requirements applicable to such engines.

(b) Except as indicated in paragraph (c) of this section, manufacturers, owners and operators of stationary CI ICE with a displacement of less than 10 liters per cylinder located in areas of Alaska not accessible by the FAHS may meet the requirements of this subpart by manufacturing and installing engines meeting the requirements of 40 CFR parts 94 or 1042, as appropriate, rather than the otherwise applicable requirements of 40 CFR parts 89 and 1039, as indicated in sections §§60.4201(f) and 60.4202(g) of this subpart.

(c) Manufacturers, owners and operators of stationary CI ICE that are located in areas of Alaska not accessible by the FAHS may choose to meet the applicable emission standards for emergency engines in

~~§§60.4202 and 60.4205, and not those for non-emergency engines in §60.4201 and §60.4204, except that for 2014 model year and later non-emergency CI ICE, the owner or operator of any such engine that was not certified as meeting Tier 4 PM standards, must meet the applicable requirements for PM in §§60.4201 and 60.4204 or install a PM emission control device that achieves PM emission reductions of 85 percent, or 60 percent for engines with a displacement of greater than or equal to 30 liters per cylinder, compared to engine-out emissions.~~

~~(d) The provisions of §60.4207 do not apply to owners and operators of pre-2014 model year stationary CI ICE subject to this subpart that are located in areas of Alaska not accessible by the FAHS.~~

~~(e) The provisions of §60.4208(a) do not apply to owners and operators of stationary CI ICE subject to this subpart that are located in areas of Alaska not accessible by the FAHS until after December 31, 2009.~~

~~(f) The provisions of this section and §60.4207 do not prevent owners and operators of stationary CI ICE subject to this subpart that are located in areas of Alaska not accessible by the FAHS from using fuels mixed with used lubricating oil, in volumes of up to 1.75 percent of the total fuel. The sulfur content of the used lubricating oil must be less than 200 parts per million. The used lubricating oil must meet the on-specification levels and properties for used oil in 40 CFR 279.11.~~

[76 FR 37971, June 28, 2011]

Back to Top

### §60.4217 What emission standards must I meet if I am an owner or operator of a stationary internal combustion engine using special fuels?

~~Owners and operators of stationary CI ICE that do not use diesel fuel may petition the Administrator for approval of alternative emission standards, if they can demonstrate that they use a fuel that is not the fuel on which the manufacturer of the engine certified the engine and that the engine cannot meet the applicable standards required in §60.4204 or §60.4205 using such fuels and that use of such fuel is appropriate and reasonably necessary, considering cost, energy, technical feasibility, human health and environmental, and other factors, for the operation of the engine.~~

[76 FR 37972, June 28, 2011]

Back to Top

## GENERAL PROVISIONS

Back to Top

### §60.4218 What parts of the General Provisions apply to me?

Table 8 to this subpart shows which parts of the General Provisions in §§60.1 through 60.19 apply to you.

DEFINITIONS

Back to Top

### §60.4219 What definitions apply to this subpart?

As used in this subpart, all terms not defined herein shall have the meaning given them in the CAA and in subpart A of this part.

*Certified emissions life* means the period during which the engine is designed to properly function in terms of reliability and fuel consumption, without being remanufactured, specified as a number of hours of operation or calendar years, whichever comes first. The values for certified emissions life for stationary CI ICE with a displacement of less than 10 liters per cylinder are given in 40 CFR 1039.101(g). The values for certified emissions life for stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder are given in 40 CFR 94.9(a).

~~*Combustion turbine* means all equipment, including but not limited to the turbine, the fuel, air, lubrication and exhaust gas systems, control systems (except emissions control equipment), and any ancillary components and sub-components comprising any simple cycle combustion turbine, any regenerative/recuperative cycle combustion turbine, the combustion turbine portion of any cogeneration cycle combustion system, or the combustion turbine portion of any combined cycle steam/electric generating system.~~

*Compression ignition* means relating to a type of stationary internal combustion engine that is not a spark ignition engine.

*Date of manufacture* means one of the following things:

(1) For freshly manufactured engines and modified engines, date of manufacture means the date the engine is originally produced.

~~(2) For reconstructed engines, date of manufacture means the date the engine was originally produced, except as specified in paragraph (3) of this definition.~~

~~(3) Reconstructed engines are assigned a new date of manufacture if the fixed capital cost of the new and refurbished components exceeds 75 percent of the fixed capital cost of a comparable entirely new facility. An engine that is produced from a previously used engine block does not retain the date of manufacture of the engine in which the engine block was previously used if the engine is produced using all new components except for the engine block. In these cases, the date of manufacture is the date of reconstruction or the date the new engine is produced.~~

*Diesel fuel* means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is number 2 distillate oil.

~~*Diesel particulate filter* means an emission control technology that reduces PM emissions by trapping the particles in a flow filter substrate and periodically removes the collected particles by either physical action or by oxidizing (burning off) the particles in a process called regeneration.~~

*Emergency stationary internal combustion engine* means any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency stationary ICE must comply with the requirements specified in §60.4211(f) in order to be considered emergency stationary ICE. If the engine does not comply with the requirements specified in §60.4211(f), then it is not considered to be an emergency stationary ICE under this subpart.

(1) The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc.

(2) The stationary ICE is operated under limited circumstances for situations not included in paragraph (1) of this definition, as specified in §60.4211(f).

~~(3) The stationary ICE operates as part of a financial arrangement with another entity in situations not included in paragraph (1) of this definition only as allowed in §60.4211(f)(2)(ii) or (iii) and §60.4211(f)(3)(i).~~

*Engine manufacturer* means the manufacturer of the engine. See the definition of "manufacturer" in this section.

*Fire pump engine* means an emergency stationary internal combustion engine certified to NFPA requirements that is used to provide power to pump water for fire suppression or protection.

*Freshly manufactured engine* means an engine that has not been placed into service. An engine becomes freshly manufactured when it is originally produced.

*Installed* means the engine is placed and secured at the location where it is intended to be operated.

*Manufacturer* has the meaning given in section 216(1) of the Act. In general, this term includes any person who manufactures a stationary engine for sale in the United States or otherwise introduces a new stationary engine into commerce in the United States. This includes importers who import stationary engines for sale or resale.

*Maximum engine power* means maximum engine power as defined in 40 CFR 1039.801.

*Model year* means the calendar year in which an engine is manufactured (see "date of manufacture"), except as follows:

(1) Model year means the annual new model production period of the engine manufacturer in which an engine is manufactured (see "date of manufacture"), if the annual new model production period is different than the calendar year and includes January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year.

(2) For an engine that is converted to a stationary engine after being placed into service as a nonroad or other non-stationary engine, model year means the calendar year or new model production period in which the engine was manufactured (see "date of manufacture").

*Other internal combustion engine* means any internal combustion engine, except combustion turbines, which is not a reciprocating internal combustion engine or rotary internal combustion engine.

*Reciprocating internal combustion engine* means any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work.

*Rotary internal combustion engine* means any internal combustion engine which uses rotary motion to convert heat energy into mechanical work.

*Spark ignition* means relating to a gasoline, natural gas, or liquefied petroleum gas fueled engine or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for CI and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.

*Stationary internal combustion engine* means any internal combustion engine, except combustion turbines, that converts heat energy into mechanical work and is not mobile. Stationary ICE differ from mobile ICE in that a stationary internal combustion engine is not a nonroad engine as defined at 40 CFR 1068.30 (excluding paragraph (2)(ii) of that definition), and is not used to propel a motor vehicle, aircraft, or a vehicle used solely for competition. Stationary ICE include reciprocating ICE, rotary ICE, and other ICE, except combustion turbines.

*Subpart* means 40 CFR part 60, subpart IIII.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37972, June 28, 2011; 78 FR 6696, Jan. 30, 2013]

Back to Top

**Table 1 to Subpart IIII of Part 60—Emission Standards for Stationary Pre-2007 Model Year Engines With a Displacement of <10 Liters per Cylinder and 2007-2010 Model Year Engines >2,237 KW (3,000 HP) and With a Displacement of <10 Liters per Cylinder**

[As stated in §§60.4201(b), 60.4202(b), 60.4204(a), and 60.4205(a), you must comply with the following emission standards]

| Maximum engine power | Emission standards for stationary pre-2007 model year engines with a displacement of <10 liters per cylinder and 2007-2010 model year engines >2,237 KW (3,000 HP) and with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr) | | | | |
|---|---|---|---|---|---|
| | NMHC + $NO_x$ | HC | $NO_x$ | CO | PM |
| KW<8 (HP<11) | 10.5 (7.8) | | | 8.0 (6.0) | 1.0 (0.75) |
| 8≤KW<19 (11≤HP<25) | 9.5 (7.1) | | | 6.6 (4.9) | 0.80 (0.60) |
| 19≤KW<37 (25≤HP<50) | 9.5 (7.1) | | | 5.5 (4.1) | 0.80 (0.60) |
| 37≤KW<56 (50≤HP<75) | | | 9.2 (6.9) | | |
| 56≤KW<75 (75≤HP<100) | | | 9.2 (6.9) | | |
| 75≤KW<130 (100≤HP<175) | | | 9.2 (6.9) | | |
| 130≤KW<225 (175≤HP<300) | | 1.3 (1.0) | 9.2 (6.9) | 11.4 (8.5) | 0.54 (0.40) |
| 225≤KW<450 (300≤HP<600) | | 1.3 (1.0) | 9.2 (6.9) | 11.4 (8.5) | 0.54 (0.40) |
| 450≤KW≤560 (600≤HP≤750) | | 1.3 (1.0) | 9.2 (6.9) | 11.4 (8.5) | 0.54 (0.40) |
| KW>560 (HP>750) | | 1.3 (1.0) | 9.2 (6.9) | 11.4 (8.5) | 0.54 (0.40) |

Back to Top

**Table 2 to Subpart IIII of Part 60—Emission Standards for 2008 Model Year and Later Emergency Stationary CI ICE <37 KW (50 HP) With a Displacement of <10 Liters per Cylinder**

[As stated in §60.4202(a)(1), you must comply with the following emission standards]

| Engine power | Emission standards for 2008 model year and later emergency stationary CI |
|---|---|

| | ICE <37 KW (50 HP) with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr) | | | |
|---|---|---|---|---|
| | Model year(s) | $NO_x$ + NMHC | CO | PM |
| KW<8 (HP<11) | 2008 + | 7.5 (5.6) | 8.0 (6.0) | 0.40 (0.30) |
| 8≤KW<19 (11≤HP<25) | 2008 + | 7.5 (5.6) | 6.6 (4.9) | 0.40 (0.30) |
| 19≤KW<37 (25≤HP<50) | 2008 + | 7.5 (5.6) | 5.5 (4.1) | 0.30 (0.22) |

Back to Top

**Table 3 to Subpart IIII of Part 60—Certification Requirements for Stationary Fire Pump Engines**

As stated in §60.4202(d), you must certify new stationary fire pump engines beginning with the following model years:

| Engine power | Starting model year engine manufacturers must certify new stationary fire pump engines according to §60.4202(d)[1] |
|---|---|
| KW<75 (HP<100) | 2011 |
| 75≤KW<130 (100≤HP<175) | 2010 |
| 130≤KW≤560 (175≤HP≤750) | 2009 |
| KW>560 (HP>750) | 2008 |

[1]Manufacturers of fire pump stationary CI ICE with a maximum engine power greater than or equal to 37 kW (50 HP) and less than 450 KW (600 HP) and a rated speed of greater than 2,650 revolutions per minute (rpm) are not required to certify such engines until three model years following the model year indicated in this Table 3 for engines in the applicable engine power category.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37972, June 28, 2011]

Back to Top

**Table 4 to Subpart IIII of Part 60—Emission Standards for Stationary Fire Pump Engines**

[As stated in §§60.4202(d) and 60.4205(c), you must comply with the following emission standards for stationary fire pump engines]

| Maximum engine power | Model year(s) | NMHC + $NO_x$ | CO | PM |
|---|---|---|---|---|
| KW<8 (HP<11) | 2010 and earlier | 10.5 (7.8) | 8.0 (6.0) | 1.0 (0.75) |
| — | 2011 + | 7.5 (5.6) | | 0.40 (0.30) |
| 8≤KW<19 (11≤HP<25) | 2010 and earlier | 9.5 (7.1) | 6.6 (4.9) | 0.80 (0.60) |
| — | 2011 + | 7.5 (5.6) | | 0.40 (0.30) |
| 19≤KW<37 (25≤HP<50) | 2010 and earlier | 9.5 (7.1) | 5.5 (4.1) | 0.80 (0.60) |
| — | 2011 + | 7.5 (5.6) | | 0.30 (0.22) |
| 37≤KW<56 (50≤HP<75) | 2010 and earlier | 10.5 (7.8) | 5.0 (3.7) | 0.80 (0.60) |
| — | 2011 +[1] | 4.7 (3.5) | | 0.40 (0.30) |
| 56≤KW<75 (75≤HP<100) | 2010 and earlier | 10.5 (7.8) | 5.0 (3.7) | 0.80 (0.60) |
| — | 2011 +[1] | 4.7 (3.5) | | 0.40 (0.30) |
| 75≤KW<130 (100≤HP<175) | 2009 and earlier | 10.5 (7.8) | 5.0 (3.7) | 0.80 (0.60) |
| — | 2010 +[2] | 4.0 (3.0) | | 0.30 (0.22) |
| 130≤KW<225 (175≤HP<300) | 2008 and earlier | 10.5 (7.8) | 3.5 (2.6) | 0.54 (0.40) |
| — | 2009 +[3] | 4.0 (3.0) | | 0.20 (0.15) |
| 225≤KW<450 (300≤HP<600) | 2008 and earlier | 10.5 (7.8) | 3.5 (2.6) | 0.54 (0.40) |
| — | 2009 +[3] | 4.0 (3.0) | | 0.20 (0.15) |
| 450≤KW≤560 (600≤HP≤750) | 2008 and earlier | 10.5 (7.8) | 3.5 (2.6) | 0.54 (0.40) |
| — | 2009 + | 4.0 (3.0) | | 0.20 (0.15) |
| KW>560 (HP>750) | 2007 and earlier | 10.5 (7.8) | 3.5 (2.6) | 0.54 (0.40) |
| — | 2008 + | 6.4 (4.8) | | 0.20 (0.15) |

[1]For model years 2011-2013, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 revolutions per minute (rpm) may comply with the emission limitations for 2010 model year engines.

[2]For model years 2010-2012, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2009 model year engines.

[3]In model years 2009-2011, manufacturers of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2008 model year engines.

**Table 5 to Subpart IIII of Part 60—Labeling and Recordkeeping Requirements for New Stationary Emergency Engines**

[You must comply with the labeling requirements in §60.4210(f) and the recordkeeping requirements in §60.4214(b) for new emergency stationary CI ICE beginning in the following model years:]

| Engine power | Starting model year |
|---|---|
| 19≤KW<56 (25≤HP<75) | 2013 |
| 56≤KW<130 (75≤HP<175) | 2012 |
| KW≥130 (HP≥175) | 2011 |

Back to Top

**Table 6 to Subpart IIII of Part 60—Optional 3-Mode Test Cycle for Stationary Fire Pump Engines**

[As stated in §60.4210(g), manufacturers of fire pump engines may use the following test cycle for testing fire pump engines:]

| Mode No. | Engine speed[1] | Torque (percent)[2] | Weighting factors |
|---|---|---|---|
| 1 | Rated | 100 | 0.30 |
| 2 | Rated | 75 | 0.50 |
| 3 | Rated | 50 | 0.20 |

[1]Engine speed: ±2 percent of point.

[2]Torque: NFPA certified nameplate HP for 100 percent point. All points should be ±2 percent of engine percent load value.

Back to Top

**Table 7 to Subpart IIII of Part 60—Requirements for Performance Tests for Stationary CI ICE With a Displacement of ≥30 Liters per Cylinder**

As stated in §60.4213, you must comply with the following requirements for performance tests for stationary CI ICE with a displacement of ≥30 liters per cylinder:

| Each | Complying with the requirement to | You must | Using | According to the following requirements |
|---|---|---|---|---|
| 1. Stationary CI internal combustion engine with a displacement of ≥ 30 liters per cylinder | a. Reduce $NO_x$ emissions by 90 percent or more; | i. Select the sampling port location and number/location of traverse points at the inlet and outlet of the control device; | | (a) For $NO_x$, $O_2$, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point |

| | | | | |
|---|---|---|---|---|
| | | | | ~~long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A-1, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A-4.~~ |
| ~~—~~ | | ~~ii. Measure $O_2$ at the inlet and outlet of the control device;~~ | ~~(1) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2~~ | ~~(b) Measurements to determine $O_2$ concentration must be made at the same time as the measurements for $NO_x$ concentration.~~ |
| ~~—~~ | | ~~iii. If necessary, measure moisture content at the inlet and outlet of the control device; and~~ | ~~(2) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see §60.17)~~ | ~~(c) Measurements to determine moisture content must be made at the same time as the measurements for $NO_x$ concentration.~~ |
| ~~—~~ | | ~~iv. Measure $NO_x$ at the inlet and outlet of the control device.~~ | ~~(3) Method 7E of 40 CFR part 60, appendix A-4, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see §60.17)~~ | ~~(d) $NO_x$ concentration must be at 15 percent $O_2$, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.~~ |
| ~~—~~ | ~~b. Limit the concentration of $NO_x$ in the stationary CI internal combustion engine exhaust.~~ | ~~i. Select the sampling port location and number/location of traverse points at the exhaust of the stationary internal~~ | | ~~(a) For $NO_x$, $O_2$, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may~~ |

| | | | | |
|---|---|---|---|---|
| | | ~~combustion engine;~~ | | ~~be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A-1, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A-4.~~ |
| — | | ~~ii. Determine the $O_2$ concentration of the stationary internal combustion engine exhaust at the sampling port location;~~ | ~~(1) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2~~ | ~~(b) Measurements to determine $O_2$ concentration must be made at the same time as the measurement for $NO_x$ concentration.~~ |
| — | | ~~iii. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and~~ | ~~(2) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see §60.17)~~ | ~~(c) Measurements to determine moisture content must be made at the same time as the measurement for $NO_x$ concentration.~~ |
| — | | ~~iv. Measure $NO_x$ at the exhaust of the stationary internal combustion engine; if using a control device, the sampling site must be located at the outlet of the control device.~~ | ~~(3) Method 7E of 40 CFR part 60, appendix A-4, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see §60.17)~~ | ~~(d) $NO_x$ concentration must be at 15 percent $O_2$, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.~~ |
| — | ~~c. Reduce PM~~ | ~~i. Select the~~ | ~~(1) Method 1 or~~ | ~~(a) Sampling sites must be~~ |

| | | | | |
|---|---|---|---|---|
| | ~~emissions by 60 percent or more~~ | ~~sampling port location and the number of traverse points;~~ | ~~1A of 40 CFR part 60, appendix A-1~~ | ~~located at the inlet and outlet of the control device.~~ |
| ~~—~~ | | ~~ii. Measure $O_2$ at the inlet and outlet of the control device;~~ | ~~(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2~~ | ~~(b) Measurements to determine $O_2$ concentration must be made at the same time as the measurements for PM concentration.~~ |
| ~~—~~ | | ~~iii. If necessary, measure moisture content at the inlet and outlet of the control device; and~~ | ~~(3) Method 4 of 40 CFR part 60, appendix A-3~~ | ~~(c) Measurements to determine and moisture content must be made at the same time as the measurements for PM concentration.~~ |
| ~~—~~ | | ~~iv. Measure PM at the inlet and outlet of the control device.~~ | ~~(4) Method 5 of 40 CFR part 60, appendix A-3~~ | ~~(d) PM concentration must be at 15 percent $O_2$, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.~~ |
| ~~—~~ | ~~d. Limit the concentration of PM in the stationary CI internal combustion engine exhaust~~ | ~~i. Select the sampling port location and the number of traverse points;~~ | ~~(1) Method 1 or 1A of 40 CFR part 60, appendix A-1~~ | ~~(a) If using a control device, the sampling site must be located at the outlet of the control device.~~ |
| ~~—~~ | | ~~ii. Determine the $O_2$ concentration of the stationary internal combustion engine exhaust at the sampling port location;~~ | ~~(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2~~ | ~~(b) Measurements to determine $O_2$ concentration must be made at the same time as the measurements for PM concentration.~~ |
| ~~—~~ | | ~~iii. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and~~ | ~~(3) Method 4 of 40 CFR part 60, appendix A-3~~ | ~~(c) Measurements to determine moisture content must be made at the same time as the measurements for PM concentration.~~ |
| ~~—~~ | | ~~iv. Measure PM at the exhaust of the stationary internal~~ | ~~(4) Method 5 of 40 CFR part 60, appendix A-3~~ | ~~(d) PM concentration must be at 15 percent $O_2$, dry basis. Results of this test~~ |

| | | | | |
|---|---|---|---|---|
| | | ~~combustion engine.~~ | | ~~consist of the average of the three 1-hour or longer runs.~~ |

~~[79 FR 11251, Feb. 27, 2014]~~

**Table 8 to Subpart IIII of Part 60—Applicability of General Provisions to Subpart IIII**

[As stated in §60.4218, you must comply with the following applicable General Provisions:]

| General Provisions citation | Subject of citation | Applies to subpart | Explanation |
|---|---|---|---|
| §60.1 | General applicability of the General Provisions | Yes | |
| §60.2 | Definitions | Yes | Additional terms defined in §60.4219. |
| §60.3 | Units and abbreviations | Yes | |
| §60.4 | Address | Yes | |
| §60.5 | Determination of construction or modification | Yes | |
| §60.6 | Review of plans | Yes | |
| §60.7 | Notification and Recordkeeping | Yes | Except that §60.7 only applies as specified in §60.4214(a). |
| §60.8 | Performance tests | Yes | Except that §60.8 only applies to stationary CI ICE with a displacement of (≥30 liters per cylinder and engines that are not certified. |
| §60.9 | Availability of information | Yes | |
| §60.10 | State Authority | Yes | |
| §60.11 | Compliance with standards and maintenance requirements | No | Requirements are specified in subpart IIII. |
| §60.12 | Circumvention | Yes | |
| §60.13 | Monitoring requirements | Yes | Except that §60.13 only applies to stationary CI ICE with a displacement of (≥30 liters per cylinder. |
| §60.14 | Modification | Yes | |
| §60.15 | Reconstruction | Yes | |
| §60.16 | Priority list | Yes | |
| §60.17 | Incorporations by reference | Yes | |
| §60.18 | General control device | No | |

| | | | |
|---|---|---|---|
| | requirements | | |
| §60.19 | General notification and reporting requirements | Yes | |

Back to Top

***Following NESHAP applies to the two proposed emergency generators***

# Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

## WHAT THIS SUBPART COVERS

### §63.6580 What is the purpose of subpart ZZZZ?

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at ~~major and~~ area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

[73 FR 3603, Jan. 18, 2008]

### §63.6585 Am I subject to this subpart?

You are subject to this subpart if you own or operate a stationary RICE at ~~a major or~~ area source of HAP emissions, ~~except if the stationary RICE is being tested at a stationary RICE test cell/stand.~~

(a) A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

~~(b) A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site.~~

(c) An area source of HAP emissions is a source that is not a major source.

***SAMC is classified as an area source of HAP emissions defined as potential to emit (PTE) 10 tons per year or less for any single HAP or PTE less than 25 tpy for total HAPs.***

(d) If you are an owner or operator of an area source subject to this subpart, your status as an entity subject to a standard or other requirements under this subpart does not subject you to the obligation to obtain a permit under 40 CFR part 70 or 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart as applicable.

~~(e) If you are an owner or operator of a stationary RICE used for national security purposes, you may be eligible to request an exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C.~~

(f) The emergency stationary RICE listed in paragraphs (f)(1) through (3) of this section are not subject to this subpart. The stationary RICE must meet the definition of an emergency stationary RICE in §63.6675, which includes operating according to the provisions specified in §63.6640(f).

***SAMC meets the applicability in (f)(3) so the rest of the subpart does not apply.***

~~(1) Existing residential emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).~~

(2) Existing commercial emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

(3) Existing institutional emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

[69 FR 33506, June 15, 2004, as amended at 73 FR 3603, Jan. 18, 2008; 78 FR 6700, Jan. 30, 2013]

**§63.6590 What parts of my plant does this subpart cover?**

This subpart applies to each affected source.

(a) *Affected source.* An affected source is any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand.

(1) *Existing stationary RICE.*

(i) For stationary RICE with a site rating of more than 500 brake horsepower (HP) located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before December 19, 2002.

(ii) For stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iii) For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iv) A change in ownership of an existing stationary RICE does not make that stationary RICE a new or reconstructed stationary RICE.

(2) *New stationary RICE.*

(i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(3) *Reconstructed stationary RICE.* (i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

~~(iii) A stationary RICE located at an area source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.~~

~~(b) *Stationary RICE subject to limited requirements.*~~

~~(1) An affected source which meets either of the criteria in paragraphs (b)(1)(i) through (ii) of this section does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of §63.6645(f).~~

(i) ~~The stationary RICE is a new or reconstructed emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii).~~

~~(ii) The stationary RICE is a new or reconstructed limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.~~

~~(2) A new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis must meet the initial notification requirements of §63.6645(f) and the requirements of §§63.6625(c), 63.6650(g), and 63.6655(c). These stationary RICE do not have to meet the emission limitations and operating limitations of this subpart.~~

~~(3) The following stationary RICE do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements:~~

~~(i) Existing spark ignition 2 stroke lean burn (2SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;~~

~~(ii) Existing spark ignition 4 stroke lean burn (4SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;~~

~~(iii) Existing emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii).~~

~~(iv) Existing limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;~~

~~(v) Existing stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;~~

(c) *Stationary RICE subject to Regulations under 40 CFR Part 60.* An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. **No further requirements apply for such engines under this part, please refer to SAMC applicability review per 40 CFR Part 60, Subpart IIII for the emergency compression ignition engines..**

(1) A new ~~or reconstructed~~ stationary RICE located at an area source;

~~(2) A new or reconstructed 2SLB stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;~~

(3) A new or reconstructed 4SLB stationary RICE with a site rating of less than 250 brake HP located at a major source of HAP emissions;

(4) A new or reconstructed spark ignition 4 stroke rich burn (4SRB) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(5) A new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(6) A new or reconstructed emergency or limited use stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(7) A new or reconstructed compression ignition (CI) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3604, Jan. 18, 2008; 75 FR 9674, Mar. 3, 2010; 75 FR 37733, June 30, 2010; 75 FR 51588, Aug. 20, 2010; 78 FR 6700, Jan. 30, 2013]

Back to Top

### §63.6595 When do I have to comply with this subpart?

(a) *Affected sources.*

(1) If you have an existing stationary RICE, excluding existing non-emergency CI stationary RICE, with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the applicable emission limitations, operating limitations and other requirements no later than June 15, 2007. If you have an existing non-emergency CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, an existing stationary CI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary CI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than May 3, 2013. If you have an existing stationary SI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary SI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than October 19, 2013.

(2) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions before August 16, 2004, you must comply with the applicable emission limitations and operating limitations in this subpart no later than August 16, 2004.

(3) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions after August 16, 2004, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(4) If you start up your new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions before January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart no later than January 18, 2008.

(5) If you start up your new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions after January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(6) If you start up your new or reconstructed stationary RICE located at an area source of HAP emissions before January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart no later than January 18, 2008.

(7) If you start up your new or reconstructed stationary RICE located at an area source of HAP emissions after January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(b) *Area sources that become major sources.* If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, the compliance dates in paragraphs (b)(1) and (2) of this section apply to you.

(1) Any stationary RICE for which construction or reconstruction is commenced after the date when your area source becomes a major source of HAP must be in compliance with this subpart upon startup of your affected source.

(2) Any stationary RICE for which construction or reconstruction is commenced before your area source becomes a major source of HAP must be in compliance with the provisions of this subpart that are applicable to RICE located at major sources within 3 years after your area source becomes a major source of HAP.

(c) If you own or operate an affected source, you must meet the applicable notification requirements in §63.6645 and in 40 CFR part 63, subpart A.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3604, Jan. 18, 2008; 75 FR 9675, Mar. 3, 2010; 75 FR 51589, Aug. 20, 2010; 78 FR 6701, Jan. 30, 2013]

Back to Top

## EMISSION AND OPERATING LIMITATIONS

Back to Top

**§63.6600 What emission limitations and operating limitations must I meet if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?**

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart.

(a) If you own or operate an existing, new, or reconstructed spark ignition 4SRB stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 1a to this subpart and the operating limitations in Table 1b to this subpart which apply to you.

(b) If you own or operate a new or reconstructed 2SLB stationary RICE with a site rating of more than 500 brake HP located at major source of HAP emissions, a new or reconstructed 4SLB stationary RICE with a site rating of more than 500 brake HP located at major source of HAP emissions, or a new or reconstructed CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 2a to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

(c) If you own or operate any of the following stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the emission limitations in Tables 1a, 2a, 2c, and 2d to this subpart or operating limitations in Tables 1b and 2b to this subpart: an existing 2SLB stationary RICE; an existing 4SLB stationary RICE; a stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis; an emergency stationary RICE; or a limited use stationary RICE.

(d) If you own or operate an existing non-emergency stationary CI RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 2c to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

[73 FR 3605, Jan. 18, 2008, as amended at 75 FR 9675, Mar. 3, 2010]

Back to Top

**§63.6601 What emission limitations must I meet if I own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 brake HP and less than or equal to 500 brake HP located at a major source of HAP emissions?**

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart. If you own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at major source of HAP emissions manufactured on or after January 1, 2008, you must comply with the emission limitations in Table 2a to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

[73 FR 3605, Jan. 18, 2008, as amended at 75 FR 9675, Mar. 3, 2010; 75 FR 51589, Aug. 20, 2010]

Back to Top

**§63.6602 What emission limitations and other requirements must I meet if I own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions?**

If you own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations and other requirements in Table 2c to this subpart which apply to you. Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart.

[78 FR 6701, Jan. 30, 2013]

Back to Top

**§63.6603 What emission limitations, operating limitations, and other requirements must I meet if I own or operate an existing stationary RICE located at an area source of HAP emissions?**

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart.

(a) If you own or operate an existing stationary RICE located at an area source of HAP emissions, you must comply with the requirements in Table 2d to this subpart and the operating limitations in Table 2b to this subpart that apply to you.

(b) If you own or operate an existing stationary non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP that meets either paragraph (b)(1) or (2) of this section, you do not have to meet the numerical CO emission limitations specified in Table 2d of this subpart. Existing stationary non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP that meet either paragraph (b)(1) or (2) of this section must meet the management practices that are shown for stationary non-emergency CI RICE with a site rating of less than or equal to 300 HP in Table 2d of this subpart.

~~(1) The area source is located in an area of Alaska that is not accessible by the Federal Aid Highway System (FAHS).~~

~~(2) The stationary RICE is located at an area source that meets paragraphs (b)(2)(i), (ii), and (iii) of this section.~~

~~(i) The only connection to the FAHS is through the Alaska Marine Highway System (AMHS), or the stationary RICE operation is within an isolated grid in Alaska that is not connected to the statewide electrical grid referred to as the Alaska Railbelt Grid.~~

~~(ii) At least 10 percent of the power generated by the stationary RICE on an annual basis is used for residential purposes.~~

~~(iii) The generating capacity of the area source is less than 12 megawatts, or the stationary RICE is used exclusively for backup power for renewable energy.~~

~~(c) If you own or operate an existing stationary non-emergency CI RICE with a site rating of more than 300 HP located on an offshore vessel that is an area source of HAP and is a nonroad vehicle that is an Outer Continental Shelf (OCS) source as defined in 40 CFR 55.2, you do not have to meet the numerical CO emission limitations specified in Table 2d of this subpart. You must meet all of the following management practices:~~

~~(1) Change oil every 1,000 hours of operation or annually, whichever comes first. Sources have the option to utilize an oil analysis program as described in §63.6625(i) in order to extend the specified oil change requirement.~~

~~(2) Inspect and clean air filters every 750 hours of operation or annually, whichever comes first, and replace as necessary.~~

~~(3) Inspect fuel filters and belts, if installed, every 750 hours of operation or annually, whichever comes first, and replace as necessary.~~

~~(4) Inspect all flexible hoses every 1,000 hours of operation or annually, whichever comes first, and replace as necessary.~~

~~(d) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 1 or Tier 2 emission standards in Table 1 of 40 CFR 89.112 and that is subject to an enforceable state or local standard that requires the engine to be replaced no later than June 1, 2018, you may until January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018, choose to comply with the management practices that are shown for stationary non-emergency CI RICE with a site rating of less than or equal to 300 HP in Table 2d of this subpart instead of the applicable emission limitations in Table 2d, operating limitations in Table 2b, and crankcase ventilation system requirements in §63.6625(g). You must comply with the emission limitations in Table 2d and operating limitations in Table 2b that apply for non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions by January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018. You must also comply with the crankcase ventilation system requirements in §63.6625(g) by January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018.~~

~~(e) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 3 (Tier 2 for engines above 560 kilowatt (kW)) emission standards in Table 1 of 40 CFR 89.112, you may comply with the requirements under this part by meeting the requirements for Tier 3 engines (Tier 2 for engines above 560 kW) in 40 CFR part 60 subpart IIII instead of the emission limitations and other requirements that would otherwise apply under this part for existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions.~~

(f) An existing non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP must meet the definition of remote stationary RICE in §63.6675 on the initial compliance date for the engine, October 19, 2013, in order to be considered a remote stationary RICE under this subpart. Owners and operators of existing non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP that meet the definition of remote stationary RICE in §63.6675 of this subpart as of October 19, 2013 must evaluate the status of their stationary RICE every 12 months. Owners and operators must keep records of the initial and annual evaluation of the status of the engine. If the evaluation indicates that the stationary RICE no longer meets the definition of remote stationary RICE in §63.6675 of this subpart, the owner or operator must comply with all of the requirements for existing non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP that are not remote stationary RICE within 1 year of the evaluation.

[75 FR 9675, Mar. 3, 2010, as amended at 75 FR 51589, Aug. 20, 2010; 76 FR 12866, Mar. 9, 2011; 78 FR 6701, Jan. 30, 2013]

Back to Top

### §63.6604 What fuel requirements must I meet if I own or operate a stationary CI RICE?

(a) If you own or operate an existing non-emergency, non-black start CI stationary RICE with a site rating of more than 300 brake HP with a displacement of less than 30 liters per cylinder that uses diesel fuel, you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel.

(b) Beginning January 1, 2015, if you own or operate an existing emergency CI stationary RICE with a site rating of more than 100 brake HP and a displacement of less than 30 liters per cylinder that uses diesel fuel and operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) or that operates for the purpose specified in §63.6640(f)(4)(ii), you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted.

(c) Beginning January 1, 2015, if you own or operate a new emergency CI stationary RICE with a site rating of more than 500 brake HP and a displacement of less than 30 liters per cylinder located at a major source of HAP that uses diesel fuel and operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii), you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted.

(d) Existing CI stationary RICE located in Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, at area sources in areas of Alaska that meet either §63.6603(b)(1) or §63.6603(b)(2), or are on offshore vessels that meet §63.6603(c) are exempt from the requirements of this section.

[78 FR 6702, Jan. 30, 2013]

Back to Top

## GENERAL COMPLIANCE REQUIREMENTS

Back to Top

### §63.6605 What are my general requirements for complying with this subpart?

(a) You must be in compliance with the emission limitations, operating limitations, and other requirements in this subpart that apply to you at all times.

(b) At all times you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

[75 FR 9675, Mar. 3, 2010, as amended at 78 FR 6702, Jan. 30, 2013]

Back to Top

## TESTING AND INITIAL COMPLIANCE REQUIREMENTS

Back to Top

**§63.6610 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?**

If you own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions you are subject to the requirements of this section.

(a) You must conduct the initial performance test or other initial compliance demonstrations in Table 4 to this subpart that apply to you within 180 days after the compliance date that is specified for your stationary RICE in §63.6595 and according to the provisions in §63.7(a)(2).

(b) If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004 and own or operate stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must demonstrate initial compliance with either the proposed emission limitations or the promulgated emission limitations no later than February 10, 2005 or no later than 180 days after startup of the source, whichever is later, according to §63.7(a)(2)(ix).

(c) If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004 and own or operate stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, and you chose to comply with the proposed emission limitations when demonstrating initial compliance, you must conduct a second performance test to demonstrate compliance with the promulgated emission limitations by December 13, 2007 or after startup of the source, whichever is later, according to §63.7(a)(2)(ix).

(d) An owner or operator is not required to conduct an initial performance test on units for which a performance test has been previously conducted, but the test must meet all of the conditions described in paragraphs (d)(1) through (5) of this section.

(1) The test must have been conducted using the same methods specified in this subpart, and these methods must have been followed correctly.

(2) The test must not be older than 2 years.

(3) The test must be reviewed and accepted by the Administrator.

(4) Either no process or equipment changes must have been made since the test was performed, or the owner or operator must be able to demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process or equipment changes.

(5) The test must be conducted at any load condition within plus or minus 10 percent of 100 percent load.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3605, Jan. 18, 2008]

Back to Top

**§63.6611 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate a new or reconstructed 4SLB SI stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions?**

If you own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions, you must conduct an initial performance test within 240 days after the compliance date that is specified for your stationary RICE in §63.6595 and according to the provisions specified in Table 4 to this subpart, as appropriate.

[73 FR 3605, Jan. 18, 2008, as amended at 75 FR 51589, Aug. 20, 2010]

Back to Top

**§63.6612 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions?**

If you own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions you are subject to the requirements of this section.

(a) You must conduct any initial performance test or other initial compliance demonstration according to Tables 4 and 5 to this subpart that apply to you within 180 days after the compliance date that is specified for your stationary RICE in §63.6595 and according to the provisions in §63.7(a)(2).

(b) An owner or operator is not required to conduct an initial performance test on a unit for which a performance test has been previously conducted, but the test must meet all of the conditions described in paragraphs (b)(1) through (4) of this section.

(1) The test must have been conducted using the same methods specified in this subpart, and these methods must have been followed correctly.

(2) The test must not be older than 2 years.

(3) The test must be reviewed and accepted by the Administrator.

(4) Either no process or equipment changes must have been made since the test was performed, or the owner or operator must be able to demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process or equipment changes.

[75 FR 9676, Mar. 3, 2010, as amended at 75 FR 51589, Aug. 20, 2010]

Back to Top

**§63.6615 When must I conduct subsequent performance tests?**

If you must comply with the emission limitations and operating limitations, you must conduct subsequent performance tests as specified in Table 3 of this subpart.

Back to Top

### §63.6620 What performance tests and other procedures must I use?

(a) You must conduct each performance test in Tables 3 and 4 of this subpart that applies to you.

(b) Each performance test must be conducted according to the requirements that this subpart specifies in Table 4 to this subpart. If you own or operate a non-operational stationary RICE that is subject to performance testing, you do not need to start up the engine solely to conduct the performance test. Owners and operators of a non-operational engine can conduct the performance test when the engine is started up again. The test must be conducted at any load condition within plus or minus 10 percent of 100 percent load for the stationary RICE listed in paragraphs (b)(1) through (4) of this section.

(1) Non-emergency 4SRB stationary RICE with a site rating of greater than 500 brake HP located at a major source of HAP emissions.

(2) New non-emergency 4SLB stationary RICE with a site rating of greater than or equal to 250 brake HP located at a major source of HAP emissions.

(3) New non-emergency 2SLB stationary RICE with a site rating of greater than 500 brake HP located at a major source of HAP emissions.

(4) New non-emergency CI stationary RICE with a site rating of greater than 500 brake HP located at a major source of HAP emissions.

(c) [Reserved]

(d) You must conduct three separate test runs for each performance test required in this section, as specified in §63.7(e)(3). Each test run must last at least 1 hour, unless otherwise specified in this subpart.

(e)(1) You must use Equation 1 of this section to determine compliance with the percent reduction requirement:

$$\frac{C_i - C_o}{C_i} \times 100 = R \quad (Eq.\ 1)$$

View or download PDF

Where:

$C_i$ = concentration of carbon monoxide (CO), total hydrocarbons (THC), or formaldehyde at the control device inlet,

$C_o$ = concentration of CO, THC, or formaldehyde at the control device outlet, and

R = percent reduction of CO, THC, or formaldehyde emissions.

(2) You must normalize the CO, THC, or formaldehyde concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen, or an equivalent percent carbon dioxide ($CO_2$). If pollutant concentrations are to be corrected to 15 percent oxygen and $CO_2$ concentration is measured in lieu of oxygen concentration measurement, a $CO_2$ correction factor is needed. Calculate the $CO_2$ correction factor as described in paragraphs (e)(2)(i) through (iii) of this section.

(i) Calculate the fuel-specific $F_o$ value for the fuel burned during the test using values obtained from Method 19, Section 5.2, and the following equation:

$$F_o = \frac{0.209\ F_d}{F_c} \quad (Eq.\ 2)$$

View or download PDF

Where:

$F_o$ = Fuel factor based on the ratio of oxygen volume to the ultimate $CO_2$ volume produced by the fuel at zero percent excess air.

0.209 = Fraction of air that is oxygen, percent/100.

$F_d$ = Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, $dsm^3/J$ ($dscf/10^6$ Btu).

$F_c$ = Ratio of the volume of $CO_2$ produced to the gross calorific value of the fuel from Method 19, $dsm^3/J$ ($dscf/10^6$ Btu)

(ii) Calculate the $CO_2$ correction factor for correcting measurement data to 15 percent $O_2$, as follows:

$$X_{CO2} = \frac{5.9}{F_o} \quad (Eq.\ 3)$$

View or download PDF

Where:

$X_{co2}$ = $CO_2$ correction factor, percent.

5.9 = 20.9 percent $O_2$—15 percent $O_2$, the defined $O_2$ correction value, percent.

(iii) Calculate the CO, THC, and formaldehyde gas concentrations adjusted to 15 percent $O_2$ using $CO_2$ as follows:

$$C_{adj} = C_d \frac{X_{CO2}}{\%CO_2} \quad (Eq.\ 4)$$

View or download PDF

Where:

$C_{adj}$ = Calculated concentration of CO, THC, or formaldehyde adjusted to 15 percent $O_2$.

$C_d$ = Measured concentration of CO, THC, or formaldehyde, uncorrected.

$X_{co2}$ = $CO_2$ correction factor, percent.

$\%CO_2$ = Measured $CO_2$ concentration measured, dry basis, percent.

(f) If you comply with the emission limitation to reduce CO and you are not using an oxidation catalyst, if you comply with the emission limitation to reduce formaldehyde and you are not using NSCR, or if you comply with the emission limitation to limit the concentration of formaldehyde in the stationary RICE exhaust and you are not using an oxidation catalyst or NSCR, you must petition the Administrator for operating limitations to be established during the initial performance test and continuously monitored thereafter; or for approval of no operating limitations. You must not conduct the initial performance test until after the petition has been approved by the Administrator.

(g) If you petition the Administrator for approval of operating limitations, your petition must include the information described in paragraphs (g)(1) through (5) of this section.

(1) Identification of the specific parameters you propose to use as operating limitations;

~~(2) A discussion of the relationship between these parameters and HAP emissions, identifying how HAP emissions change with changes in these parameters, and how limitations on these parameters will serve to limit HAP emissions;~~

~~(3) A discussion of how you will establish the upper and/or lower values for these parameters which will establish the limits on these parameters in the operating limitations;~~

~~(4) A discussion identifying the methods you will use to measure and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments; and~~

~~(5) A discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring these parameters.~~

~~(h) If you petition the Administrator for approval of no operating limitations, your petition must include the information described in paragraphs (h)(1) through (7) of this section.~~

~~(1) Identification of the parameters associated with operation of the stationary RICE and any emission control device which could change intentionally (*e.g.*, operator adjustment, automatic controller adjustment, etc.) or unintentionally (*e.g.*,wear and tear, error, etc.) on a routine basis or over time;~~

~~(2) A discussion of the relationship, if any, between changes in the parameters and changes in HAP emissions;~~

~~(3) For the parameters which could change in such a way as to increase HAP emissions, a discussion of whether establishing limitations on the parameters would serve to limit HAP emissions;~~

~~(4) For the parameters which could change in such a way as to increase HAP emissions, a discussion of how you could establish upper and/or lower values for the parameters which would establish limits on the parameters in operating limitations;~~

~~(5) For the parameters, a discussion identifying the methods you could use to measure them and the instruments you could use to monitor them, as well as the relative accuracy and precision of the methods and instruments;~~

~~(6) For the parameters, a discussion identifying the frequency and methods for recalibrating the instruments you could use to monitor them; and~~

~~(7) A discussion of why, from your point of view, it is infeasible or unreasonable to adopt the parameters as operating limitations.~~

~~(i) The engine percent load during a performance test must be determined by documenting the calculations, assumptions, and measurement devices used to measure or estimate the percent load in a specific application. A written report of the average percent load determination must be included in the notification of compliance status. The following information must be included in the written report: the engine model number, the engine manufacturer, the year of purchase, the manufacturer's site-rated brake horsepower, the ambient temperature, pressure, and humidity during the performance test, and all assumptions that were made to estimate or calculate percent load during the performance test must be clearly explained. If measurement devices such as flow meters, kilowatt meters, beta analyzers, stain gauges, etc. are used, the model number of the measurement device, and an estimate of its accurate in percentage of true value must be provided.~~

[69 FR 33506, June 15, 2004, as amended at 75 FR 9676, Mar. 3, 2010; 78 FR 6702, Jan. 30, 2013]

Back to Top

**§63.6625 What are my monitoring, installation, collection, operation, and maintenance requirements?**

~~(a) If you elect to install a CEMS as specified in Table 5 of this subpart, you must install, operate, and maintain a CEMS to monitor CO and either $O_2$ or $CO_2$ according to the requirements in paragraphs (a)(1) through (4) of this section. If you are meeting a requirement to reduce CO emissions, the CEMS must be installed at both the inlet and outlet of the control device. If you are meeting a requirement to limit the concentration of CO, the CEMS must be installed at the outlet of the control device.~~

~~(1) Each CEMS must be installed, operated, and maintained according to the applicable performance specifications of 40 CFR part 60, appendix B.~~

~~(2) You must conduct an initial performance evaluation and an annual relative accuracy test audit (RATA) of each CEMS according to the requirements in §63.8 and according to the applicable performance specifications of 40 CFR part 60, appendix B as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.~~

~~(3) As specified in §63.8(c)(4)(ii), each CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. You must have at least two data points, with each representing a different 15-minute period, to have a valid hour of data.~~

~~(4) The CEMS data must be reduced as specified in §63.8(g)(2) and recorded in parts per million or parts per billion (as appropriate for the applicable limitation) at 15 percent oxygen or the equivalent $CO_2$ concentration.~~

~~(b) If you are required to install a continuous parameter monitoring system (CPMS) as specified in Table 5 of this subpart, you must install, operate, and maintain each CPMS according to the requirements in paragraphs (b)(1) through (6) of this section. For an affected source that is complying with the emission limitations and operating limitations on March 9, 2011, the requirements in paragraph (b) of this section are applicable September 6, 2011.~~

~~(1) You must prepare a site-specific monitoring plan that addresses the monitoring system design, data collection, and the quality assurance and quality control elements outlined in paragraphs (b)(1)(i) through (v) of this section and in §63.8(d). As specified in §63.8(f)(4), you may request approval of monitoring system quality assurance and quality control procedures alternative to those specified in paragraphs (b)(1) through (5) of this section in your site-specific monitoring plan.~~

~~(i) The performance criteria and design specifications for the monitoring system equipment, including the sample interface, detector signal analyzer, and data acquisition and calculations;~~

~~(ii) Sampling interface (*e.g.,* thermocouple) location such that the monitoring system will provide representative measurements;~~

~~(iii) Equipment performance evaluations, system accuracy audits, or other audit procedures;~~

~~(iv) Ongoing operation and maintenance procedures in accordance with provisions in §63.8(c)(1)(ii) and (c)(3); and~~

~~(v) Ongoing reporting and recordkeeping procedures in accordance with provisions in §63.10(c), (e)(1), and (e)(2)(i).~~

~~(2) You must install, operate, and maintain each CPMS in continuous operation according to the procedures in your site-specific monitoring plan.~~

~~(3) The CPMS must collect data at least once every 15 minutes (see also §63.6635).~~

~~(4) For a CPMS for measuring temperature range, the temperature sensor must have a minimum tolerance of 2.8 degrees Celsius (5 degrees Fahrenheit) or 1 percent of the measurement range, whichever is larger.~~

~~(5) You must conduct the CPMS equipment performance evaluation, system accuracy audits, or other audit procedures specified in your site-specific monitoring plan at least annually.~~

~~(6) You must conduct a performance evaluation of each CPMS in accordance with your site-specific monitoring plan.~~

~~(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must monitor and record your fuel usage daily with separate fuel meters to measure the volumetric flow rate of each fuel. In addition, you must operate your stationary RICE in a manner which reasonably minimizes HAP emissions.~~

~~(d) If you are operating a new or reconstructed emergency 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions, you must install a non-resettable hour meter prior to the startup of the engine.~~

~~(e) If you own or operate any of the following stationary RICE, you must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions:~~

~~(1) An existing stationary RICE with a site rating of less than 100 HP located at a major source of HAP emissions;~~

~~(2) An existing emergency or black start stationary RICE with a site rating of less than or equal to 500 HP located at a major source of HAP emissions;~~

~~(3) An existing emergency or black start stationary RICE located at an area source of HAP emissions;~~

~~(4) An existing non-emergency, non-black start stationary CI RICE with a site rating less than or equal to 300 HP located at an area source of HAP emissions;~~

~~(5) An existing non-emergency, non-black start 2SLB stationary RICE located at an area source of HAP emissions;~~

~~(6) An existing non-emergency, non-black start stationary RICE located at an area source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis.~~

~~(7) An existing non-emergency, non-black start 4SLB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;~~

~~(8) An existing non-emergency, non-black start 4SRB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;~~

~~(9) An existing, non-emergency, non-black start 4SLB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year; and~~

~~(10) An existing, non-emergency, non-black start 4SRB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year.~~

(f) If you own or operate an existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing emergency stationary RICE located at an area source of HAP emissions, you must install a non-resettable hour meter if one is not already installed.

(g) If you own or operate an existing non-emergency, non-black start CI engine greater than or equal to 300 HP that is not equipped with a closed crankcase ventilation system, you must comply with either paragraph (g)(1) or paragraph (2) of this section. Owners and operators must follow the manufacturer's specified maintenance requirements for operating and maintaining the open or closed crankcase ventilation systems and replacing the crankcase filters, or can request the Administrator to approve different maintenance requirements that are as protective as manufacturer requirements. Existing CI engines located at area sources in areas of Alaska that meet either §63.6603(b)(1) or §63.6603(b)(2) do not have to meet the requirements of this paragraph (g). Existing CI engines located on offshore vessels that meet §63.6603(c) do not have to meet the requirements of this paragraph (g).

(1) Install a closed crankcase ventilation system that prevents crankcase emissions from being emitted to the atmosphere, or

(2) Install an open crankcase filtration emission control system that reduces emissions from the crankcase by filtering the exhaust stream to remove oil mist, particulates and metals.

(h) If you operate a new, reconstructed, or existing stationary engine, you must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times other than startup in Tables 1a, 2a, 2c, and 2d to this subpart apply.

(i) If you own or operate a stationary CI engine that is subject to the work, operation or management practices in items 1 or 2 of Table 2c to this subpart or in items 1 or 4 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 business days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

(j) If you own or operate a stationary SI engine that is subject to the work, operation or management practices in items 6, 7, or 8 of Table 2c to this subpart or in items 5, 6, 7, 9, or 11 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 business days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3606, Jan. 18, 2008; 75 FR 9676, Mar. 3, 2010; 75 FR 51589, Aug. 20, 2010; 76 FR 12866, Mar. 9, 2011; 78 FR 6703, Jan. 30, 2013]

Back to Top

### §63.6630 How do I demonstrate initial compliance with the emission limitations, operating limitations, and other requirements?

~~(a) You must demonstrate initial compliance with each emission limitation, operating limitation, and other requirement that applies to you according to Table 5 of this subpart.~~

~~(b) During the initial performance test, you must establish each operating limitation in Tables 1b and 2b of this subpart that applies to you.~~

~~(c) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.6645.~~

~~(d) Non-emergency 4SRB stationary RICE complying with the requirement to reduce formaldehyde emissions by 76 percent or more can demonstrate initial compliance with the formaldehyde emission limit by testing for THC instead of formaldehyde. The testing must be conducted according to the requirements in Table 4 of this subpart. The average reduction of emissions of THC determined from the performance test must be equal to or greater than 30 percent.~~

~~(e) The initial compliance demonstration required for existing non-emergency 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year must be conducted according to the following requirements:~~

~~(1) The compliance demonstration must consist of at least three test runs.~~

~~(2) Each test run must be of at least 15 minute duration, except that each test conducted using the method in appendix A to this subpart must consist of at least one measurement cycle and include at least 2 minutes of test data phase measurement.~~

~~(3) If you are demonstrating compliance with the CO concentration or CO percent reduction requirement, you must measure CO emissions using one of the CO measurement methods specified in Table 4 of this subpart, or using appendix A to this subpart.~~

~~(4) If you are demonstrating compliance with the THC percent reduction requirement, you must measure THC emissions using Method 25A, reported as propane, of 40 CFR part 60, appendix A.~~

~~(5) You must measure $O_2$ using one of the $O_2$ measurement methods specified in Table 4 of this subpart. Measurements to determine $O_2$ concentration must be made at the same time as the measurements for CO or THC concentration.~~

~~(6) If you are demonstrating compliance with the CO or THC percent reduction requirement, you must measure CO or THC emissions and $O_2$ emissions simultaneously at the inlet and outlet of the control device.~~

[69 FR 33506, June 15, 2004, as amended at 78 FR 6704, Jan. 30, 2013]

Back to Top

## CONTINUOUS COMPLIANCE REQUIREMENTS

Back to Top

### §63.6635 How do I monitor and collect data to demonstrate continuous compliance?

(a) If you must comply with emission and operating limitations, you must monitor and collect data according to this section.

(b) Except for monitor malfunctions, associated repairs, required performance evaluations, and required quality assurance or control activities, you must monitor continuously at all times that the stationary RICE is operating. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(c) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels. You must, however, use all the valid data collected during all other periods.

[69 FR 33506, June 15, 2004, as amended at 76 FR 12867, Mar. 9, 2011]

Back to Top

### §63.6640 How do I demonstrate continuous compliance with the emission limitations, operating limitations, and other requirements?

(a) You must demonstrate continuous compliance with each emission limitation, operating limitation, and other requirements in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you according to methods specified in Table 6 to this subpart.

(b) You must report each instance in which you did not meet each emission limitation or operating limitation in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you. These instances are deviations from the emission and operating limitations in this subpart. These deviations must be reported according to the requirements in §63.6650. If you change your catalyst, you must reestablish the values of the operating parameters measured during the initial performance test. When you reestablish the values of your operating parameters, you must also conduct a performance test to demonstrate that you are meeting the required emission limitation applicable to your stationary RICE.

(c) The annual compliance demonstration required for existing non-emergency 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year must be conducted according to the following requirements:

(1) The compliance demonstration must consist of at least one test run.

(2) Each test run must be of at least 15 minute duration, except that each test conducted using the method in appendix A to this subpart must consist of at least one measurement cycle and include at least 2 minutes of test data phase measurement.

(3) If you are demonstrating compliance with the CO concentration or CO percent reduction requirement, you must measure CO emissions using one of the CO measurement methods specified in Table 4 of this subpart, or using appendix A to this subpart.

(4) If you are demonstrating compliance with the THC percent reduction requirement, you must measure THC emissions using Method 25A, reported as propane, of 40 CFR part 60, appendix A.

(5) You must measure $O_2$ using one of the $O_2$ measurement methods specified in Table 4 of this subpart. Measurements to determine $O_2$ concentration must be made at the same time as the measurements for CO or THC concentration.

~~(6) If you are demonstrating compliance with the CO or THC percent reduction requirement, you must measure CO or THC emissions and $O_2$ emissions simultaneously at the inlet and outlet of the control device.~~

~~(7) If the results of the annual compliance demonstration show that the emissions exceed the levels specified in Table 6 of this subpart, the stationary RICE must be shut down as soon as safely possible, and appropriate corrective action must be taken (e.g., repairs, catalyst cleaning, catalyst replacement). The stationary RICE must be retested within 7 days of being restarted and the emissions must meet the levels specified in Table 6 of this subpart. If the retest shows that the emissions continue to exceed the specified levels, the stationary RICE must again be shut down as soon as safely possible, and the stationary RICE may not operate, except for purposes of startup and testing, until the owner/operator demonstrates through testing that the emissions do not exceed the levels specified in Table 6 of this subpart.~~

~~(d) For new, reconstructed, and rebuilt stationary RICE, deviations from the emission or operating limitations that occur during the first 200 hours of operation from engine startup (engine burn-in period) are not violations. Rebuilt stationary RICE means a stationary RICE that has been rebuilt as that term is defined in 40 CFR 94.11(a).~~

~~(e) You must also report each instance in which you did not meet the requirements in Table 8 to this subpart that apply to you. If you own or operate a new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing emergency stationary RICE, an existing limited use stationary RICE, or an existing stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart, except for the initial notification requirements: a new or reconstructed stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new or reconstructed emergency stationary RICE, or a new or reconstructed limited use stationary RICE.~~

(f) If you own or operate an emergency stationary RICE, you must operate the emergency stationary RICE according to the requirements in paragraphs (f)(1) through (4) of this section. In order for the engine to be considered an emergency stationary RICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (4) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (4) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary RICE in emergency situations.

(2) You may operate your emergency stationary RICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs (f)(3) and (4) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

(i) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.

~~(ii) Emergency stationary RICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.~~

(iii) Emergency stationary RICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

~~(3) Emergency stationary RICE located at major sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.~~

(4) Emergency stationary RICE located at area sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. Except as provided in paragraphs (f)(4)(i) and (ii) of this section, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

~~(i) Prior to May 3, 2014, the 50 hours per year for non-emergency situations can be used for peak shaving or non-emergency demand response to generate income for a facility, or to otherwise supply power as part of a financial arrangement with another entity if the engine is operated as part of a peak shaving (load management program) with the local distribution system operator and the power is provided only to the facility itself or to support the local distribution system.~~

~~(ii) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:~~

~~(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.~~

~~(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.~~

~~(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.~~

~~(D) The power is provided only to the facility itself or to support the local transmission and distribution system.~~

~~(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.~~

[69 FR 33506, June 15, 2004, as amended at 71 FR 20467, Apr. 20, 2006; 73 FR 3606, Jan. 18, 2008; 75 FR 9676, Mar. 3, 2010; 75 FR 51591, Aug. 20, 2010; 78 FR 6704, Jan. 30, 2013]

Back to Top

## NOTIFICATIONS, REPORTS, AND RECORDS

Back to Top

### §63.6645 What notifications must I submit and when?

~~(a) You must submit all of the notifications in §§63.7(b) and (c), 63.8(e), (f)(4) and (f)(6), 63.9(b) through (e), and (g) and (h) that apply to you by the dates specified if you own or operate any of the following;~~

~~(1) An existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.~~

~~(2) An existing stationary RICE located at an area source of HAP emissions.~~

~~(3) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.~~

~~(4) A new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 HP located at a major source of HAP emissions.~~

~~(5) This requirement does not apply if you own or operate an existing stationary RICE less than 100 HP, an existing stationary emergency RICE, or an existing stationary RICE that is not subject to any numerical emission standards.~~

~~(b) As specified in §63.9(b)(2), if you start up your stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart, you must submit an Initial Notification not later than December 13, 2004.~~

~~(c) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions on or after August 16, 2004, you must submit an Initial Notification not later than 120 days after you become subject to this subpart.~~

~~(d) As specified in §63.9(b)(2), if you start up your stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart and you are required to submit an initial notification, you must submit an Initial Notification not later than July 16, 2008.~~

~~(e) If you start up your new or reconstructed stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions on or after March 18, 2008 and you are required to submit an initial notification, you must submit an Initial Notification not later than 120 days after you become subject to this subpart.~~

~~(f) If you are required to submit an Initial Notification but are otherwise not affected by the requirements of this subpart, in accordance with §63.6590(b), your notification should include the information in §63.9(b)(2)(i) through (v), and a statement that your stationary RICE has no additional requirements and explain the basis of the exclusion (for example, that it operates exclusively as an emergency stationary RICE if it has a site rating of more than 500 brake HP located at a major source of HAP emissions).~~

~~(g) If you are required to conduct a performance test, you must submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin as required in §63.7(b)(1).~~

~~(h) If you are required to conduct a performance test or other initial compliance demonstration as specified in Tables 4 and 5 to this subpart, you must submit a Notification of Compliance Status according to §63.9(h)(2)(ii).~~

~~(1) For each initial compliance demonstration required in Table 5 to this subpart that does not include a performance test, you must submit the Notification of Compliance Status before the close of business on the 30th day following the completion of the initial compliance demonstration.~~

~~(2) For each initial compliance demonstration required in Table 5 to this subpart that includes a performance test conducted according to the requirements in Table 3 to this subpart, you must submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th day following the completion of the performance test according to §63.10(d)(2).~~

~~(i) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 1 or Tier 2 emission standards in Table 1 of 40 CFR 89.112 and subject to an enforceable state or local standard requiring engine replacement and you intend to meet management practices rather than emission limits, as specified in §63.6603(d), you must submit a notification by March 3, 2013, stating that you intend to use the provision in §63.6603(d) and identifying the state or local regulation that the engine is subject to.~~

[73 FR 3606, Jan. 18, 2008, as amended at 75 FR 9677, Mar. 3, 2010; 75 FR 51591, Aug. 20, 2010; 78 FR 6705, Jan. 30, 2013]

Back to Top

### §63.6650 What reports must I submit and when?

~~(a) You must submit each report in Table 7 of this subpart that applies to you.~~

~~(b) Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report by the date in Table 7 of this subpart and according to the requirements in paragraphs (b)(1) through (b)(9) of this section.~~

~~(1) For semiannual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.6595 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in §63.6595.~~

~~(2) For semiannual Compliance reports, the first Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first calendar half after the compliance date that is specified for your affected source in §63.6595.~~

~~(3) For semiannual Compliance reports, each subsequent Compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.~~

~~(4) For semiannual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.~~

~~(5) For each stationary RICE that is subject to permitting regulations pursuant to 40 CFR part 70 or 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6 (a)(3)(iii)(A), you may submit the first and subsequent Compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (b)(4) of this section.~~

~~(6) For annual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.6595 and ending on December 31.~~

~~(7) For annual Compliance reports, the first Compliance report must be postmarked or delivered no later than January 31 following the end of the first calendar year after the compliance date that is specified for your affected source in §63.6595.~~

~~(8) For annual Compliance reports, each subsequent Compliance report must cover the annual reporting period from January 1 through December 31.~~

~~(9) For annual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than January 31.~~

~~(c) The Compliance report must contain the information in paragraphs (c)(1) through (6) of this section.~~

~~(1) Company name and address.~~

~~(2) Statement by a responsible official, with that official's name, title, and signature, certifying the accuracy of the content of the report.~~

~~(3) Date of report and beginning and ending dates of the reporting period.~~

~~(4) If you had a malfunction during the reporting period, the compliance report must include the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with §63.6605(b), including actions taken to correct a malfunction.~~

~~(5) If there are no deviations from any emission or operating limitations that apply to you, a statement that there were no deviations from the emission or operating limitations during the reporting period.~~

~~(6) If there were no periods during which the continuous monitoring system (CMS), including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), a statement that there were no periods during which the CMS was out-of-control during the reporting period.~~

~~(d) For each deviation from an emission or operating limitation that occurs for a stationary RICE where you are not using a CMS to comply with the emission or operating limitations in this subpart, the Compliance report must contain the information in paragraphs (c)(1) through (4) of this section and the information in paragraphs (d)(1) and (2) of this section.~~

~~(1) The total operating time of the stationary RICE at which the deviation occurred during the reporting period.~~

~~(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.~~

~~(e) For each deviation from an emission or operating limitation occurring for a stationary RICE where you are using a CMS to comply with the emission and operating limitations in this subpart, you must include information in paragraphs (c)(1) through (4) and (e)(1) through (12) of this section.~~

~~(1) The date and time that each malfunction started and stopped.~~

~~(2) The date, time, and duration that each CMS was inoperative, except for zero (low-level) and high-level checks.~~

~~(3) The date, time, and duration that each CMS was out-of-control, including the information in §63.8(c)(8).~~

~~(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of malfunction or during another period.~~

~~(5) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that reporting period.~~

~~(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.~~

~~(7) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total operating time of the stationary RICE at which the CMS downtime occurred during that reporting period.~~

~~(8) An identification of each parameter and pollutant (CO or formaldehyde) that was monitored at the stationary RICE.~~

~~(9) A brief description of the stationary RICE.~~

~~(10) A brief description of the CMS.~~

~~(11) The date of the latest CMS certification or audit.~~

~~(12) A description of any changes in CMS, processes, or controls since the last reporting period.~~

~~(f) Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6 (a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a Compliance report pursuant to Table 7 of this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the Compliance report includes all required information concerning deviations from any emission or operating limitation in this subpart, submission of the Compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a Compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permit authority.~~

~~(g) If you are operating as a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must submit an annual report according to Table 7 of this subpart by the date specified unless the Administrator has approved a different schedule, according to the information described in paragraphs (b)(1) through (b)(5) of this section. You must report the data specified in (g)(1) through (g)(3) of this section.~~

~~(1) Fuel flow rate of each fuel and the heating values that were used in your calculations. You must also demonstrate that the percentage of heat input provided by landfill gas or digester gas is equivalent to 10 percent or more of the total fuel consumption on an annual basis.~~

~~(2) The operating limits provided in your federally enforceable permit, and any deviations from these limits.~~

~~(3) Any problems or errors suspected with the meters.~~

~~(h) If you own or operate an emergency stationary RICE with a site rating of more than 100 brake HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) or that operates for the purpose specified in §63.6640(f)(4)(ii), you must submit an annual report according to the requirements in paragraphs (h)(1) through (3) of this section.~~

~~(1) The report must contain the following information:~~

(i) Company name and address where the engine is located.

(ii) Date of the report and beginning and ending dates of the reporting period.

(iii) Engine site rating and model year.

(iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(v) Hours operated for the purposes specified in §63.6640(f)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(vi) Number of hours the engine is contractually obligated to be available for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(vii) Hours spent for operation for the purpose specified in §63.6640(f)(4)(ii), including the date, start time, and end time for engine operation for the purposes specified in §63.6640(f)(4)(ii). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

(viii) If there were no deviations from the fuel requirements in §63.6604 that apply to the engine (if any), a statement that there were no deviations from the fuel requirements during the reporting period.

(ix) If there were deviations from the fuel requirements in §63.6604 that apply to the engine (if any), information on the number, duration, and cause of deviations, and the corrective action taken.

(2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

(3) The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (*www.epa.gov/cdx*). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in §63.13.

[69 FR 33506, June 15, 2004, as amended at 75 FR 9677, Mar. 3, 2010; 78 FR 6705, Jan. 30, 2013]

Back to Top

### §63.6655 What records must I keep?

(a) If you must comply with the emission and operating limitations, you must keep the records described in paragraphs (a)(1) through (a)(5), (b)(1) through (b)(3) and (c) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirement in §63.10(b)(2)(xiv).

(2) Records of the occurrence and duration of each malfunction of operation (*i.e.*, process equipment) or the air pollution control and monitoring equipment.

(3) Records of performance tests and performance evaluations as required in §63.10(b)(2)(viii).

(4) Records of all required maintenance performed on the air pollution control and monitoring equipment.

(5) Records of actions taken during periods of malfunction to minimize emissions in accordance with §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

(b) For each CEMS or CPMS, you must keep the records listed in paragraphs (b)(1) through (3) of this section.

(1) Records described in §63.10(b)(2)(vi) through (xi).

(2) Previous (*i.e.*, superseded) versions of the performance evaluation plan as required in §63.8(d)(3).

(3) Requests for alternatives to the relative accuracy test for CEMS or CPMS as required in §63.8(f)(6)(i), if applicable.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must keep the records of your daily fuel usage monitors.

(d) You must keep the records required in Table 6 of this subpart to show continuous compliance with each emission or operating limitation that applies to you.

(e) You must keep records of the maintenance conducted on the stationary RICE in order to demonstrate that you operated and maintained the stationary RICE and after-treatment control device (if any) according to your own maintenance plan if you own or operate any of the following stationary RICE;

(1) An existing stationary RICE with a site rating of less than 100 brake HP located at a major source of HAP emissions.

(2) An existing stationary emergency RICE.

(3) An existing stationary RICE located at an area source of HAP emissions subject to management practices as shown in Table 2d to this subpart.

(f) If you own or operate any of the stationary RICE in paragraphs (f)(1) through (2) of this section, you must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engine is used for the purposes specified in §63.6640(f)(2)(ii) or (iii) or §63.6640(f)(4)(ii), the owner or operator must keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes.

(1) An existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions that does not meet the standards applicable to non-emergency engines.

(2) An existing emergency stationary RICE located at an area source of HAP emissions that does not meet the standards applicable to non-emergency engines.

[69 FR 33506, June 15, 2004, as amended at 75 FR 9678, Mar. 3, 2010; 75 FR 51592, Aug. 20, 2010; 78 FR 6706, Jan. 30, 2013]

Back to Top

**§63.6660 In what form and how long must I keep my records?**

~~(a) Your records must be in a form suitable and readily available for expeditious review according to §63.10(b)(1).~~

~~(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.~~

~~(c) You must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1).~~

[69 FR 33506, June 15, 2004, as amended at 75 FR 9678, Mar. 3, 2010]

Back to Top

## OTHER REQUIREMENTS AND INFORMATION

Back to Top

### §63.6665 What parts of the General Provisions apply to me?

~~Table 8 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you. If you own or operate a new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with any of the requirements of the General Provisions specified in Table 8: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing stationary RICE that combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, an existing emergency stationary RICE, or an existing limited use stationary RICE. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in the General Provisions specified in Table 8 except for the initial notification requirements: A new stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new emergency stationary RICE, or a new limited use stationary RICE.~~

[75 FR 9678, Mar. 3, 2010]

Back to Top

### §63.6670 Who implements and enforces this subpart?

(a) This subpart is implemented and enforced by the U.S. EPA, or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency (as well as the U.S. EPA) has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out whether this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are:

(1) Approval of alternatives to the non-opacity emission limitations and operating limitations in §63.6600 under §63.6(g).

(2) Approval of major alternatives to test methods under §63.7(e)(2)(ii) and (f) and as defined in §63.90.

(3) Approval of major alternatives to monitoring under §63.8(f) and as defined in §63.90.

(4) Approval of major alternatives to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

(5) Approval of a performance test which was conducted prior to the effective date of the rule, as specified in §63.6610(b).

Back to Top

**§63.6675 What definitions apply to this subpart?**

~~Terms used in this subpart are defined in the Clean Air Act (CAA); in 40 CFR 63.2, the General Provisions of this part; and in this section as follows:~~

~~*Alaska Railbelt Grid* means the service areas of the six regulated public utilities that extend from Fairbanks to Anchorage and the Kenai Peninsula. These utilities are Golden Valley Electric Association; Chugach Electric Association; Matanuska Electric Association; Homer Electric Association; Anchorage Municipal Light & Power; and the City of Seward Electric System.~~

*Area source* means any stationary source of HAP that is not a major source as defined in part 63.

~~*Associated equipment* as used in this subpart and as referred to in section 112(n)(4) of the CAA, means equipment associated with an oil or natural gas exploration or production well, and includes all equipment from the well bore to the point of custody transfer, except glycol dehydration units, storage vessels with potential for flash emissions, combustion turbines, and stationary RICE.~~

~~*Backup power for renewable energy* means an engine that provides backup power to a facility that generates electricity from renewable energy resources, as that term is defined in Alaska Statute 42.45.045(l)(5) (incorporated by reference, see §63.14).~~

~~*Black start engine* means an engine whose only purpose is to start up a combustion turbine.~~

*CAA* means the Clean Air Act (42 U.S.C. 7401 *et seq.,* as amended by Public Law 101-549, 104 Stat. 2399).

~~*Commercial emergency stationary RICE* means an emergency stationary RICE used in commercial establishments such as office buildings, hotels, stores, telecommunications facilities, restaurants, financial institutions such as banks, doctor's offices, and sports and performing arts facilities.~~

*Compression ignition* means relating to a type of stationary internal combustion engine that is not a spark ignition engine.

~~*Custody transfer* means the transfer of hydrocarbon liquids or natural gas: After processing and/or treatment in the producing operations, or from storage vessels or automatic transfer facilities or other such equipment, including product loading racks, to pipelines or any other forms of transportation. For the purposes of this subpart, the point at which such liquids or natural gas enters a natural gas processing plant is a point of custody transfer.~~

*Deviation* means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emission limitation or operating limitation;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

~~(3) Fails to meet any emission limitation or operating limitation in this subpart during malfunction, regardless or whether or not such failure is permitted by this subpart.~~

(4) Fails to satisfy the general duty to minimize emissions established by §63.6(e)(1)(i).

*Diesel engine* means any stationary RICE in which a high boiling point liquid fuel injected into the combustion chamber ignites when the air charge has been compressed to a temperature sufficiently high for auto-ignition. This process is also known as compression ignition.

*Diesel fuel* means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is fuel oil number 2. Diesel fuel also includes any non-distillate fuel with comparable physical and chemical properties (*e.g.* biodiesel) that is suitable for use in compression ignition engines.

~~*Digester gas* means any gaseous by-product of wastewater treatment typically formed through the anaerobic decomposition of organic waste materials and composed principally of methane and $CO_2$.~~

~~*Dual-fuel engine* means any stationary RICE in which a liquid fuel (typically diesel fuel) is used for compression ignition and gaseous fuel (typically natural gas) is used as the primary fuel.~~

*Emergency stationary RICE* means any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency stationary RICE must comply with the requirements specified in §63.6640(f) in order to be considered emergency stationary RICE. If the engine does not comply with the requirements specified in §63.6640(f), then it is not considered to be an emergency stationary RICE under this subpart.

(1) The stationary RICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary RICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, ~~or stationary RICE used to pump water in the case of fire or flood, etc.~~

~~(2) The stationary RICE is operated under limited circumstances for situations not included in paragraph (1) of this definition, as specified in §63.6640(f).~~

~~(3) The stationary RICE operates as part of a financial arrangement with another entity in situations not included in paragraph (1) of this definition only as allowed in §63.6640(f)(2)(ii) or (iii) and §63.6640(f)(4)(i) or (ii).~~

*Engine startup* means the time from initial start until applied load and engine and associated equipment reaches steady state or normal operation. ~~For stationary engine with catalytic controls, engine startup means the time from initial start until applied load and engine and associated equipment, including the catalyst, reaches steady state or normal operation.~~

*Four-stroke engine* means any type of engine which completes the power cycle in two crankshaft revolutions, with intake and compression strokes in the first revolution and power and exhaust strokes in the second revolution.

~~*Gaseous fuel* means a material used for combustion which is in the gaseous state at standard atmospheric temperature and pressure conditions.~~

~~*Gasoline* means any fuel sold in any State for use in motor vehicles and motor vehicle engines, or nonroad or stationary engines, and commonly or commercially known or sold as gasoline.~~

*Glycol dehydration unit* means a device in which a liquid glycol (including, but not limited to, ethylene glycol, diethylene glycol, or triethylene glycol) absorbent directly contacts a natural gas stream and absorbs water in a contact tower or absorption column (absorber). The glycol contacts and absorbs water vapor and other gas stream constituents from the natural gas and becomes "rich" glycol. This glycol is then regenerated in the glycol dehydration unit reboiler. The "lean" glycol is then recycled.

*Hazardous air pollutants (HAP)* means any air pollutants listed in or pursuant to section 112(b) of the CAA.

*Institutional emergency stationary RICE* means an emergency stationary RICE used in institutional establishments such as medical centers, nursing homes, research centers, institutions of higher education, correctional facilities, elementary and secondary schools, libraries, religious establishments, police stations, and fire stations.

*ISO standard day conditions* means 288 degrees Kelvin (15 degrees Celsius), 60 percent relative humidity and 101.3 kilopascals pressure.

*Landfill gas* means a gaseous by-product of the land application of municipal refuse typically formed through the anaerobic decomposition of waste materials and composed principally of methane and $CO_2$.

*Lean burn engine* means any two-stroke or four-stroke spark ignited engine that does not meet the definition of a rich burn engine.

*Limited use stationary RICE* means any stationary RICE that operates less than 100 hours per year.

*Liquefied petroleum gas* means any liquefied hydrocarbon gas obtained as a by-product in petroleum refining of natural gas production.

*Liquid fuel* means any fuel in liquid form at standard temperature and pressure, including but not limited to diesel, residual/crude oil, kerosene/naphtha (jet fuel), and gasoline.

*Major Source,* as used in this subpart, shall have the same meaning as in §63.2, except that:

(1) Emissions from any oil or gas exploration or production well (with its associated equipment (as defined in this section)) and emissions from any pipeline compressor station or pump station shall not be aggregated with emissions from other similar units, to determine whether such emission points or stations are major sources, even when emission points are in a contiguous area or under common control;

(2) For oil and gas production facilities, emissions from processes, operations, or equipment that are not part of the same oil and gas production facility, as defined in §63.1271 of subpart HHH of this part, shall not be aggregated;

(3) For production field facilities, only HAP emissions from glycol dehydration units, storage vessel with the potential for flash emissions, combustion turbines and reciprocating internal combustion engines shall be aggregated for a major source determination; and

(4) Emissions from processes, operations, and equipment that are not part of the same natural gas transmission and storage facility, as defined in §63.1271 of subpart HHH of this part, shall not be aggregated.

*Malfunction* means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

*Natural gas* means a naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in geologic formations beneath the Earth's surface, of which the principal constituent is methane. Natural gas may be field or pipeline quality.

*Non-selective catalytic reduction (NSCR)* means an add-on catalytic nitrogen oxides ($NO_x$) control device for rich burn engines that, in a two-step reaction, promotes the conversion of excess oxygen, $NO_x$, CO, and volatile organic compounds (VOC) into $CO_2$, nitrogen, and water.

*Oil and gas production facility* as used in this subpart means any grouping of equipment where hydrocarbon liquids are processed, upgraded (*i.e.,* remove impurities or other constituents to meet contract specifications), or stored prior to the point of custody transfer; or where natural gas is processed, upgraded, or stored prior to entering the natural gas transmission and storage source category. For purposes of a major source determination, facility (including a building, structure, or installation) means oil and natural gas production and processing equipment that is located within the boundaries of an individual surface site as defined in this section. Equipment that is part of a facility will typically be located within close proximity to other equipment located at the same facility. Pieces of production equipment or groupings of equipment located on different oil and gas leases, mineral fee tracts, lease tracts, subsurface or surface unit areas, surface fee tracts, surface lease tracts, or separate surface sites, whether or not connected by a road, waterway, power line or pipeline, shall not be considered part of the same facility. Examples of facilities in the oil and natural gas production source category include, but are not limited to, well sites, satellite tank batteries, central tank batteries, a compressor station that transports natural gas to a natural gas processing plant, and natural gas processing plants.

*Oxidation catalyst* means an add-on catalytic control device that controls CO and VOC by oxidation.

*Peaking unit or engine* means any standby engine intended for use during periods of high demand that are not emergencies.

*Percent load* means the fractional power of an engine compared to its maximum manufacturer's design capacity at engine site conditions. Percent load may range between 0 percent to above 100 percent.

*Potential to emit* means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the stationary source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. For oil and natural gas production facilities subject to subpart HH of this part, the potential to emit provisions in §63.760(a) may be used. For natural gas transmission and storage facilities subject to subpart HHH of this part, the maximum annual facility gas throughput for storage facilities may be determined according to §63.1270(a)(1) and the maximum annual throughput for transmission facilities may be determined according to §63.1270(a)(2).

*Production field facility* means those oil and gas production facilities located prior to the point of custody transfer.

*Production well* means any hole drilled in the earth from which crude oil, condensate, or field natural gas is extracted.

*Propane* means a colorless gas derived from petroleum and natural gas, with the molecular structure $C_3H_8$.

*Remote stationary RICE* means stationary RICE meeting any of the following criteria:

(1) Stationary RICE located in an offshore area that is beyond the line of ordinary low water along that portion of the coast of the United States that is in direct contact with the open seas and beyond the line marking the seaward limit of inland waters.

~~(2) Stationary RICE located on a pipeline segment that meets both of the criteria in paragraphs (2)(i) and (ii) of this definition.~~

~~(i) A pipeline segment with 10 or fewer buildings intended for human occupancy and no buildings with four or more stories within 220 yards (200 meters) on either side of the centerline of any continuous 1-mile (1.6 kilometers) length of pipeline. Each separate dwelling unit in a multiple dwelling unit building is counted as a separate building intended for human occupancy.~~

~~(ii) The pipeline segment does not lie within 100 yards (91 meters) of either a building or a small, well-defined outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12-month period. The days and weeks need not be consecutive. The building or area is considered occupied for a full day if it is occupied for any portion of the day.~~

~~(iii) For purposes of this paragraph (2), the term pipeline segment means all parts of those physical facilities through which gas moves in transportation, including but not limited to pipe, valves, and other appurtenance attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies. Stationary RICE located within 50 yards (46 meters) of the pipeline segment providing power for equipment on a pipeline segment are part of the pipeline segment. Transportation of gas means the gathering, transmission, or distribution of gas by pipeline, or the storage of gas. A building is intended for human occupancy if its primary use is for a purpose involving the presence of humans.~~

~~(3) Stationary RICE that are not located on gas pipelines and that have 5 or fewer buildings intended for human occupancy and no buildings with four or more stories within a 0.25 mile radius around the engine. A building is intended for human occupancy if its primary use is for a purpose involving the presence of humans.~~

~~*Residential emergency stationary RICE* means an emergency stationary RICE used in residential establishments such as homes or apartment buildings.~~

*Responsible official* means responsible official as defined in 40 CFR 70.2.

~~*Rich burn engine* means any four-stroke spark ignited engine where the manufacturer's recommended operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is less than or equal to 1.1. Engines originally manufactured as rich burn engines, but modified prior to December 19, 2002 with passive emission control technology for $NO_x$ (such as pre-combustion chambers) will be considered lean burn engines. Also, existing engines where there are no manufacturer's recommendations regarding air/fuel ratio will be considered a rich burn engine if the excess oxygen content of the exhaust at full load conditions is less than or equal to 2 percent.~~

*Site-rated HP* means the maximum manufacturer's design capacity at engine site conditions.

~~*Spark ignition* means relating to either: A gasoline-fueled engine; or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for CI and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.~~

*Stationary reciprocating internal combustion engine (RICE)* means any reciprocating internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

~~*Stationary RICE test cell/stand* means an engine test cell/stand, as defined in subpart PPPPP of this part, that tests stationary RICE.~~

*Stoichiometric* means the theoretical air-to-fuel ratio required for complete combustion.

*Storage vessel with the potential for flash emissions* means any storage vessel that contains a hydrocarbon liquid with a stock tank gas-to-oil ratio equal to or greater than 0.31 cubic meters per liter and an American Petroleum Institute gravity equal to or greater than 40 degrees and an actual annual average hydrocarbon liquid throughput equal to or greater than 79,500 liters per day. Flash emissions occur when dissolved hydrocarbons in the fluid evolve from solution when the fluid pressure is reduced.

*Subpart* means 40 CFR part 63, subpart ZZZZ.

*Surface site* means any combination of one or more graded pad sites, gravel pad sites, foundations, platforms, or the immediate physical location upon which equipment is physically affixed.

*Two-stroke engine* means a type of engine which completes the power cycle in single crankshaft revolution by combining the intake and compression operations into one stroke and the power and exhaust operations into a second stroke. This system requires auxiliary scavenging and inherently runs lean of stoichiometric.

[69 FR 33506, June 15, 2004, as amended at 71 FR 20467, Apr. 20, 2006; 73 FR 3607, Jan. 18, 2008; 75 FR 9679, Mar. 3, 2010; 75 FR 51592, Aug. 20, 2010; 76 FR 12867, Mar. 9, 2011; 78 FR 6706, Jan. 30, 2013]

Back to Top

**Table 1a to Subpart ZZZZ of Part 63—Emission Limitations for Existing, New, and Reconstructed Spark Ignition, 4SRB Stationary RICE >500 HP Located at a Major Source of HAP Emissions**

As stated in §§63.6600 and 63.6640, you must comply with the following emission limitations at 100 percent load plus or minus 10 percent for existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions:

| For each . . . | You must meet the following emission limitation, except during periods of startup . . . | During periods of startup you must . . . |
|---|---|---|
| 1. 4SRB stationary RICE | a. Reduce formaldehyde emissions by 76 percent or more. If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004, you may reduce formaldehyde emissions by 75 percent or more until June 15, 2007 or | Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.[1] |
| — | b. Limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent $O_2$ | |

[1] Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

[75 FR 9679, Mar. 3, 2010, as amended at 75 FR 51592, Aug. 20, 2010]

Back to Top

**Table 1b to Subpart ZZZZ of Part 63—Operating Limitations for Existing, New, and Reconstructed SI 4SRB Stationary RICE >500 HP Located at a Major Source of HAP Emissions**

As stated in §§63.6600, 63.6603, 63.6630 and 63.6640, you must comply with the following operating limitations for existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions:

| For each . . . | You must meet the following operating limitation, except during periods of startup . . . |
|---|---|
| 1. existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to reduce formaldehyde emissions by 76 percent or more (or by 75 percent or more, if applicable) and using NSCR; or<br>existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent $O_2$ and using NSCR; | a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load plus or minus 10 percent from the pressure drop across the catalyst measured during the initial performance test; and<br>b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 750 °F and less than or equal to 1250 °F.[1] |
| 2. existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to reduce formaldehyde emissions by 76 percent or more (or by 75 percent or more, if applicable) and not using NSCR; or | Comply with any operating limitations approved by the Administrator. |
| existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent $O_2$ and not using NSCR. | |

[1]Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.8(f) for a different temperature range.

[78 FR 6706, Jan. 30, 2013]

Back to Top

**Table 2a to Subpart ZZZZ of Part 63—Emission Limitations for New and Reconstructed 2SLB and Compression Ignition Stationary RICE >500 HP and New and Reconstructed 4SLB Stationary RICE ≥250 HP Located at a Major Source of HAP Emissions**

As stated in §§63.6600 and 63.6640, you must comply with the following emission limitations for new and reconstructed lean burn and new and reconstructed compression ignition stationary RICE at 100 percent load plus or minus 10 percent:

| For each . . . | You must meet the following emission limitation, except during periods of startup | During periods of startup you must . . . |
|---|---|---|

| | | |
|---|---|---|
| | . . . | |
| 1. 2SLB stationary RICE | a. Reduce CO emissions by 58 percent or more; or<br>b. Limit concentration of formaldehyde in the stationary RICE exhaust to 12 ppmvd or less at 15 percent $O_2$. If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004, you may limit concentration of formaldehyde to 17 ppmvd or less at 15 percent $O_2$ until June 15, 2007 | Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.[1] |
| 2. 4SLB stationary RICE | a. Reduce CO emissions by 93 percent or more; or | |
| — | b. Limit concentration of formaldehyde in the stationary RICE exhaust to 14 ppmvd or less at 15 percent $O_2$ | |
| 3. CI stationary RICE | a. Reduce CO emissions by 70 percent or more; or | |
| — | b. Limit concentration of formaldehyde in the stationary RICE exhaust to 580 ppbvd or less at 15 percent $O_2$ | |

[1] Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

[75 FR 9680, Mar. 3, 2010]

Back to Top

**Table 2b to Subpart ZZZZ of Part 63—Operating Limitations for New and Reconstructed 2SLB and CI Stationary RICE >500 HP Located at a Major Source of HAP Emissions, New and Reconstructed 4SLB Stationary RICE ≥250 HP Located at a Major Source of HAP Emissions, Existing CI Stationary RICE >500 HP**

As stated in §§63.6600, 63.6601, 63.6603, 63.6630, and 63.6640, you must comply with the following operating limitations for new and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions; new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions; and existing CI stationary RICE >500 HP:

| **For each . . .** | **You must meet the following operating limitation, except during periods of startup . . .** |
|---|---|
| 1. New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP | a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load plus or minus 10 percent from the |

| | |
|---|---|
| emissions complying with the requirement to reduce CO emissions and using an oxidation catalyst; and New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and using an oxidation catalyst. | pressure drop across the catalyst that was measured during the initial performance test; and<br>b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 450 °F and less than or equal to 1350 °F.[1] |
| 2. Existing CI stationary RICE >500 HP complying with the requirement to limit or reduce the concentration of CO in the stationary RICE exhaust and using an oxidation catalyst | a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water from the pressure drop across the catalyst that was measured during the initial performance test; and |
| — | b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 450 °F and less than or equal to 1350 °F.[1] |
| 3. New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to reduce CO emissions and not using an oxidation catalyst; and | Comply with any operating limitations approved by the Administrator. |
| New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and not using an oxidation catalyst; and | |
| existing CI stationary RICE >500 HP complying with the requirement to limit or reduce the concentration of CO in the stationary RICE exhaust and not using an oxidation catalyst. | |

[1] Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.8(f) for a different temperature range.

[78 FR 6707, Jan. 30, 2013]

Back to Top

**Table 2c to Subpart ZZZZ of Part 63—Requirements for Existing Compression Ignition Stationary RICE Located at a Major Source of HAP Emissions and Existing Spark Ignition Stationary RICE ≤500 HP Located at a Major Source of HAP Emissions**

As stated in §§63.6600, 63.6602, and 63.6640, you must comply with the following requirements for existing compression ignition stationary RICE located at a major source of HAP emissions and existing spark ignition stationary RICE ≤500 HP located at a major source of HAP emissions:

| For each . . . | You must meet the following requirement, except during periods of startup . . . | During periods of startup you must . . . |
|---|---|---|
| 1. Emergency stationary CI RICE and black start stationary CI RICE[1] | a. Change oil and filter every 500 hours of operation or annually, whichever comes first.[2]<br>b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary;<br>c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.[3] | Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.[3] |
| 2. Non-Emergency, non-black start stationary CI RICE <100 HP | a. Change oil and filter every 1,000 hours of operation or annually, whichever comes first.[2]<br>b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary;<br>c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.[3] | |
| 3. Non-Emergency, non-black start CI stationary RICE 100≤HP≤300 HP | Limit concentration of CO in the stationary RICE exhaust to 230 ppmvd or less at 15 percent $O_2$. | |
| 4. Non-Emergency, non-black start CI stationary RICE 300<HP≤500 | a. Limit concentration of CO in the stationary RICE exhaust to 49 ppmvd or less at 15 percent $O_2$; or<br>b. Reduce CO emissions by 70 percent or more. | |
| 5. Non-Emergency, non-black | a. Limit concentration of | |

| | | |
|---|---|---|
| start stationary CI RICE >500 HP | CO in the stationary RICE exhaust to 23 ppmvd or less at 15 percent $O_2$; or<br>b. Reduce CO emissions by 70 percent or more. | |
| 6. Emergency stationary SI RICE and black start stationary SI RICE.[1] | a. Change oil and filter every 500 hours of operation or annually, whichever comes first;[2]<br>b. Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary;<br>c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.[3] | |
| 7. Non-Emergency, non-black start stationary SI RICE <100 HP that are not 2SLB stationary RICE | a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[2]<br>b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; | |
| — | c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.[3] | |
| 8. Non-Emergency, non-black start 2SLB stationary SI RICE <100 HP | a. Change oil and filter every 4,320 hours of operation or annually, whichever comes first;[2]<br>b. Inspect spark plugs every 4,320 hours of operation or annually, whichever comes first, and replace as necessary; | |
| — | c. Inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first, and | |

| | | |
|---|---|---|
| | replace as necessary.[3] | |
| 9. Non-emergency, non-black start 2SLB stationary RICE 100≤HP≤500 | Limit concentration of CO in the stationary RICE exhaust to 225 ppmvd or less at 15 percent $O_2$. | |
| 10. Non-emergency, non-black start 4SLB stationary RICE 100≤HP≤500 | Limit concentration of CO in the stationary RICE exhaust to 47 ppmvd or less at 15 percent $O_2$. | |
| 11. Non-emergency, non-black start 4SRB stationary RICE 100≤HP≤500 | Limit concentration of formaldehyde in the stationary RICE exhaust to 10.3 ppmvd or less at 15 percent $O_2$. | |
| 12. Non-emergency, non-black start stationary RICE 100≤HP≤500 which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis | Limit concentration of CO in the stationary RICE exhaust to 177 ppmvd or less at 15 percent $O_2$. | |

[4]If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required in Table 2c of this subpart, or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under federal, state, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under federal, state, or local law has abated. The work practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under federal, state, or local law has abated. Sources must report any failure to perform the work practice on the schedule required and the federal, state or local law under which the risk was deemed unacceptable.

[2]Sources have the option to utilize an oil analysis program as described in §63.6625(i) or (j) in order to extend the specified oil change requirement in Table 2c of this subpart.

[3]Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

[78 FR 6708, Jan. 30, 2013, as amended at 78 FR 14457, Mar. 6, 2013]

Back to Top

**Table 2d to Subpart ZZZZ of Part 63—Requirements for Existing Stationary RICE Located at Area Sources of HAP Emissions**

As stated in §§63.6603 and 63.6640, you must comply with the following requirements for existing stationary RICE located at area sources of HAP emissions:

| For each . . . | You must meet the following requirement, except during periods | During periods of startup you must . . . |
|---|---|---|

| | **of startup . . .** | |
|---|---|---|
| ~~1. Non-Emergency, non-black start CI stationary RICE ≤300 HP~~ | ~~a. Change oil and filter every 1,000 hours of operation or annually, whichever comes first;~~[1] ~~b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary;~~ ~~c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.~~ | ~~Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.~~ |
| ~~2. Non-Emergency, non-black start CI stationary RICE 300<HP≤500~~ | ~~a. Limit concentration of CO in the stationary RICE exhaust to 49 ppmvd at 15 percent $O_2$; or~~ | |
| ~~—~~ | ~~b. Reduce CO emissions by 70 percent or more.~~ | |
| ~~3. Non-Emergency, non-black start CI stationary RICE >500 HP~~ | ~~a. Limit concentration of CO in the stationary RICE exhaust to 23 ppmvd at 15 percent $O_2$; or~~ | |
| ~~—~~ | ~~b. Reduce CO emissions by 70 percent or more.~~ | |
| ~~4. Emergency stationary CI RICE and black start stationary CI RICE.~~[2] | ~~a. Change oil and filter every 500 hours of operation or annually, whichever comes first;~~[1] | |
| ~~—~~ | ~~b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and~~ | |
| | c. ~~Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first,~~ | |

| | | |
|---|---|---|
| | and replace as necessary. | |
| 5. Emergency stationary SI RICE; black start stationary SI RICE; non-emergency, non-black start 4SLB stationary RICE >500 HP that operate 24 hours or less per calendar year; non-emergency, non-black start 4SRB stationary RICE >500 HP that operate 24 hours or less per calendar year.[2] | a. Change oil and filter every 500 hours of operation or annually, whichever comes first;[1]; b. Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary. | |
| 6. Non-emergency, non-black start 2SLB stationary RICE | a. Change oil and filter every 4,320 hours of operation or annually, whichever comes first;[1] | |
| — | b. Inspect spark plugs every 4,320 hours of operation or annually, whichever comes first, and replace as necessary; and | |
| — | c. Inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first, and replace as necessary. | |
| 7. Non-emergency, non-black start 4SLB stationary RICE ≤500 HP | a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[1] | |
| — | b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and | |
| — | c. Inspect all hoses and | |

| | | |
|---|---|---|
| | ~~belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.~~ | |
| ~~8. Non-emergency, non-black start 4SLB remote stationary RICE >500 HP~~ | ~~a. Change oil and filter every 2,160 hours of operation or annually, whichever comes first;~~[1] | |
| ~~—~~ | ~~b. Inspect spark plugs every 2,160 hours of operation or annually, whichever comes first, and replace as necessary; and~~ | |
| ~~—~~ | ~~c. Inspect all hoses and belts every 2,160 hours of operation or annually, whichever comes first, and replace as necessary.~~ | |
| ~~9. Non-emergency, non-black start 4SLB stationary RICE >500 HP that are not remote stationary RICE and that operate more than 24 hours per calendar year~~ | ~~Install an oxidation catalyst to reduce HAP emissions from the stationary RICE.~~ | |
| ~~10. Non-emergency, non-black start 4SRB stationary RICE ≤500 HP~~ | ~~a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;~~[1] | |
| ~~—~~ | ~~b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and~~ | |
| ~~—~~ | ~~c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.~~ | |
| ~~11. Non-emergency, non-black start 4SRB remote stationary RICE >500 HP~~ | ~~a. Change oil and filter every 2,160 hours of operation or annually, whichever comes first;~~[1] | |

| | | |
|---|---|---|
| — | b. Inspect spark plugs every 2,160 hours of operation or annually, whichever comes first, and replace as necessary; and | |
| — | c. Inspect all hoses and belts every 2,160 hours of operation or annually, whichever comes first, and replace as necessary. | |
| 12. Non-emergency, non-black start 4SRB stationary RICE >500 HP that are not remote stationary RICE and that operate more than 24 hours per calendar year | Install NSCR to reduce HAP emissions from the stationary RICE. | |
| 13. Non-emergency, non-black start stationary RICE which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis | a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[1] b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and | |
| — | c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary. | |

[1]Sources have the option to utilize an oil analysis program as described in §63.6625(i) or (j) in order to extend the specified oil change requirement in Table 2d of this subpart.

[2]If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in Table 2d of this subpart, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under federal, state, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under federal, state, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under federal, state, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the federal, state or local law under which the risk was deemed unacceptable.

[78 FR 6709, Jan. 30, 2013]

Back to Top

**Table 3 to Subpart ZZZZ of Part 63—Subsequent Performance Tests**

As stated in §§63.6615 and 63.6620, you must comply with the following subsequent performance test requirements:

| For each . . . | Complying with the requirement to . . . | You must . . . |
|---|---|---|
| 1. New or reconstructed 2SLB stationary RICE >500 HP located at major sources; new or reconstructed 4SLB stationary RICE ≥250 HP located at major sources; and new or reconstructed CI stationary RICE >500 HP located at major sources | Reduce CO emissions and not using a CEMS | Conduct subsequent performance tests semiannually.[1] |
| 2. 4SRB stationary RICE ≥5,000 HP located at major sources | Reduce formaldehyde emissions | Conduct subsequent performance tests semiannually.[1] |
| 3. Stationary RICE >500 HP located at major sources and new or reconstructed 4SLB stationary RICE 250≤HP≤500 located at major sources | Limit the concentration of formaldehyde in the stationary RICE exhaust | Conduct subsequent performance tests semiannually.[1] |
| 4. Existing non-emergency, non-black start CI stationary RICE >500 HP that are not limited use stationary RICE | Limit or reduce CO emissions and not using a CEMS | Conduct subsequent performance tests every 8,760 hours or 3 years, whichever comes first. |
| 5. Existing non-emergency, non-black start CI stationary RICE >500 HP that are limited use stationary RICE | Limit or reduce CO emissions and not using a CEMS | Conduct subsequent performance tests every 8,760 hours or 5 years, whichever comes first. |

[1] After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.

[78 FR 6711, Jan. 30, 2013]

Back to Top

**Table 4 to Subpart ZZZZ of Part 63—Requirements for Performance Tests**

As stated in §§63.6610, 63.6611, 63.6620, and 63.6640, you must comply with the following requirements for performance tests for stationary RICE:

| For each . . . | Complying with the | You must . . . | Using . . . | According to the following requirements |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| | **requirement to** | | | |
| 1. 2SLB, 4SLB, and CI stationary RICE | a. reduce CO emissions | i. Select the sampling port location and the number/location of traverse points at the inlet and outlet of the control device; and | | (a) For CO and $O_2$ measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A-1, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A-4. |
| — | | ii. Measure the $O_2$ at the inlet and outlet of the control device; and | (1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A-2, or ASTM Method D6522-00 (Reapproved 2005)[a] (heated probe not necessary) | (b) Measurements to determine $O_2$ must be made at the same time as the measurements for CO concentration. |
| — | | iii. Measure the CO at the inlet and the outlet of the control device | (1) ASTM D6522-00 (Reapproved 2005)[a] (heated probe not necessary) or Method 10 of 40 CFR part 60, appendix A-4 | (c) The CO concentration must be at 15 percent $O_2$, dry basis. |
| 2. 4SRB stationary RICE | a. reduce formaldehyde emissions | i. Select the sampling port location and the number/location of traverse points at the inlet and outlet of the | | (a) For formaldehyde, $O_2$, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and |

| | | | | |
|---|---|---|---|---|
| | | control device; and | | ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A. |
| — | | ii. Measure $O_2$ at the inlet and outlet of the control device; and | (1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A-2, or ASTM Method D6522-00 (Reapproved 2005)[a] (heated probe not necessary) | (a) Measurements to determine $O_2$ concentration must be made at the same time as the measurements for formaldehyde or THC concentration. |
| — | | iii. Measure moisture content at the inlet and outlet of the control device; and | (1) Method 4 of 40 CFR part 60, appendix A-3, or Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03[a] | (a) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde or THC concentration. |
| — | | iv. If demonstrating compliance with the formaldehyde percent reduction requirement, measure formaldehyde at the inlet and the outlet of the control device | (1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348-03[a], provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130 | (a) Formaldehyde concentration must be at 15 percent $O_2$, dry basis. Results of this test consist of the average of the three 1-hour or longer runs. |

| | | | | |
|---|---|---|---|---|
| — | | v. If demonstrating compliance with the THC percent reduction requirement, measure THC at the inlet and the outlet of the control device | (1) Method 25A, reported as propane, of 40 CFR part 60, appendix A-7 | (a) THC concentration must be at 15 percent $O_2$, dry basis. Results of this test consist of the average of the three 1-hour or longer runs. |
| 3. Stationary RICE | a. limit the concentra-tion of formalde-hyde or CO in the stationary RICE exhaust | i. Select the sampling port location and the number/location of traverse points at the exhaust of the stationary RICE; and | | (a) For formaldehyde, CO, $O_2$, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A. If using a control device, the sampling site must be located at the outlet of the control device. |
| — | | ii. Determine the $O_2$concentration of the stationary RICE exhaust at the sampling port location; and | (1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A-2, or ASTM Method D6522-00 (Reapproved 2005)[a] (heated probe not necessary) | (a) Measurements to determine $O_2$ concentration must be made at the same time and location as the measurements for formaldehyde or CO concentration. |
| — | | iii. Measure moisture | (1) Method 4 of 40 | (a) Measurements to |

| | | | | |
|---|---|---|---|---|
| | | content of the station-ary RICE exhaust at the sampling port location; and | CFR part 60, appendix A-3, or Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03[a] | determine moisture content must be made at the same time and location as the measurements for formaldehyde or CO concentration. |
| — | | iv. Measure formalde-hyde at the exhaust of the station-ary RICE; or | (1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348-03[a], provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130 | (a) Formaldehyde concentration must be at 15 percent $O_2$, dry basis. Results of this test consist of the average of the three 1-hour or longer runs. |
| — | | v. measure CO at the exhaust of the station-ary RICE | (1) Method 10 of 40 CFR part 60, appendix A-4, ASTM Method D6522-00 (2005)[ab], Method 320 of 40 CFR part 63, appendix A, or ASTM D6348-03[a] | (a) CO concentration must be at 15 percent $O_2$, dry basis. Results of this test consist of the average of the three 1-hour or longer runs. |

[a]You may also use Methods 3A and 10 as options to ASTM-D6522-00 (2005). You may obtain a copy of ASTM-D6522-00 (2005) from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

[b]You may obtain a copy of ASTM-D6348-03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

[79 FR 11290, Feb. 27, 2014]

Back to Top

**Table 5 to Subpart ZZZZ of Part 63—Initial Compliance With Emission Limitations, Operating Limitations, and Other Requirements**

As stated in §§63.6612, 63.6625 and 63.6630, you must initially comply with the emission and operating limitations as required by the following:

| For each . . . | Complying with the requirement to . . . | You have demonstrated initial compliance if . . . |
|---|---|---|
| 1. New or reconstructed non- | a. Reduce CO | i. The average reduction of emissions |

| | | |
|---|---|---|
| ~~emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP~~ | ~~emissions and using oxidation catalyst, and using a CPMS~~ | ~~of CO determined from the initial performance test achieves the required CO percent reduction; and~~<br>~~ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and~~<br>~~iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.~~ |
| ~~2. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP~~ | ~~a. Limit the concentration of CO, using oxidation catalyst, and using a CPMS~~ | ~~i. The average CO concentration determined from the initial performance test is less than or equal to the CO emission limitation; and~~ |
| ~~—~~ | ~~—~~ | ~~ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and~~ |
| ~~—~~ | ~~—~~ | ~~iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.~~ |
| ~~3. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP~~ | ~~a. Reduce CO emissions and not using oxidation catalyst~~ | ~~i. The average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction; and~~<br>~~ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and~~<br>~~iii. You have recorded the approved operating parameters (if any) during the initial performance test.~~ |
| ~~4. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP~~ | ~~a. Limit the concentration of CO, and not using oxidation catalyst~~ | ~~i. The average CO concentration determined from the initial performance test is less than or equal to the CO emission limitation; and~~<br>~~ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and~~ |
| | | ~~iii. You have recorded the approved~~ |

| | | |
|---|---|---|
| | | operating parameters (if any) during the initial performance test. |
| 5. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP | a. Reduce CO emissions, and using a CEMS | i. You have installed a CEMS to continuously monitor CO and either $O_2$ or $CO_2$ at both the inlet and outlet of the oxidation catalyst according to the requirements in §63.6625(a); and<br>ii. You have conducted a performance evaluation of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B; and |
| — | — | iii. The average reduction of CO calculated using §63.6620 equals or exceeds the required percent reduction. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average percent reduction achieved during the 4-hour period. |
| 6. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP | a. Limit the concentration of CO, and using a CEMS | i. You have installed a CEMS to continuously monitor CO and either $O_2$ or $CO_2$ at the outlet of the oxidation catalyst according to the requirements in §63.6625(a); and |
| — | — | ii. You have conducted a performance evaluation of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B; and |
| — | — | iii. The average concentration of CO calculated using §63.6620 is less than or equal to the CO emission limitation. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average concentration measured during the 4-hour period. |
| 7. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP | a. Reduce formaldehyde emissions and using NSCR | i. The average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction, or the average reduction of emissions of THC determined from the initial |

| | | |
|---|---|---|
| | | ~~performance test is equal to or greater than 30 percent; and~~ |
| — | — | ~~ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and~~ |
| — | — | ~~iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.~~ |
| ~~8. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP~~ | ~~a. Reduce formaldehyde emissions and not using NSCR~~ | ~~i. The average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction or the average reduction of emissions of THC determined from the initial performance test is equal to or greater than 30 percent; and~~ |
| — | — | ~~ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and~~ |
| — | — | ~~iii. You have recorded the approved operating parameters (if any) during the initial performance test.~~ |
| ~~9. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP, and existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP~~ | ~~a. Limit the concentration of formaldehyde in the stationary RICE exhaust and using oxidation catalyst or NSCR~~ | i. The average formaldehyde concentration, corrected to 15 percent $O_2$, dry basis, from the three test runs is less than or equal to the formaldehyde emission limitation; and<br>ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and |
| | | iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test. |
| ~~10. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located~~ | ~~a. Limit the concentration of formaldehyde in the stationary RICE exhaust and not using~~ | ~~i. The average formaldehyde concentration, corrected to 15 percent $O_2$, dry basis, from the three test runs is less than or equal to the formaldehyde emission limitation; and~~ |

| | | |
|---|---|---|
| ~~at a major source of HAP, and existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP~~ | ~~oxidation catalyst or NSCR~~ | ~~ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and~~ |
| | | ~~iii. You have recorded the approved operating parameters (if any) during the initial performance test.~~ |
| ~~11. Existing non-emergency stationary RICE 100≤HP≤500 located at a major source of HAP, and existing non-emergency stationary CI RICE 300<HP≤500 located at an area source of HAP~~ | ~~a. Reduce CO emissions~~ | ~~i. The average reduction of emissions of CO or formaldehyde, as applicable determined from the initial performance test is equal to or greater than the required CO or formaldehyde, as applicable, percent reduction.~~ |
| ~~12. Existing non-emergency stationary RICE 100≤HP≤500 located at a major source of HAP, and existing non-emergency stationary CI RICE 300<HP≤500 located at an area source of HAP~~ | ~~a. Limit the concentration of formaldehyde or CO in the stationary RICE exhaust~~ | ~~i. The average formaldehyde or CO concentration, as applicable, corrected to 15 percent $O_2$, dry basis, from the three test runs is less than or equal to the formaldehyde or CO emission limitation, as applicable.~~ |
| ~~13. Existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year~~ | ~~a. Install an oxidation catalyst~~ | ~~i. You have conducted an initial compliance demonstration as specified in §63.6630(e) to show that the average reduction of emissions of CO is 93 percent or more, or the average CO concentration is less than or equal to 47 ppmvd at 15 percent $O_2$;~~ |
| | ~~—~~ | ~~ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b), or you have installed equipment to automatically shut down the engine if the catalyst inlet temperature exceeds 1350 °F.~~ |
| ~~14. Existing non-emergency 4SRB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year~~ | ~~a. Install NSCR~~ | ~~i. You have conducted an initial compliance demonstration as specified in §63.6630(e) to show that the average reduction of emissions of CO is 75 percent or more, the average CO concentration is less than or equal to 270 ppmvd at 15 percent $O_2$, or the average reduction of emissions of THC is 30 percent or more;~~ |
| ~~—~~ | ~~—~~ | ~~ii. You have installed a CPMS to~~ |

| | | |
|---|---|---|
| | | ~~continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b), or you have installed equipment to automatically shut down the engine if the catalyst inlet temperature exceeds 1250 °F.~~ |

[78 FR 6712, Jan. 30, 2013]

Back to Top

**Table 6 to Subpart ZZZZ of Part 63—Continuous Compliance With Emission Limitations, and Other Requirements**

As stated in §63.6640, you must continuously comply with the emissions and operating limitations and work or management practices as required by the following:

| ~~For each . . .~~ | ~~Complying with the requirement to . . .~~ | ~~You must demonstrate continuous compliance by . . .~~ |
|---|---|---|
| ~~1. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, and new or reconstructed non-emergency CI stationary RICE >500 HP located at a major source of HAP~~ | ~~a. Reduce CO emissions and using an oxidation catalyst, and using a CPMS~~ | ~~i. Conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved[a]; and~~<br>~~ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and~~<br>~~iii. Reducing these data to 4-hour rolling averages; and~~ |
| — | — | ~~iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and~~ |
| — | — | ~~v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.~~ |
| ~~2. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, and new or reconstructed non-emergency CI stationary RICE >500~~ | ~~a. Reduce CO emissions and not using an oxidation catalyst, and using a CPMS~~ | ~~i. Conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved[a]; and~~<br>~~ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and~~<br>~~iii. Reducing these data to 4-hour~~ |

| | | |
|---|---|---|
| ~~HP located at a major source of HAP~~ | | ~~rolling averages; and~~ |
| — | — | ~~iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.~~ |
| ~~3. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, new or reconstructed non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP~~ | ~~a. Reduce CO emissions or limit the concentration of CO in the stationary RICE exhaust, and using a CEMS~~ | ~~i. Collecting the monitoring data according to §63.6625(a), reducing the measurements to 1-hour averages, calculating the percent reduction or concentration of CO emissions according to §63.6620; and~~<br>~~ii. Demonstrating that the catalyst achieves the required percent reduction of CO emissions over the 4-hour averaging period, or that the emission remain at or below the CO concentration limit; and~~ |
| — | — | ~~iii. Conducting an annual RATA of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B, as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.~~ |
| ~~4. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP~~ | ~~a. Reduce formaldehyde emissions and using NSCR~~ | ~~i. Collecting the catalyst inlet temperature data according to §63.6625(b); and~~ |
| — | — | ~~ii. Reducing these data to 4-hour rolling averages; and~~ |
| — | — | ~~iii. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and~~ |
| — | — | ~~iv. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.~~ |
| ~~5. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP~~ | ~~a. Reduce formaldehyde emissions and not using NSCR~~ | ~~i. Collecting the approved operating parameter (if any) data according to §63.6625(b); and~~ |

| | | |
|---|---|---|
| — | — | ii. Reducing these data to 4-hour rolling averages; and |
| — | — | iii. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test. |
| 6. Non-emergency 4SRB stationary RICE with a brake HP ≥5,000 located at a major source of HAP | a. Reduce formaldehyde emissions | Conducting semiannual performance tests for formaldehyde to demonstrate that the required formaldehyde percent reduction is achieved, or to demonstrate that the average reduction of emissions of THC determined from the performance test is equal to or greater than 30 percent.[a] |
| 7. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP | a. Limit the concentration of formaldehyde in the stationary RICE exhaust and using oxidation catalyst or NSCR | i. Conducting semiannual performance tests for formaldehyde to demonstrate that your emissions remain at or below the formaldehyde concentration limit[a]; and<br>ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and |
| — | — | iii. Reducing these data to 4-hour rolling averages; and |
| — | — | iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and |
| — | — | v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test. |
| 8. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP | a. Limit the concentration of formaldehyde in the stationary RICE exhaust and not using oxidation catalyst or NSCR | i. Conducting semiannual performance tests for formaldehyde to demonstrate that your emissions remain at or below the formaldehyde concentration limit[a]; and<br>ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and |
| — | — | iii. Reducing these data to 4-hour rolling averages; and |

| | | |
|---|---|---|
| — | — | iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test. |
| 9. Existing emergency and black start stationary RICE ≤500 HP located at a major source of HAP, existing non-emergency stationary RICE <100 HP located at a major source of HAP, existing emergency and black start stationary RICE located at an area source of HAP, existing non-emergency stationary CI RICE ≤300 HP located at an area source of HAP, existing non-emergency 2SLB stationary RICE located at an area source of HAP, existing non-emergency stationary SI RICE located at an area source of HAP which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, existing non-emergency 4SLB and 4SRB stationary RICE ≤500 HP located at an area source of HAP, existing non-emergency 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that operate 24 hours or less per calendar year, and existing non-emergency 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that are remote stationary RICE | a. Work or Management practices | i. Operating and maintaining the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions; or<br>ii. Develop and follow your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. |
| 10. Existing stationary CI RICE >500 HP that are not limited use stationary RICE | a. Reduce CO emissions, or limit the concentration of CO in the stationary RICE exhaust, and using oxidation catalyst | i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and |
| — | — | ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and |
| — | — | iii. Reducing these data to 4-hour |

| | | |
|---|---|---|
| | | ~~rolling averages; and~~ |
| — | — | ~~iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and~~ |
| — | — | ~~v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.~~ |
| ~~11. Existing stationary CI RICE >500 HP that are not limited use stationary RICE~~ | ~~a. Reduce CO emissions, or limit the concentration of CO in the stationary RICE exhaust, and not using oxidation catalyst~~ | ~~i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and~~ |
| — | — | ~~ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and~~ |
| — | — | ~~iii. Reducing these data to 4-hour rolling averages; and~~ |
| — | — | ~~iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.~~ |
| ~~12. Existing limited use CI stationary RICE >500 HP~~ | ~~a. Reduce CO emissions or limit the concentration of CO in the stationary RICE exhaust, and using an oxidation catalyst~~ | ~~i. Conducting performance tests every 8,760 hours or 5 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and~~ |
| — | — | ~~ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and~~ |
| — | — | ~~iii. Reducing these data to 4-hour rolling averages; and~~ |

| | | |
|---|---|---|
| — | — | iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and |
| — | — | v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test. |
| 13. Existing limited use CI stationary RICE >500 HP | a. Reduce CO emissions or limit the concentration of CO in the stationary RICE exhaust, and not using an oxidation catalyst | i. Conducting performance tests every 8,760 hours or 5 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and |
| — | — | ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and |
| — | — | iii. Reducing these data to 4-hour rolling averages; and |
| — | — | iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test. |
| 14. Existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year | a. Install an oxidation catalyst | i. Conducting annual compliance demonstrations as specified in §63.6640(c) to show that the average reduction of emissions of CO is 93 percent or more, or the average CO concentration is less than or equal to 47 ppmvd at 15 percent $O_2$; and either ii. Collecting the catalyst inlet temperature data according to §63.6625(b), reducing these data to 4-hour rolling averages; and maintaining the 4-hour rolling averages within the limitation of greater than 450 °F and less than or equal to 1350 °F for the catalyst inlet temperature; or iii. Immediately shutting down the engine if the catalyst inlet temperature |

| | | |
|---|---|---|
| | | exceeds 1350 °F. |
| 15. Existing non-emergency 4SRB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year | a. Install NSCR | i. Conducting annual compliance demonstrations as specified in §63.6640(c) to show that the average reduction of emissions of CO is 75 percent or more, the average CO concentration is less than or equal to 270 ppmvd at 15 percent $O_2$, or the average reduction of emissions of THC is 30 percent or more; and either ii. Collecting the catalyst inlet temperature data according to §63.6625(b), reducing these data to 4-hour rolling averages; and maintaining the 4-hour rolling averages within the limitation of greater than or equal to 750 °F and less than or equal to 1250 °F for the catalyst inlet temperature; or iii. Immediately shutting down the engine if the catalyst inlet temperature exceeds 1250 °F. |

[a]After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.

[78 FR 6715, Jan. 30, 2013]

Back to Top

**Table 7 to Subpart ZZZZ of Part 63—Requirements for Reports**

As stated in §63.6650, you must comply with the following requirements for reports:

| For each . . . | You must submit a . . . | The report must contain . . . | You must submit the report . . . |
|---|---|---|---|
| 1. Existing non-emergency, non-black start stationary RICE 100≤HP≤500 located at a major source of HAP; existing non-emergency, non-black start stationary CI RICE >500 HP located at a major source of HAP; existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP; existing non-emergency, | Compliance report | a. If there are no deviations from any emission limitations or operating limitations that apply to you, a statement that there were no deviations from the emission limitations or operating limitations during the reporting period. If there were no periods during which the CMS, including CEMS and CPMS, was out-of- | i. Semiannually according to the requirements in §63.6650(b)(1)-(5) for engines that are not limited use stationary RICE subject to numerical emission limitations; and ii. Annually according to the requirements in |

| | | | |
|---|---|---|---|
| non-black start stationary CI RICE >300 HP located at an area source of HAP; new or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP; and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP | | control, as specified in §63.8(c)(7), a statement that there were not periods during which the CMS was out-of-control during the reporting period; or | §63.6650(b)(6)-(9) for engines that are limited use stationary RICE subject to numerical emission limitations. |
| — | — | b. If you had a deviation from any emission limitation or operating limitation during the reporting period, the information in §63.6650(d). If there were periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), the information in §63.6650(e); or | i. Semiannually according to the requirements in §63.6650(b). |
| — | — | c. If you had a malfunction during the reporting period, the information in §63.6650(c)(4). | i. Semiannually according to the requirements in §63.6650(b). |
| 2. New or reconstructed non-emergency stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis | Report | a. The fuel flow rate of each fuel and the heating values that were used in your calculations, and you must demonstrate that the percentage of heat input provided by landfill gas or digester gas, is equivalent to 10 percent or more of the gross heat input on an annual basis; and | i. Annually, according to the requirements in §63.6650. |
| — | — | b. The operating limits provided in your federally enforceable permit, and any deviations from these limits; and | i. See item 2.a.i. |
| — | — | c. Any problems or errors suspected with the meters. | i. See item 2.a.i. |
| 3. Existing non-emergency, non-black start 4SLB and 4SRB stationary RICE >500 HP | Compliance report | a. The results of the annual compliance demonstration, if conducted during the reporting | i. Semiannually according to the requirements in |

| | | | |
|---|---|---|---|
| located at an area source of HAP that are not remote stationary RICE and that operate more than 24 hours per calendar year | | period. | §63.6650(b)(1)-(5). |
| 4. Emergency stationary RICE that operate or are contractually obligated to be available for more than 15 hours per year for the purposes specified in §63.6640(f)(2)(ii) and (iii) or that operate for the purposes specified in §63.6640(f)(4)(ii) | Report | a. The information in §63.6650(h)(1) | i. annually according to the requirements in §63.6650(h)(2)-(3). |

[78 FR 6719, Jan. 30, 2013]

Back to Top

**Table 8 to Subpart ZZZZ of Part 63—Applicability of General Provisions to Subpart ZZZZ.**

As stated in §63.6665, you must comply with the following applicable general provisions.

| General provisions citation | Subject of citation | Applies to subpart | Explanation |
|---|---|---|---|
| §63.1 | General applicability of the General Provisions | Yes. | |
| §63.2 | Definitions | Yes | Additional terms defined in §63.6675. |
| §63.3 | Units and abbreviations | Yes. | |
| §63.4 | Prohibited activities and circumvention | Yes. | |
| §63.5 | Construction and reconstruction | Yes. | |
| §63.6(a) | Applicability | Yes. | |
| §63.6(b)(1)-(4) | Compliance dates for new and reconstructed sources | Yes. | |
| §63.6(b)(5) | Notification | Yes. | |
| §63.6(b)(6) | [Reserved] | | |
| §63.6(b)(7) | Compliance dates for new and reconstructed area sources that become major sources | Yes. | |
| §63.6(c)(1)-(2) | Compliance dates for existing sources | Yes. | |

| | | | |
|---|---|---|---|
| §63.6(e)(3)-(4) | [Reserved] | | |
| §63.6(e)(5) | Compliance dates for existing area sources that become major sources | Yes. | |
| §63.6(d) | [Reserved] | | |
| §63.6(e) | Operation and maintenance | No. | |
| §63.6(f)(1) | Applicability of standards | No. | |
| §63.6(f)(2) | Methods for determining compliance | Yes. | |
| §63.6(f)(3) | Finding of compliance | Yes. | |
| §63.6(g)(1)-(3) | Use of alternate standard | Yes. | |
| §63.6(h) | Opacity and visible emission standards | No | Subpart ZZZZ does not contain opacity or visible emission standards. |
| §63.6(i) | Compliance extension procedures and criteria | Yes. | |
| §63.6(j) | Presidential compliance exemption | Yes. | |
| §63.7(a)(1)-(2) | Performance test dates | Yes | Subpart ZZZZ contains performance test dates at §§63.6610, 63.6611, and 63.6612. |
| §63.7(a)(3) | CAA section 114 authority | Yes. | |
| §63.7(b)(1) | Notification of performance test | Yes | Except that §63.7(b)(1) only applies as specified in §63.6645. |
| §63.7(b)(2) | Notification of rescheduling | Yes | Except that §63.7(b)(2) only applies as specified in §63.6645. |
| §63.7(c) | Quality assurance/test plan | Yes | Except that §63.7(c) only applies as specified in §63.6645. |
| §63.7(d) | Testing facilities | Yes. | |
| §63.7(e)(1) | Conditions for conducting performance tests | No. | Subpart ZZZZ specifies conditions for conducting performance tests at §63.6620. |
| §63.7(e)(2) | Conduct of performance tests and reduction of data | Yes | Subpart ZZZZ specifies test methods at §63.6620. |
| §63.7(e)(3) | Test run duration | Yes. | |

| | | | |
|---|---|---|---|
| §63.7(e)(4) | Administrator may require other testing under section 114 of the CAA | Yes. | |
| §63.7(f) | Alternative test method provisions | Yes. | |
| §63.7(g) | Performance test data analysis, recordkeeping, and reporting | Yes. | |
| §63.7(h) | Waiver of tests | Yes. | |
| §63.8(a)(1) | Applicability of monitoring requirements | Yes | Subpart ZZZZ contains specific requirements for monitoring at §63.6625. |
| §63.8(a)(2) | Performance specifications | Yes. | |
| §63.8(a)(3) | [Reserved] | | |
| §63.8(a)(4) | Monitoring for control devices | No. | |
| §63.8(b)(1) | Monitoring | Yes. | |
| §63.8(b)(2) -(3) | Multiple effluents and multiple monitoring systems | Yes. | |
| §63.8(c)(1) | Monitoring system operation and maintenance | Yes. | |
| §63.8(c)(1)(i) | Routine and predictable SSM | No | |
| §63.8(c)(1)(ii) | SSM not in Startup Shutdown Malfunction Plan | Yes. | |
| §63.8(c)(1)(iii) | Compliance with operation and maintenance requirements | No | |
| §63.8(c)(2) -(3) | Monitoring system installation | Yes. | |
| §63.8(c)(4) | Continuous monitoring system (CMS) requirements | Yes | Except that subpart ZZZZ does not require Continuous Opacity Monitoring System (COMS). |
| §63.8(c)(5) | COMS minimum procedures | No | Subpart ZZZZ does not require COMS. |
| §63.8(c)(6) -(8) | CMS requirements | Yes | Except that subpart ZZZZ does not require COMS. |
| §63.8(d) | CMS quality control | Yes. | |
| §63.8(e) | CMS performance evaluation | Yes | Except for §63.8(e)(5)(ii), which applies to COMS. |
| — | — | Except that §63.8(e) only applies as | |

| | | | |
|---|---|---|---|
| | | specified in §63.6645. | |
| §63.8(f)(1)-(5) | Alternative monitoring method | Yes | Except that §63.8(f)(4) only applies as specified in §63.6645. |
| §63.8(f)(6) | Alternative to relative accuracy test | Yes | Except that §63.8(f)(6) only applies as specified in §63.6645. |
| §63.8(g) | Data reduction | Yes | Except that provisions for COMS are not applicable. Averaging periods for demonstrating compliance are specified at §§63.6635 and 63.6640. |
| §63.9(a) | Applicability and State delegation of notification requirements | Yes. | |
| §63.9(b)(1)-(5) | Initial notifications | Yes | Except that §63.9(b)(3) is reserved. |
| — | — | Except that §63.9(b) only applies as specified in §63.6645. | |
| §63.9(c) | Request for compliance extension | Yes | Except that §63.9(c) only applies as specified in §63.6645. |
| §63.9(d) | Notification of special compliance requirements for new sources | Yes | Except that §63.9(d) only applies as specified in §63.6645. |
| §63.9(e) | Notification of performance test | Yes | Except that §63.9(e) only applies as specified in §63.6645. |
| §63.9(f) | Notification of visible emission (VE)/opacity test | No | Subpart ZZZZ does not contain opacity or VE standards. |
| §63.9(g)(1) | Notification of performance evaluation | Yes | Except that §63.9(g) only applies as specified in §63.6645. |
| §63.9(g)(2) | Notification of use of COMS data | No | Subpart ZZZZ does not contain opacity or VE standards. |
| §63.9(g)(3) | Notification that criterion for alternative to RATA is | Yes | If alternative is in use. |

| | | | |
|---|---|---|---|
| | exceeded | | |
| — | — | — Except that §63.9(g) only applies as specified in §63.6645. | |
| §63.9(h)(1)-(6) | Notification of compliance status | Yes | Except that notifications for sources using a CEMS are due 30 days after completion of performance evaluations. §63.9(h)(4) is reserved. |
| — | — | — | Except that §63.9(h) only applies as specified in §63.6645. |
| §63.9(i) | Adjustment of submittal deadlines | Yes. | |
| §63.9(j) | Change in previous information | Yes. | |
| §63.10(a) | Administrative provisions for recordkeeping/reporting | Yes. | |
| §63.10(b)(1) | Record retention | Yes | Except that the most recent 2 years of data do not have to be retained on site. |
| §63.10(b)(2)(i)-(v) | Records related to SSM | No. | |
| §63.10(b)(2)(vi)-(xi) | Records | Yes. | |
| §63.10(b)(2)(xii) | Record when under waiver | Yes. | |
| §63.10(b)(2)(xiii) | Records when using alternative to RATA | Yes | For CO standard if using RATA alternative. |
| §63.10(b)(2)(xiv) | Records of supporting documentation | Yes. | |
| §63.10(b)(3) | Records of applicability determination | Yes. | |
| §63.10(c) | Additional records for sources using CEMS | Yes | Except that §63.10(c)(2)-(4) and (9) are reserved. |
| §63.10(d)(1) | General reporting requirements | Yes. | |
| §63.10(d)(2) | Report of performance test results | Yes. | |
| §63.10(d)(3) | Reporting opacity or VE observations | No | Subpart ZZZZ does not contain opacity or VE standards. |

| | | | |
|---|---|---|---|
| §63.10(d)(4) | Progress reports | Yes. | |
| §63.10(d)(5) | Startup, shutdown, and malfunction reports | No. | |
| §63.10(e)(1) and (2)(i) | Additional CMS Reports | Yes. | |
| §63.10(e)(2)(ii) | COMS-related report | No | Subpart ZZZZ does not require COMS. |
| §63.10(e)(3) | Excess emission and parameter exceedances reports | Yes. | Except that §63.10(e)(3)(i) (C) is reserved. |
| §63.10(e)(4) | Reporting COMS data | No | Subpart ZZZZ does not require COMS. |
| §63.10(f) | Waiver for recordkeeping/reporting | Yes. | |
| §63.11 | Flares | No. | |
| §63.12 | State authority and delegations | Yes. | |
| §63.13 | Addresses | Yes. | |
| §63.14 | Incorporation by reference | Yes. | |
| §63.15 | Availability of information | Yes. | |

[75 FR 9688, Mar. 3, 2010, as amended at 78 FR 6720, Jan. 30, 2013]

Back to Top

**Appendix A to Subpart ZZZZ of Part 63—Protocol for Using an Electrochemical Analyzer to Determine Oxygen and Carbon Monoxide Concentrations From Certain Engines**

1.0 Scope and Application. What is this Protocol?

This protocol is a procedure for using portable electrochemical (EC) cells for measuring carbon monoxide (CO) and oxygen ($O_2$) concentrations in controlled and uncontrolled emissions from existing stationary 4-stroke lean burn and 4-stroke rich burn reciprocating internal combustion engines as specified in the applicable rule.

*1.1 Analytes. What does this protocol determine?*

This protocol measures the engine exhaust gas concentrations of carbon monoxide (CO) and oxygen ($O_2$).

| Analyte | CAS No. | Sensitivity |
|---|---|---|
| Carbon monoxide (CO) | 630-08-0 | Minimum detectable limit should be 2 percent of the nominal range or 1 ppm, whichever is less restrictive. |
| Oxygen ($O_2$) | *7782-44-7* | |

*1.2 Applicability. When is this protocol acceptable?*

This protocol is applicable to 40 CFR part 63, subpart ZZZZ. Because of inherent cross sensitivities of EC cells, you must not apply this protocol to other emissions sources without specific instruction to that effect.

*1.3 Data Quality Objectives. How good must my collected data be?*

Refer to Section 13 to verify and document acceptable analyzer performance.

*1.4 Range. What is the targeted analytical range for this protocol?*

The measurement system and EC cell design(s) conforming to this protocol will determine the analytical range for each gas component. The nominal ranges are defined by choosing up-scale calibration gas concentrations near the maximum anticipated flue gas concentrations for CO and $O_2$, or no more than twice the permitted CO level.

*1.5 Sensitivity. What minimum detectable limit will this protocol yield for a particular gas component?*

The minimum detectable limit depends on the nominal range and resolution of the specific EC cell used, and the signal to noise ratio of the measurement system. The minimum detectable limit should be 2 percent of the nominal range or 1 ppm, whichever is less restrictive.

## 2.0 Summary of Protocol

In this protocol, a gas sample is extracted from an engine exhaust system and then conveyed to a portable EC analyzer for measurement of CO and $O_2$ gas concentrations. This method provides measurement system performance specifications and sampling protocols to ensure reliable data. You may use additions to, or modifications of vendor supplied measurement systems (e.g., heated or unheated sample lines, thermocouples, flow meters, selective gas scrubbers, etc.) to meet the design specifications of this protocol. Do not make changes to the measurement system from the as-verified configuration (Section 3.12).

## 3.0 Definitions

*3.1 Measurement System.* The total equipment required for the measurement of CO and $O_2$ concentrations. The measurement system consists of the following major subsystems:

*3.1.1 Data Recorder.* A strip chart recorder, computer or digital recorder for logging measurement data from the analyzer output. You may record measurement data from the digital data display manually or electronically.

*3.1.2 Electrochemical (EC) Cell.* A device, similar to a fuel cell, used to sense the presence of a specific analyte and generate an electrical current output proportional to the analyte concentration.

*3.1.3 Interference Gas Scrubber.* A device used to remove or neutralize chemical compounds that may interfere with the selective operation of an EC cell.

*3.1.4 Moisture Removal System.* Any device used to reduce the concentration of moisture in the sample stream so as to protect the EC cells from the damaging effects of condensation and to minimize errors in measurements caused by the scrubbing of soluble gases.

*3.1.5 Sample Interface.* The portion of the system used for one or more of the following: sample acquisition; sample transport; sample conditioning or protection of the EC cell from any degrading effects of the engine exhaust effluent; removal of particulate matter and condensed moisture.

*3.2 Nominal Range.* The range of analyte concentrations over which each EC cell is operated (normally 25 percent to 150 percent of up-scale calibration gas value). Several nominal ranges can be used for any given cell so long as the calibration and repeatability checks for that range remain within specifications.

*3.3 Calibration Gas.* A vendor certified concentration of a specific analyte in an appropriate balance gas.

*3.4 Zero Calibration Error.* The analyte concentration output exhibited by the EC cell in response to zero-level calibration gas.

*3.5 Up-Scale Calibration Error.* The mean of the difference between the analyte concentration exhibited by the EC cell and the certified concentration of the up-scale calibration gas.

*3.6 Interference Check.* A procedure for quantifying analytical interference from components in the engine exhaust gas other than the targeted analytes.

*3.7 Repeatability Check.* A protocol for demonstrating that an EC cell operated over a given nominal analyte concentration range provides a stable and consistent response and is not significantly affected by repeated exposure to that gas.

*3.8 Sample Flow Rate.* The flow rate of the gas sample as it passes through the EC cell. In some situations, EC cells can experience drift with changes in flow rate. The flow rate must be monitored and documented during all phases of a sampling run.

*3.9 Sampling Run.* A timed three-phase event whereby an EC cell's response rises and plateaus in a sample conditioning phase, remains relatively constant during a measurement data phase, then declines during a refresh phase. The sample conditioning phase exposes the EC cell to the gas sample for a length of time sufficient to reach a constant response. The measurement data phase is the time interval during which gas sample measurements can be made that meet the acceptance criteria of this protocol. The refresh phase then purges the EC cells with CO-free air. The refresh phase replenishes requisite $O_2$ and moisture in the electrolyte reserve and provides a mechanism to de-gas or desorb any interference gas scrubbers or filters so as to enable a stable CO EC cell response. There are four primary types of sampling runs: pre- sampling calibrations; stack gas sampling; post-sampling calibration checks; and measurement system repeatability checks. Stack gas sampling runs can be chained together for extended evaluations, providing all other procedural specifications are met.

*3.10 Sampling Day.* A time not to exceed twelve hours from the time of the pre-sampling calibration to the post-sampling calibration check. During this time, stack gas sampling runs can be repeated without repeated recalibrations, providing all other sampling specifications have been met.

*3.11 Pre-Sampling Calibration/Post-Sampling Calibration Check.* The protocols executed at the beginning and end of each sampling day to bracket measurement readings with controlled performance checks.

*3.12 Performance-Established Configuration.* The EC cell and sampling system configuration that existed at the time that it initially met the performance requirements of this protocol.

## 4.0 Interferences.

When present in sufficient concentrations, NO and $NO_2$ are two gas species that have been reported to interfere with CO concentration measurements. In the likelihood of this occurrence, it is the protocol user's responsibility to employ and properly maintain an appropriate CO EC cell filter or scrubber for removal of these gases, as described in Section 6.2.12.

## 5.0 Safety. [Reserved]

## 6.0 Equipment and Supplies.

*6.1 What equipment do I need for the measurement system?*

The system must maintain the gas sample at conditions that will prevent moisture condensation in the sample transport lines, both before and as the sample gas contacts the EC cells. The essential components of the measurement system are described below.

*6.2 Measurement System Components.*

*6.2.1 Sample Probe.* A single extraction-point probe constructed of glass, stainless steel or other non-reactive material, and of length sufficient to reach any designated sampling point. The sample probe must be designed to prevent plugging due to condensation or particulate matter.

*6.2.2 Sample Line.* Non-reactive tubing to transport the effluent from the sample probe to the EC cell.

*6.2.3 Calibration Assembly (optional).* A three-way valve assembly or equivalent to introduce calibration gases at ambient pressure at the exit end of the sample probe during calibration checks. The assembly must be designed such that only stack gas or calibration gas flows in the sample line and all gases flow through any gas path filters.

*6.2.4 Particulate Filter (optional).* Filters before the inlet of the EC cell to prevent accumulation of particulate material in the measurement system and extend the useful life of the components. All filters must be fabricated of materials that are non-reactive to the gas mixtures being sampled.

*6.2.5 Sample Pump.* A leak-free pump to provide undiluted sample gas to the system at a flow rate sufficient to minimize the response time of the measurement system. If located upstream of the EC cells, the pump must be constructed of a material that is non-reactive to the gas mixtures being sampled.

*6.2.8 Sample Flow Rate Monitoring.* An adjustable rotameter or equivalent device used to adjust and maintain the sample flow rate through the analyzer as prescribed.

*6.2.9 Sample Gas Manifold (optional).* A manifold to divert a portion of the sample gas stream to the analyzer and the remainder to a by-pass discharge vent. The sample gas manifold may also include provisions for introducing calibration gases directly to the analyzer. The manifold must be constructed of a material that is non-reactive to the gas mixtures being sampled.

*6.2.10 EC cell.* A device containing one or more EC cells to determine the CO and $O_2$ concentrations in the sample gas stream. The EC cell(s) must meet the applicable performance specifications of Section 13 of this protocol.

*6.2.11 Data Recorder.* A strip chart recorder, computer or digital recorder to make a record of analyzer output data. The data recorder resolution (i.e., readability) must be no greater than 1 ppm for CO; 0.1 percent for $O_2$; and one degree (either °C or °F) for temperature. Alternatively, you may use a digital or analog meter having the same resolution to observe and manually record the analyzer responses.

*6.2.12 Interference Gas Filter or Scrubber.* A device to remove interfering compounds upstream of the CO EC cell. Specific interference gas filters or scrubbers used in the performance-established configuration of the analyzer must continue to be used. Such a filter or scrubber must have a means to determine when the removal agent is exhausted. Periodically replace or replenish it in accordance with the manufacturer's recommendations.

7.0 REAGENTS AND STANDARDS. WHAT CALIBRATION GASES ARE NEEDED?

*7.1 Calibration Gases.* CO calibration gases for the EC cell must be CO in nitrogen or CO in a mixture of nitrogen and $O_2$. Use CO calibration gases with labeled concentration values certified by the manufacturer to be within ±5 percent of the label value. Dry ambient air (20.9 percent $O_2$) is acceptable for calibration of the $O_2$ cell. If needed, any lower percentage $O_2$ calibration gas must be a mixture of $O_2$ in nitrogen.

~~*7.1.1 Up-Scale CO Calibration Gas Concentration.* Choose one or more up-scale gas concentrations such that the average of the stack gas measurements for each stack gas sampling run are between 25 and 150 percent of those concentrations. Alternatively, choose an up-scale gas that does not exceed twice the concentration of the applicable outlet standard. If a measured gas value exceeds 150 percent of the up-scale CO calibration gas value at any time during the stack gas sampling run, the run must be discarded and repeated.~~

~~*7.1.2 Up-Scale $O_2$ Calibration Gas Concentration.*~~

~~Select an $O_2$ gas concentration such that the difference between the gas concentration and the average stack gas measurement or reading for each sample run is less than 15 percent $O_2$. When the average exhaust gas $O_2$ readings are above 6 percent, you may use dry ambient air (20.9 percent $O_2$) for the up-scale $O_2$ calibration gas.~~

~~*7.1.3 Zero Gas.* Use an inert gas that contains less than 0.25 percent of the up-scale CO calibration gas concentration. You may use dry air that is free from ambient CO and other combustion gas products (e.g., $CO_2$).~~

## ~~8.0 Sample Collection and Analysis~~

~~*8.1 Selection of Sampling Sites.*~~

~~*8.1.1 Control Device Inlet.* Select a sampling site sufficiently downstream of the engine so that the combustion gases should be well mixed. Use a single sampling extraction point near the center of the duct (e.g., within the 10 percent centroidal area), unless instructed otherwise.~~

~~*8.1.2 Exhaust Gas Outlet.* Select a sampling site located at least two stack diameters downstream of any disturbance (e.g., turbocharger exhaust, crossover junction or recirculation take-off) and at least one-half stack diameter upstream of the gas discharge to the atmosphere. Use a single sampling extraction point near the center of the duct (e.g., within the 10 percent centroidal area), unless instructed otherwise.~~

~~*8.2 Stack Gas Collection and Analysis.* Prior to the first stack gas sampling run, conduct that the pre-sampling calibration in accordance with Section 10.1. Use Figure 1 to record all data. Zero the analyzer with zero gas. Confirm and record that the scrubber media color is correct and not exhausted. Then position the probe at the sampling point and begin the sampling run at the same flow rate used during the up-scale calibration. Record the start time. Record all EC cell output responses and the flow rate during the "sample conditioning phase" once per minute until constant readings are obtained. Then begin the "measurement data phase" and record readings every 15 seconds for at least two minutes (or eight readings), or as otherwise required to achieve two continuous minutes of data that meet the specification given in Section 13.1. Finally, perform the "refresh phase" by introducing dry air, free from CO and other combustion gases, until several minute-to-minute readings of consistent value have been obtained. For each run use the "measurement data phase" readings to calculate the average stack gas CO and $O_2$ concentrations.~~

~~*8.3 EC Cell Rate.* Maintain the EC cell sample flow rate so that it does not vary by more than ±10 percent throughout the pre-sampling calibration, stack gas sampling and post-sampling calibration check. Alternatively, the EC cell sample flow rate can be maintained within a tolerance range that does not affect the gas concentration readings by more than ±3 percent, as instructed by the EC cell manufacturer.~~

## ~~9.0 Quality Control (Reserved)~~

## ~~10.0 Calibration and Standardization~~

~~*10.1 Pre-Sampling Calibration.* Conduct the following protocol once for each nominal range to be used on each EC cell before performing a stack gas sampling run on each field sampling day. Repeat the calibration if you replace an EC cell before completing all of the sampling runs. There is no prescribed order for calibration of the EC cells; however, each cell must complete the measurement data phase during calibration. Assemble the measurement system by following the manufacturer's recommended protocols~~

~~including for preparing and preconditioning the EC cell. Assure the measurement system has no leaks and verify the gas scrubbing agent is not depleted. Use Figure 1 to record all data.~~

~~*10.1.1 Zero Calibration.* For both the $O_2$ and CO cells, introduce zero gas to the measurement system (e.g., at the calibration assembly) and record the concentration reading every minute until readings are constant for at least two consecutive minutes. Include the time and sample flow rate. Repeat the steps in this section at least once to verify the zero calibration for each component gas.~~

~~*10.1.2 Zero Calibration Tolerance.* For each zero gas introduction, the zero level output must be less than or equal to ±3 percent of the up-scale gas value or ±1 ppm, whichever is less restrictive, for the CO channel and less than or equal to ±0.3 percent $O_2$ for the $O_2$ channel.~~

~~*10.1.3 Up-Scale Calibration.* Individually introduce each calibration gas to the measurement system (e.g., at the calibration assembly) and record the start time. Record all EC cell output responses and the flow rate during this "sample conditioning phase" once per minute until readings are constant for at least two minutes. Then begin the "measurement data phase" and record readings every 15 seconds for a total of two minutes, or as otherwise required. Finally, perform the "refresh phase" by introducing dry air, free from CO and other combustion gases, until readings are constant for at least two consecutive minutes. Then repeat the steps in this section at least once to verify the calibration for each component gas. Introduce all gases to flow through the entire sample handling system (i.e., at the exit end of the sampling probe or the calibration assembly).~~

~~*10.1.4 Up-Scale Calibration Error.* The mean of the difference of the "measurement data phase" readings from the reported standard gas value must be less than or equal to ±5 percent or ±1 ppm for CO or ±0.5 percent $O_2$, whichever is less restrictive, respectively. The maximum allowable deviation from the mean measured value of any single "measurement data phase" reading must be less than or equal to ±2 percent or ±1 ppm for CO or ±0.5 percent $O_2$, whichever is less restrictive, respectively.~~

~~*10.2 Post-Sampling Calibration Check.* Conduct a stack gas post-sampling calibration check after the stack gas sampling run or set of runs and within 12 hours of the initial calibration. Conduct up-scale and zero calibration checks using the protocol in Section 10.1. Make no changes to the sampling system or EC cell calibration until all post-sampling calibration checks have been recorded. If either the zero or up-scale calibration error exceeds the respective specification in Sections 10.1.2 and 10.1.4 then all measurement data collected since the previous successful calibrations are invalid and re-calibration and re-sampling are required. If the sampling system is disassembled or the EC cell calibration is adjusted, repeat the calibration check before conducting the next analyzer sampling run.~~

## ~~11.0 Analytical Procedure~~

~~The analytical procedure is fully discussed in Section 8.~~

## ~~12.0 Calculations and Data Analysis~~

~~Determine the CO and $O_2$ concentrations for each stack gas sampling run by calculating the mean gas concentrations of the data recorded during the "measurement data phase".~~

## ~~13.0 Protocol Performance~~

~~Use the following protocols to verify consistent analyzer performance during each field sampling day.~~

~~*13.1 Measurement Data Phase Performance Check.* Calculate the mean of the readings from the "measurement data phase". The maximum allowable deviation from the mean for each of the individual readings is ±2 percent, or ±1 ppm, whichever is less restrictive. Record the mean value and maximum deviation for each gas monitored. Data must conform to Section 10.1.4. The EC cell flow rate must conform to the specification in Section 8.3.~~

*Example:* A measurement data phase is invalid if the maximum deviation of any single reading comprising that mean is greater than ±2 percent *or* ±1 ppm (the default criteria). For example, if the mean = 30 ppm, single readings of below 29 ppm and above 31 ppm are disallowed).

*13.2 Interference Check.* Before the initial use of the EC cell and interference gas scrubber in the field, and semi-annually thereafter, challenge the interference gas scrubber with NO and $NO_2$ gas standards that are generally recognized as representative of diesel-fueled engine NO and $NO_2$ emission values. Record the responses displayed by the CO EC cell and other pertinent data on Figure 1 or a similar form.

*13.2.1 Interference Response.* The combined NO and $NO_2$ interference response should be less than or equal to ±5 percent of the up-scale CO calibration gas concentration.

*13.3 Repeatability Check.* Conduct the following check once for each nominal range that is to be used on the CO EC cell within 5 days prior to each field sampling program. If a field sampling program lasts longer than 5 days, repeat this check every 5 days. Immediately repeat the check if the EC cell is replaced or if the EC cell is exposed to gas concentrations greater than 150 percent of the highest up-scale gas concentration.

*13.3.1 Repeatability Check Procedure.* Perform a complete EC cell sampling run (all three phases) by introducing the CO calibration gas to the measurement system and record the response. Follow Section 10.1.3. Use Figure 1 to record all data. Repeat the run three times for a total of four complete runs. During the four repeatability check runs, do not adjust the system except where necessary to achieve the correct calibration gas flow rate at the analyzer.

*13.3.2 Repeatability Check Calculations.* Determine the highest and lowest average "measurement data phase" CO concentrations from the four repeatability check runs and record the results on Figure 1 or a similar form. The absolute value of the difference between the maximum and minimum average values recorded must not vary more than ±3 percent or ±1 ppm of the up-scale gas value, whichever is less restrictive.

## 14.0 Pollution Prevention (Reserved)

## 15.0 Waste Management (Reserved)

## 16.0 Alternative Procedures (Reserved)

## 17.0 References

(1) "Development of an Electrochemical Cell Emission Analyzer Test Protocol", Topical Report, Phil Juneau, Emission Monitoring, Inc., July 1997.

(2) "Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Emissions from Natural Gas-Fired Engines, Boilers, and Process Heaters Using Portable Analyzers", EMC Conditional Test Protocol 30 (CTM-30), Gas Research Institute Protocol GRI-96/0008, Revision 7, October 13, 1997.

(3) "ICAC Test Protocol for Periodic Monitoring", EMC Conditional Test Protocol 34 (CTM-034), The Institute of Clean Air Companies, September 8, 1999.

(4) "Code of Federal Regulations", Protection of Environment, 40 CFR, Part 60, Appendix A, Methods 1-4; 10.

**Table 1: Appendix A—Sampling Run Data.**

| Facility_____ Engine I.D._____ Date_____ | | | | |
|---|---|---|---|---|
| Run Type: | ( ) | ( ) | ( ) | ( ) |
| (X) | Pre-Sample | Stack Gas | Post-Sample Cal. Check | Repeatability Check |

| | Calibration | | | Sample | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Run # | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | Time | Scrub. OK | Flow Rate |
| Gas | $O_2$ | CO | $O_2$ | CO | $O_2$ | CO | $O_2$ | CO | | | |
| Sample Cond. Phase | | | | | | | | | | | |
| 〃 | | | | | | | | | | | |
| 〃 | | | | | | | | | | | |
| 〃 | | | | | | | | | | | |
| 〃 | | | | | | | | | | | |
| Measurement Data Phase | | | | | | | | | | | |
| 〃 | | | | | | | | | | | |
| 〃 | | | | | | | | | | | |
| 〃 | | | | | | | | | | | |
| 〃 | | | | | | | | | | | |
| 〃 | | | | | | | | | | | |
| 〃 | | | | | | | | | | | |
| 〃 | | | | | | | | | | | |
| 〃 | | | | | | | | | | | |
| 〃 | | | | | | | | | | | |
| 〃 | | | | | | | | | | | |
| Mean | | | | | | | | | | | |
| Refresh Phase | | | | | | | | | | | |
| 〃 | | | | | | | | | | | |
| 〃 | | | | | | | | | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| " | | | | | | | | | | | |
| " | | | | | | | | | | | |

~~[78 FR 6721, Jan. 30, 2013]~~

***Following NESHAP does NOT apply. Non applicable sections are excluded.***

Title 40: Protection of Environment
PART 63—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES (CONTINUED)

# Subpart JJJJJJ—National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

## WHAT THIS SUBPART COVERS

Back to Top

### §63.11193 Am I subject to this subpart?

You are subject to this subpart if you own or operate an industrial, commercial, or institutional boiler as defined in §63.11237 that is located at, or is part of, an area source of hazardous air pollutants (HAP), as defined in §63.2, except as specified in §63.11195.

Back to Top

***The requirements from this subpart do not apply to SAMC because the facility is an area source that owns and operates boilers that meet the excluded definition below (i.e., §63.11195).***

### §63.11195 Are any boilers not subject to this subpart?

The types of boilers listed in paragraphs (a) through (k) of this section are not subject to this subpart and to any requirements in this subpart.

(a) Any boiler specifically listed as, or included in the definition of, an affected source in another standard(s) under this part.

(b) Any boiler specifically listed as an affected source in another standard(s) established under section 129 of the Clean Air Act.

(c) A boiler required to have a permit under section 3005 of the Solid Waste Disposal Act or covered by subpart EEE of this part (e.g., hazardous waste boilers), unless such units do not combust hazardous waste and combust comparable fuels.

(d) A boiler that is used specifically for research and development. This exemption does not include boilers that solely or primarily provide steam (or heat) to a process or for heating at a research and development facility. This exemption does not prohibit the use of the steam (or heat) generated from the boiler during research and development, however, the boiler must be concurrently and primarily engaged in research and development for the exemption to apply.

(e) A gas-fired boiler as defined in this subpart.

**Boilers at SAMC meet the definition of gas-fired boilers per §63.11237.**

### §63.11237 What definitions apply to this subpart?

*Boiler* means an enclosed device using controlled flame combustion in which water is heated to recover thermal energy in the form of steam and/or hot water. Controlled flame combustion refers to a steady-state, or near steady-

state, process wherein fuel and/or oxidizer feed rates are controlled. A device combusting solid waste, as defined in §241.3 of this chapter, is not a boiler unless the device is exempt from the definition of a solid waste incineration unit as provided in section 129(g)(1) of the Clean Air Act. Waste heat boilers, process heaters, and autoclaves are excluded from the definition of *Boiler.*

*Distillate oil* means fuel oils that contain 0.05 weight percent nitrogen or less and comply with the specifications for fuel oil numbers 1 and 2, as defined by the American Society of Testing and Materials in ASTM D396 (incorporated by reference, see §63.14) or diesel fuel oil numbers 1 and 2, as defined by the American Society for Testing and Materials in ASTM D975 (incorporated by reference, see §63.14), kerosene, and biodiesel as defined by the American Society of Testing and Materials in ASTM D6751-11b (incorporated by reference, see §63.14).

*Gas-fired boiler* includes any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year.

***SAMC boilers will have the ability to combust natural gas as the primary fuel and diesel fuel as backup. Diesel fuel will only be used in an emergency situation if the natural gas supply to SAMC is disrupted or curtailed. SAMC will limit periodic maintenance and testing of diesel fuel to less than 48 hours per calendar year per boiler. SAMC recommends a permit condition that monitors and records the hours of operation when using diesel fuel oil for maintenance and testing purposes. .***



## Instructions for Form FRA

**Item 4 & 5.** It is important that facilities review the most recent federal regulations when submitting their permit application to DEQ. Current federal regulations can be found at the following website: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?&c=ecfr&tpl=/ecfrbrowse/Title40/40tab_02.tpl.

**Item 6.** For each applicable subpart identified under items 4-5, conduct a complete regulatory analysis. The facility must follow the procedure given below or obtain permission from DEQ to provide the necessary information using an alternative procedure:

1. Retrieve a TEXT or PDF copy of the applicable federal regulation subpart(s) online at http://www.gpoaccess.gov/cfr/retrieve.html.
2. Copy and paste the regulation(s) into the DEQ air permit application.
3. Highlight or underline sections in the regulation(s) that are applicable to the source(s).
4. Under each section of the subpart, explain why the source is or is not subject to the section in addition to how the source will comply with the section. When providing the explanation use a different font than the regulation (i.e. ***bold, italic***) so that it is easy for the reader to determine the text provided by the applicant. An example NSPS regulatory analysis is attached. The applicant must provide all information needed to determine applicability. If

## APPENDIX D – PROCESSING FEE

# PTC Fee Calculation

**Instructions:**
**Fill in the following information and answer the following questions with a Y or N. Enter the emissions increases and decreases for each pollutant in the table.**

| | |
|---|---|
| **Company:** | **Saint Alphonsus Nampa** |
| **Address:** | **4402 E. Flamingo Ave.** |
| **City:** | **Nampa** |
| **State:** | **ID** |
| **Zip Code:** | **83687** |
| **Facility Contact:** | **Joe Kane** |
| **Title:** | **Director, Facility Servies** |
| **AIRS No.:** | **027-00159** |

**N** Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N

**Y** Did this permit require engineering analysis? Y/N

**N** Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

| Emissions Inventory | | | |
|---|---|---|---|
| Pollutant | Annual Emissions Increase (T/yr) | Annual Emissions Reduction (T/yr) | Annual Emissions Change (T/yr) |
| $NO_X$ | 20.1 | 0 | 20.1 |
| $SO_2$ | 0.3 | 0 | 0.3 |
| CO | 2.1 | 0 | 2.1 |
| PM10 | 7.5 | 0 | 7.5 |
| VOC | 3.9 | 0 | 3.9 |
| TAPS/HAPS | 1.5 | 0 | 1.5 |
| Total: | 35.4 | 0 | **35.4** |
| | | | |
| Fee Due | **$ 5,000.00** | | |