# ARD-2 FORM
# INFORMATION REQUIRED FOR PERMITS FOR BOILERS

Air Resources Division/Permitting and Environmental Health Bureau

**RSA/Rule**: RSA 125-C:12 and Env-A 1700

## I. FUEL BURNING EQUIPMENT INFORMATION – *Complete a separate form for each emission unit.*

**Emission Unit Description:** _____

### A. Boiler

Date Construction Commenced[1] Installation Date[1] _____ | Start-up Date[1] _____

Boiler Manufacturer _____ | Boiler Model Number _____

Boiler Serial Number[2] _____ | Maximum Gross Heat Input Rate _____ MMBtu/hr

Burner Manufacturer _____ | Burner Model Number _____

Burner Serial Number[2] _____

### B. Burner Type (check all that apply)

Attach manufacturer description, if available

**a. Solid Fuel:**

Type: _____
*(e.g. biomass, coal)*

- ☐ Cyclone
- ☐ Pulverized (☐ wet, ☐ dry)
- ☐ Spreader Stoker
- ☐ Overfeed Stoker
- ☐ Low NOx Burners
- ☐ Hand-Fired
- ☐ Fly Ash Re-Injection
- ☐ Equipped with Oxygen Trim
- ☐ Other (specify): _____

**b. Liquid Fuel:**

Type: _____
*(e.g. #2 Fuel Oil, biodiesel)*

- ☐ Pressure Gun
- ☐ Rotary Cup
- ☐ Steam Atomization
- ☐ Air Atomization
- ☐ Low NOx Burners
- ☐ Equipped with Oxygen Trim
- ☐ Other (specify): _____

**c. Gaseous Fuel:**

Type: _____
*(e.g. NG, LPG)*

- ☐ Low NOx Burners
- ☐ Equipped with Oxygen Trim
- ☐ Other (specify): _____

### C. Hours of Operation

Hours per day: _____ Days per year: _____

### D. Stack Information

Is emission unit equipped with multiple stacks? ☐ Yes ☐ No *(If yes, provide data for each stack)*
Are multiple units connected to this stack? ☐ Yes ☐ No
*(If yes, identify other emission units or devices on this stack: )* _____

| Stack # | Discharge Height Above Ground Level (ft) | Inside Diameter (ft) or Area ($ft^2$) at Stack Exit[3] | Exhaust Temperature (°F) | Exhaust Flow (acfm) | Stack Capped or Otherwise Restricted[4] (Yes-Type/No) | Exhaust Orientation[5] | Stack Monitor (Yes/No) and Description |
|---|---|---|---|---|---|---|---|
| *#5 (Ex)* | *65 ft (Example)* | *4 ft (Example)* | *70 °F (Example)* | *1500 acfm (Example)* | *Yes - Rain Cap (Example)* | *Vertical (Example)* | *Yes – CEM for PM (Example)* |
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## II. FUEL USAGE INFORMATION (List each fuel utilized by the emission unit)

| Fuel Type | Heat Value[6] | Units | Sulfur Content (%) | Moisture, Ash Content (%)[7] | Maximum Fuel Flow Rate | Units | Maximum Gross Heat Input Rate | Units |
|---|---|---|---|---|---|---|---|---|
| *#2 Fuel Oil (Example)* | *140,000 (Example)* | *Btu/gal (Example)* | *0.0015 (Example)* | *N/A (Example)* | *20 (Example)* | *gal/hr (Example)* | *2.74 (Example)* | *MMBtu/hr (Example)* |
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## III. UNCONTROLLED AIR POLLUTANT EMISSIONS (list emissions that result from the burning of each fuel utilized by the emission unit <u>prior</u> to add on controls – *use additional sheets if necessary*)

| Pollutant | Emission Factor | Units | Emission Factor Source[8] | Actual (lb/hr) | Potential (lb/hr) | Actual (tpy) | Potential (tpy) |
|---|---|---|---|---|---|---|---|
| TSP | | | | | | | |
| $PM_{10}$ | | | | | | | |
| $NO_x$ | | | | | | | |
| VOC | | | | | | | |
| CO | | | | | | | |
| $SO_2$ | | | | | | | |
| Other *(specify)* | | | | | | | |

| Provide an example of the calculations used to determine uncontrolled air pollutant emissions, if applicable: |
|---|
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## IV. NEW HAMPSHIRE REGULATED TOXIC AIR POLLUTANTS (RTAPs) – Env-A 1400

Does the emission unit burn a non-exempt fuel[9] and emit any of the RTAPs listed in Env-A 1400?
☐ Yes ☐ No
If **Yes**, attach your facility's most recent compliance demonstration.

## V. POLLUTION CONTROL EQUIPMENT

☐ **Not Applicable**

Note: If the emission unit utilizes more than one type of pollution control equipment, provide data for each type of equipment.

### A. Type of Equipment

| Type of Control Device | Manufacturer of Control Device | Model and Serial Number of Control Device (if known) | Pollutant(s) Controlled by Device |
|---|---|---|---|
| *Multicyclone (Example)* | *Viessmann Manufacturing (Example)* | *Viessmann Flue Gas Cyclone 240 L Serial #: N/A (Example)* | *TSP (Example)* |
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**For each control device, include an Air Pollution Control Equipment Monitoring Plan pursuant to Env-A 810**.

**B. Controlled Air Pollution Emissions** (list emissions that result from the burning of each fuel utilized by the emission unit after all add on controls – *use additional sheets if necessary*)

| Pollutant | Controlled Emission Factor | Units | Emission Factor Source[8] | Actual (lb/hr) | Potential (lb/hr) | Actual (tpy) | Potential (tpy) |
|---|---|---|---|---|---|---|---|
| TSP | | | | | | | |
| $PM_{10}$ | | | | | | | |
| $NO_x$ | | | | | | | |
| VOC | | | | | | | |
| CO | | | | | | | |
| $SO_2$ | | | | | | | |
| Other *(specify)* | | | | | | | |
| | | | | | | | |

| Provide an example of the calculations used to determine controlled air pollutant emissions, if applicable: |
|---|
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## ARD-2 BOILER FORM INFORMATION INSTRUCTIONS

1 If exact date is unknown for Date Construction Commenced, Installation Date or Start-up Date, you may use 01/01/year. If dates are not available at the time of application, please provide to the department upon installation. Date Construction Commenced refers to the date the owner or operator has entered into a contractual obligation to undertake and complete a continuous program of construction, reconstruction, or modification of the emission unit. Installation Date refers to the date the emission unit is installed at the facility. Start-Up Date refers to the date the emission unit is first operated at the facility.

2 If serial numbers are not available at the time of application, please provide to the department upon installation.

3 Examples of Inside Diameter or Area at Stack Exit: Diameter at discharge point of convergence cone, if applicable

4 Flapper valves and other devices which do not restrict the vertical exhaust flow while the emission unit is operating are not considered obstructions or restrictions.

5 Examples of Exhaust Orientation: Vertical, Horizontal, Downward
**Note:** for a stack to be considered vertical and unobstructed, there shall be no impediment to vertical flow, and the exhaust stack extends 2 feet higher than any roofline within 10 horizontal feet of the exhaust stack

6

| Liquid Fuels | Heat Value |
|---|---|
| Ultra-Low Sulfur Diesel (ULSD) | 137,000 Btu/gal |
| #2 Fuel Oil | 140,000 Btu/gal |
| Kerosene | 135,000 Btu/gal |
| Other – Liquid | Obtain from Fuel Supplier |

| Gaseous Fuels | Heat Value |
|---|---|
| Natural Gas | 1,020 Btu/cubic foot |
| Propane (LPG) | 94,000 Btu/gal |
| Gasoline | 130,000 Btu/gal |
| Other (Gaseous) | Obtain from Fuel Supplier |

7 Moisture content and Ash content needed for solid fuels only.

8 Emission factor sources may include:
- Continuous Emissions Monitor (CEM)
- Stack Test (Provide Date)
- Vendor Guaranteed Rates (Provide Documentation)
- AP-42 Emission Factors
- Material Balance (Provide Sample Calculation)
- Engineering Estimate

9 Fuels exempt from Env-A 1400 include:
- Virgin Petroleum Products (#2, #4, or #6 fuel oil, gasoline, kerosene, jet fuel, etc.)
- Coal
- Natural Gas
- Propane
- Biofuels – as defined in Env-A 1401.03(b)
- Biomass – as defined in Env-A 1401.03(c)