7858

G-000-104.246

PERMIT TO INSTALL APPLICATION FOR 100 MMBTU GAS/OIL FIRED BOILER; FEMP ID NO. 10-007 (OEPA) PREMISE NO. 1431110128B006

10/10/96

C:FCDP(PSI):96-0008
FDF HAMILTON COUNTY
12
PTI

Fernald Environmental

FERMCO
Restoration Management Corporation P. O. Box 538704 Cincinnati, Ohio 45253-8704 (513) 648-3000

October 10, 1996

Fernald Environmental Management Project
Letter No. C:FCDP(PSI):96-0008

Mr. Peter Sturdevant, Compliance Specialist
Air Quality Management
Hamilton County Department of Environmental Services
1632 Central Parkway
Cincinnati, Ohio 45210

Dear Mr. Sturdevant:

PERMIT TO INSTALL APPLICATION FOR A 100 MMBTU GAS/OIL FIRED BOILER; FEMP ID NO. 10-007 (OEPA) PREMISE NO. 1431110128B006

Enclosed is a Permit to Install application for a 100 MMbtu Natural Gas/Oil Fired Boiler identified as B006. This PTI application is for the use of fuel oil in the existing natural gas-fired boiler.

If you have any questions concerning this application, please contact Ervin Fisher of my staff at (513) 648-5293.

Sincerely,

Woodrow B. Jameson
Vice President
Facility Closure & Demolition Projects

WBJ:EF:mhv
Enclosure

c:

With Enclosure	Without Enclosure
R. M. Nichols, FERMCO/MS44	S. M. Beckman, FERMCO/MS65-2
M. W. Page, FERMCO/MS43	S. L. Blankenship, FERMCO/MS71-3
E. P. Skintik, DOE-FEMP/MS45	L. C. Goidell, FERMCO/MS52-3
AR Coordinator/MS78	W. J. Naber, FERMCO/MS60
File Record Storage Copy 108.6	P. B. Spotts, FERMCO/MS65-2
PSI Files	

OHIO ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO INSTALL

FOR OFFICE USE ONLY

PTI No. 7858

Date Received _____

Read all instructions carefully prior to filling out this application (See the line-by-line instructions on page 3). Please also be aware that it may take 2 to 6 months or more to obtain a final permit to install. Construction of a new source *cannot begin until a final permit to install is obtained.*

U. S. Department of Energy
1 Applicant Name

Fernald Environmental Management Project
2 Facility Name

7400 Willey Road
3 Facility Address (Street)

Fernald
4 City/Township

Hamilton — 45253-8704
5 County — 6 Zip Code

1431110128 B006
7 OEPA Air Facility ID# (10-digit)

4953
8 Facility Primary Standard Industrial Code

Lewis C. Goidell
9 Primary Facility Contact

(513) 648-4124
10 Contact Phone Number

P.O. Box 538704
11 Contact Mailing Address (Street)

MS52-3
12 Mail Drop/Attention (if applicable)

Crosby — OH
13 City/Township — 14 State

45030
15 Zip Code

This facility is located west of the former production area of the Department of Energy
16 Description of the Proposed Location of the Facility

Fernald Environmental Management Project (FEMP) and north of the AWWT Facility.

Boiler Unit B006
17 Name of new or modified source or facility

Steam for Space Heating and Process Usage
18 Product of new or modified source/facility

Under OAC 3745-31-04, these signatures shall constitute personal affirmation that all statements or assertions of fact made in the application are true and complete, comply fully with applicable state requirements, and shall subject the signatory to liability under applicable state laws forbidding false or misleading statements.

Date: _____
19 Authorized Signature (for facility)

Vice President Facilities Closure & Demolition Projects
20 Title

P.O. Box 538704, Cincinnati, OH 45253-8704
21 Address (Street, City/Township, State and Zip Code)

For Wastewater Treatment Plants complete the following.

Date: _____
22 Signature of General Contractor or Agent performing installation, if selected.

23 Company

24 Address (Street, City/Township, State and Zip Code)

Specific Emissions Unit Information Form

One copy of this form should be filled out for each air pollution emissions unit covered by this permit to install application. Instructions for this form can be found starting on page 15 of the permit to install application.

25. OEPA Emissions Unit ID (4 digit number): B006

26. Company ID for Emissions Unit: FEMP ID 10-007

27. Emissions Unit Activity Description: Gas/Oil Fired 100 MMBTU Boiler for steam generation.

28. Equipment Description: 100 MMBTU Gas/Oil Fired Boiler

29. Construction/Modification/Emissions Testing Schedule

	DATE
Equipment Ordered (month/year)- - - - - - - -	January 22, 1992
Commence Construction Date (month/year) - - -	January 24, 1992
Initial Startup Date (month/year) - - - - - -	February 2, 1992
Most Recent Modification Date (if applicable) (as defined in OAC rule 3745-31-01(j)):	TBD
Performance Testing - - - - - - - - - - - - - -	N/A

30. Emissions Information:

Complete the following table for each criteria air pollutant proposed to be emitted from the emissions unit at a rate greater than one ton/year (list each pollutant on a separate line), and for any pollutant for which an emissions limit has been established (per a state or federal regulation or Permit to Install) which limits air emissions of the pollutant to less than one ton/year.

Pollutant Name	Proposed Maximum Hourly Emission (lb/hr)	Proposed Maximum Yearly Emission (Tons/year)
Particulate (Gas)	1.37 lbs/hr	5.71 Tons/year
SO_2 (Gas)	0.06 lbs/hr	0.25 Tons/year
NO_x (Gas)	10.0 lbs/hr 759 MM cu ft	39.85 Tons/year
CO (Gas)	3.3 lbs/hr	14.6 Tons/year
VOC (Gas)	0.29 lbs/hr	1.25 Tons/year
Particulate (Oil)	1.43 lbs/hr	6.26 Tons/year
SO_2 (Oil)	30.4 lbs/hr	39.9 Tons/year
NOx (Oil)	14.3 lbs/hr	39.9 Tons/year
CO (Oil)	3.57 lbs/hr	15.64 Tons/year
VOC (Oil)	0.04 lbs/hr	0.18 Tons/year

(If additional pollutants need to be identified, copy this page and attach the additional pages. Check here __ if additional copies of this page are attached.)

31. Proposed Operating Schedule:

	Hours Per Day	Hours per Year
Average	24	8760
Maximum	24	8760

32. Add-on Control Equipment Information:

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Does this emissions unit employ add-on emissions control equipment? ☐ yes ✓ no
If your answer is yes, then fill out the table below. If your answer is no, then proceed to item # 33.
Note: Boiler utilizes a Todd Low NOx burner but no emission reductions are claimed.
Control Equipment Type Codes:

A. Fabric filter/Baghouse
B. Electrostatic Precipitator
C. Catalytic Incinerator
D. Thermal Incinerator
E. Flare
F. Wet Scrubber
G. Condenser
H. Carbon Adsorber
I. Concentrator
J. Cyclone/Multiclone
K. Settling Chamber
L. Other, describe _____

Item	Control Device #1	Control Device #2	Control Device #3
Type (See Above Codes)			
Configuration			
Manufacturer's Name			
Company ID			
Month/Year Installed			
Pollutant(s) Controlled			
Average Design Control Efficiency(%)			
Operating Control Efficiency(%)			
Inlet Gas Flow (acfm)			
Inlet Gas Temperature (°F)			
Maximum Controlled Emission Rate for Each Pollutant controlled (lb/hr, grain/dscf or ppmv)			

Supplemental control device information (see instructions)

Control Device #1_____

_____

Control Device #2_____

_____

Control Device #3_____

_____

33. Attach a Process or Activity Flow Diagram to this application for each emissions unit included in the application. Please see the instructions on page xx.

Process Flow Diagram attached.

34. Emissions egress point(s) information: (Provide the following information for each point at which emissions are released into the ambient air from the emissions unit list each and individual egress point on a separate line):

Egress point description codes:
A. vertical stack (unobstructed)
B. horizontal/downward stack
C. vertical stack (obstructed)
D. fugitive

Company ID for Egress Point	Description Code
EP-B006-01	C

35. Are you are applying, per OAC rule 3745-35-07, for federally enforceable limits as part of this permit issuance? ✓ yes ☐ no

This source has a federally enforceable limit on gas usage assigned by PTI 14-2635. The addition of Distillate Oil will require limitations to keep SO2 and NOx levels below the 40 tons limits. We request that these levels be set based on 39.9 tons of Sulfur Dioxide and Nitric Oxides emissions rather that fuel consumption.

36. Are you requesting any information included in this application for this emissions unit is being claimed as a trade secret per Ohio Revised Code (ORC) 3704.08?
☐ yes ✓ no

Additional Information

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The following additional information is required to be submitted with the application. This information should be submitted on either these forms or on separate pieces of paper and attached to the permit to install application form. This additional information is divided into four sections: General information which is required for all permit to install applications, information required for air pollution applications, information required for wastewater applications and information required for solid waste disposal facilities.

Additional Information Required for Air Pollution Applications

1. Will the proposed source/facility involve any of the following (Check all that Apply)?

   ✓ Air Discharge
   □ Wastewater Treatment Works
   □ Solid Waste Disposal Facility
   □ Hazardous Waste Disposal Facility

2. State the reason for the application. Is this a new installation, modification to an existing source/facility, reconstruction of an existing source/facility, or startup of a source/facility that has been permanently shutdown for _____ year?

   This is a new fuel usage (No. 2 fuel oil) for an existing source which has not been previously permitted.

3. Has a previous Ohio EPA application or plan submission been filed for this source/facility? If so, state the date and type of the application previously submitted.

   ✓ yes □ no Date: 02/24/92 Type: ✓ Air □ Solid Waste □ Wastewater □ Hazardous Waste

4. Will the proposed source/facility comply with all rules, laws, and regulations of Ohio EPA and U.S. EPA? ✓ yes □ no

5. Do you wish to request permit to install registration status via Ohio Administrative Code 3745-31-05(E)? □ yes ✓ no

6. Are the proposed sources required to comply with the following federal requirements? Note: Don't be afraid to call your Ohio EPA field office contact to ask them if your emissions units need to comply with these standards.

   ✓ yes □ no New Source Performance Standards (NSPS)

   New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources. If your emissions unit(s) are listed under one of these standards then answer yes.

   □ yes ✓ no National Emission Standards for Hazardous Air Pollutants (NESHAPS)

   National Emissions Standards for Hazardous Air Pollutants are listed under 40 CFR 61. If your emissions unit(s) are listed under one of these standards then answer yes.

   ✓ yes □ no Prevention of Significant Deterioration (PSD)

   These rules are found under 40 CFR 51.21.

   □ yes ✓ no Appendix "S" - Emission Offset Policy

   This policy can be found under "Appendix S to 40 CFR part 51 - Emissions Offset Interperative Ruling."

7. Will the proposed emissions units employ best available technology (BAT)? This is required under Ohio Administrative Code 3745-31-05(A)(3). The definition of best available technology can be found in Ohio Revised Code 3704.01(F).

✓ yes ☐ no

9. Will the proposed sources cause the significant degradation of air quality?

☐ yes ✓ no

10. Will the proposed sources interfere with the attainment and maintenance of the ambient air quality standards?

☐ yes ✓ no

11. Describe any emissions unit monitoring, emission monitoring, or control equipment monitoring devices to be installed by the applicant which are not already described in the attached Emissions Activity Form(s).

None

12. Will the proposed emissions unit(s) involve the use of asbestos, benzene, beryllium, mercury, or vinyl chloride?

☐ yes	✓ no	Asbestos
☐ yes	✓ no	Benzene
☐ yes	✓ no	Beryllium
☐ yes	✓ no	Mercury
☐ yes	✓ no	Vinyl Chloride

13. Please include the estimated cost of any air pollution control equipment to be installed on the proposed emissions unit(s).

N/A

Emission Calculations for: PERMIT TO INSTALL

Facility: Fernald Environmental Management Project Computed by: Ervin Fisher
Source No: 1431110128 B007 Date: September 5, 1996
Source ID: FEMP ID NO. 10-007

I. Emission Estimates:
Boiler rating (maximum heat input): 100.00 (MMBtu/hour).
Annual operating hours: 8760 hours/year.
Emission factors: (given as lbs/MMcf gas burned)
particulate: 13.7, SO_2: 0.6, NOx: 140.0, CO: 35.0, VOC: 3.0
Emission factor reference: AP-42, table 1.4-1 and 1.4-2

1. Actual emissions: (heat input basis)
Particulate: 13.7 (lbs/MMcf) / 1050.0 (btu/cf) = 0.013 (lbs/MMbtu)
SO_2: 0.6 (lbs/MMcf) / 1050.0 (btu/cf) = 0.0006 (lbs/MMbtu)

2. Annual actual and potential: 8760 (hrs/year) emission in (tons/year).

Particulates:
ACTUAL: 13.7 (lbs/MMcf) x 60.0 (MMbtu/hr) x 8760 (hrs/year) / 1050 (btu/cf) / 2000 (lbs/ton) = 3.43 TPY

POTENTIAL: 13.7 (lbs/MMcf) x 100.0 (MMbtu/hr) x 8760 (hrs/year) / 1050 (btu/cf) / 2000 (lbs/ton) = 5.71 TPY

SO_2:
ACTUAL: 0.6 (lbs/MMcf) x 60.0 (MMbtu/hr) x 8760 (hrs/year) / 1050 (btu/cf) / 2000 (lbs/ton) = 0.15 TPY

POTENTIAL: 0.6 (lbs/MMcf) x 100.0 (MMbtu/hr) x 8760 (hrs/year) / 1050 (btu/cf) / 2000 (lbs/ton) = 0.25 TPY

NOx:
ACTUAL: 140.0 (lbs/MMcf) x 60.0 (MMbtu/hr) x 8760 (hrs/year) / 1050 (btu/cf) / 2000 (lbs/ton) = 35.04 TPY

POTENTIAL: 140.0 (lbs/MMcf) x 100.0 (MMbtu/hr) x 8760 (hrs/year) / 1050 (btu/cf) / 2000 (lbs/ton) = 58.4 TPY **LIMITED TO 39.85 TPY BY LIMITING FUEL BURNED**

CO:
ACTUAL: 35.0 (lbs/MMcf) x 60.0 (MMbtu/hr) x 8760 (hrs/year) / 1050 (btu/cf) / 2000 (lbs/ton) = 8.76 TPY

POTENTIAL: 35.0 (lbs/MMcf) x 100.0 (MMbtu/hr) x 8760 (hrs/year) / 1050 (btu/cf) / 2000 (lbs/ton) = 14.6 TPY

VOC:
ACTUAL: 3.0 (lbs/MMcf) x 60.0 (MMbtu/hr) x 8760 (hrs/year) / 1050 (btu/cf) / 2000 (lbs/ton) = 0.75 TPY

POTENTIAL: 3.0 (lbs/MMcf) x 100.0 (MMbtu/hr) x 8760 (hrs/year) / 1050 (btu/cf) / 2000 (lbs/ton) = 1.25 TPY

Emission Calculations for: PERMIT TO INSTALL

Facility: Fernald Environmental Management Project Computed by: Ervin Fisher
Source No: 1431110128 B007 Date: September 5, 1996
Source ID: FEMP ID NO. 10-007

I. Emission Estimates:
Boiler rating (maximum heat input): 100.00 (MMBtu/hour).
Annual operating hours: 8760 hours/year.
Emission factors: (given as lbs/1000 gal. fuel burned)
particulate: 2.0, SO_2: 42.6, NOx: 20.0, CO: 5.0, VOC: 0.052
Emission factor reference: AP-42, table 1.3-2.

1. Actual emissions: (heat input basis)
Particulate: 2.0 (lbs/Mgal) / 140000 (btu/gal) = 0.0143 (lbs/MMbtu)
SO_2: 42.6 (lbs/Mgal) / 140000 (btu/gal) = 0.304 (lbs/MMbtu)

2. Annual actual and potential: 8760 (hrs/year) emission in (tons/year).

Particulates:
ACTUAL: 2.0 (lbs/Mgal) x 60.0 (MMbtu/hr) x 8760 (hrs/year)/140000 (btu/gal)/2000 (lbs/ton) = 3.75 TPY

POTENTIAL: 2.0 (lbs/Mgal) x 100.0 (MMbtu/hr) x 8760 (hrs/year)/140000 (btu/gal)/2000 (lbs/ton) = 6.26 TPY

SO_2:
ACTUAL: 42.6 (lbs/Mgal) x 60.0 (MMbtu/hr) x 8760 (hrs/year)/140000 (btu/gal)/2000 (lbs/ton) = 79.97 TPY **RECOMMEND LIMIT OF 39.9 TPY**

POTENTIAL: 42.6 (lbs/Mgal) x 100.0 (MMbtu/hr) x 8760 (hrs/year)/140000 (btu/gal)/2000 (lbs/ton) = 133.28 TPY **RECOMMEND LIMIT OF 39.9 TPY**

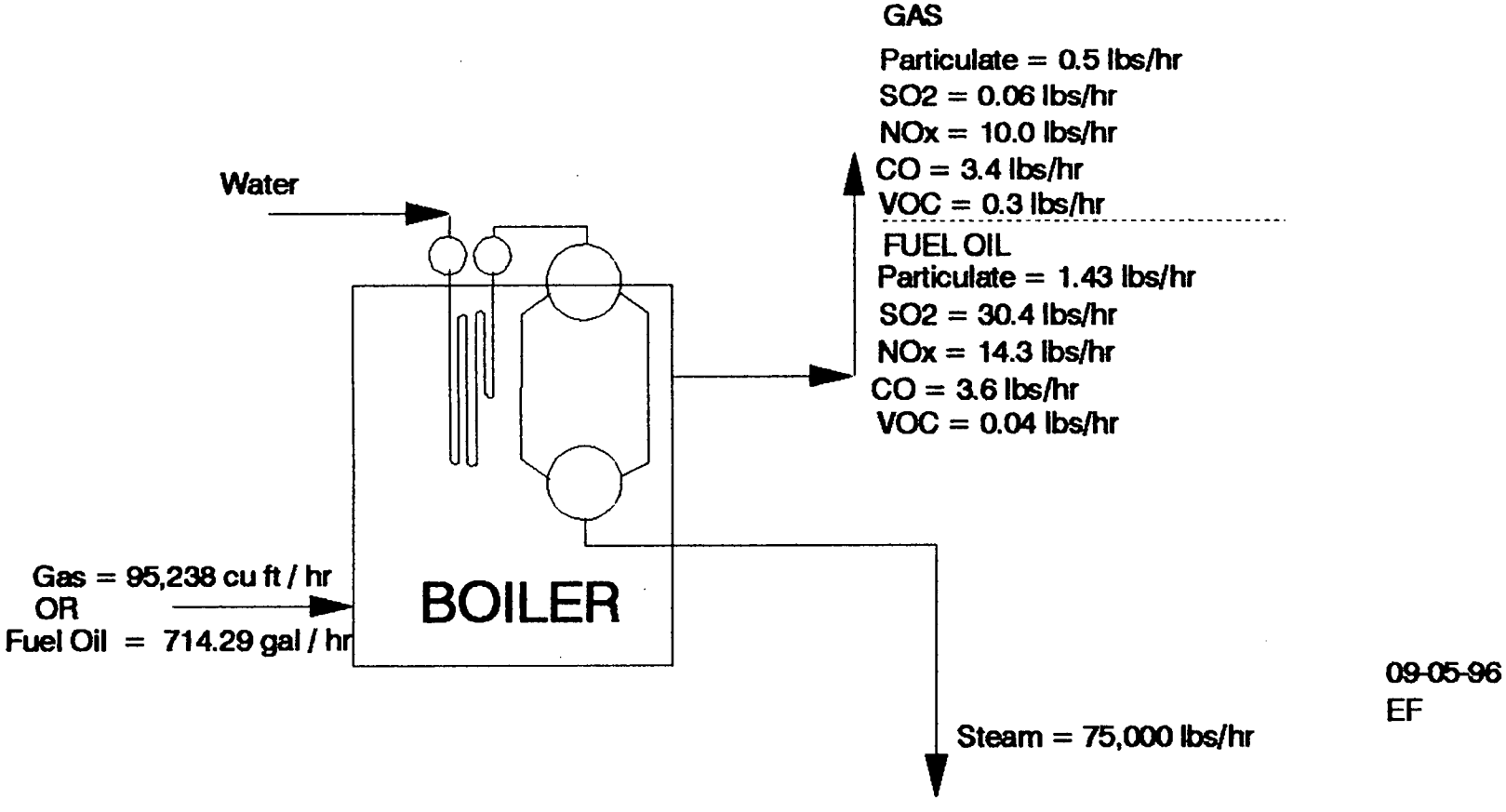
NOx:
ACTUAL: 20.0 (lbs/Mgal) x 60.0 (MMbtu/hr) x 8760 (hrs/year)/140000 (btu/gal)/2000 (lbs/ton) = 18.78 TPY

POTENTIAL: 20.0 (lbs/Mgal) x 100.0 (MMbtu/hr) x 8760 (hrs/year)/140000 (btu/gal)/2000 (lbs/ton) = 62.6 TPY

CO:
ACTUAL: 5.0 (lbs/Mgal) x 60.0 (MMbtu/hr) x 8760 (hrs/year)/140000 (btu/gal)/2000 (lbs/ton) = 4.69 TPY

POTENTIAL: 5.0 (lbs/Mgal) x 100.0 (MMbtu/hr) x 8760 (hrs/year)/140000 (btu/gal)/2000 (lbs/ton) = 15.64 TPY

PROCESS FLOW DIAGRAM
EU-B006-96
BOILER B006



09-05-96
EF

FOR OHIO EPA USE ONLY 7858
DATE APPLICATON RECEIVED:_____
FACILITY ID: _____

EMISSIONS ACTIVITY CATEGORY FORM
FUEL BURNING OPERATION

OEPA EMISSIONS UNIT ID __B006_____ (if established)

1. Input capacities (million btu/hr): Rated: _100_____ Note: Indicate units if different
   Maximum: _100_____
   Normal: ___60_____
   Output capacities (lbs steam/hr): Rated: __75,000_____
   Maximum: __75,000_____
   Normal: ___45,000_____

   Note: Only provide output capacities for steam producing operations.

2. Percent used for: Space heat ___80____% Process ___20____% Power ___-0-___%

3. Type of fuel fired (check one or more): ☐ coal X oil X natural gas
   ☐ wood ☐ LPG ☐ other (specify) _____

4. Type of draft (check one): ☐ natural ☐ induced X forced

5. Type of combustion monitoring (check one or more):
   ☐ fuel/air ratio ☐ oxygen ☐ opacity ☐
   X other (describe) _Fireeye E100 flame monitor system

COAL-FIRED UNITS

6. Type of coal firing (check one):
   ☐ hand-fired ☐ underfeed stoker
   ☐ traveling grate ☐ chain grate
   ☐ spreader stoker ☐ cyclones
   ☐ pulverized-dry bottom ☐ pulverized-wet bottom
   ☐ other (describe) _____

7. Fly ash reinjection (check one): ☐ yes ☐ no

OIL-FIRED UNITS

8. Type of oil (check one or more): X no. 2 ☐ no. 6
   ☐ other (describe) _____

9. Type of atomization (check one or more): ☐ oil pressure X steam pressure
   ☐ compressed air ☐ rotary cup
   ☐ other (describe) _____

10. Oil preheater (check one): ☐ yes X no If yes, indicate temperature _____°F

11. Complete the following table for fuels identified in item 3:

FOR OHIO EPA USE ONLY 7858
DATE APPLICATON RECEIVED:
FACILITY ID:

Fuel	Heat Content (BTU/unit)	% Ash	% Sulfur	Fuel Usage		
				Estimated Maximum Per Year	Normal Per Hr.	Max. Per Hr.
Coal	BTU/lb			tons	lbs	lbs
Gas	1050 BTU/cu ft	N/A	N/A	759 MM cu ft	57,143 cu ft	95,238.1 cu ft
Oil	140M BTU/gal	0.01	0.3	1,873 Mgal	428.6 gal	714.29 gal
Wood	BTU/lb			tons	lbs	lbs
LPG	BTU/gal			gal	gal	gal
Other						