Wood to Energy Grant

Boiler Operators' Training

Thursday, April 18, 2013

At Waterville Senior High School
25 Messalonskee Avenue
Waterville, Maine 04901

Sponsored By: Northern Maine Community College
Timothy Crowley, President
Continuing Education Department
Leah Buck, Assistant Dean of Continuing Education

Co-sponsored By: Educational Plant Maintenance Association of Maine
James Reny, Facility Director
AOS 92 – Waterville Public Schools

Training Agenda:

8:45 AM – Registration and equipment issued to participants.
- Light refreshments (provided)

9:30 AM – Call to order and introductions

9:45 AM – Measuring moisture content of wood fuel.
   [NOTE: Each participant is to bring at least 1 pound of sample wood fuel from their site. Samples are to be sealed in a zip-lock plastic bag at the time of collection.]
- Equipment list, unpacking and set up.
- Overview of material to be covered
- Moisture content of wood fuel and how it affects the net heat value of fuel
- Conversions to NET BTU of wood fuel
   - Formulas for estimating NET BTU based on moisture content
      - Differences between volume and weight measures of wood fuel
   - Standard values for NET BTU for fossil fuels
   - Converting to and comparisons of NET BTU of various fuels
- Instructions on the use of the equipment
   - Use of scales:
      - Tare weight
      - Sample weight
      - Total weight
   - Weighing out 100 grams of sample chips
      - Depending upon class size – some attendees will test a control sample of chips
   - Placing samples in drying unit and starting drying process.
      - Estimating times necessary to dry samples
      - Use of timer for sample drying
      - How can tester determine if sample has reached minimum moisture content.

10:30 AM – Break

10:45 – Return to training session
- Q & A
- Instructor(s) and Participants reviewing peers and processes

11:15 – Wood sample sets
- Brief discussion of wood types common in Maine
   - Discussion of NET BTU content, moisture, and species.
   - Review of volume versus weight units of wood fuel
- Use of wood samples (Part of the hand-outs)
   - Brief discussion of qualities of wood for use in identifying wood chips as delivered to the site.
      - Relative weight
      - Hardness
      - Growth rings and grow habit
      - Smell

NOON – Lunch (provided)

1:10 PM – Return to training
- Check progress of drying process
    - Use of drier
    - Use of scales
    - Logging results
- Q & A
- Return samples to drier

1:45 PM – Facilitated discussion of lessons learned, problems faced, and solutions found.
[NOTE: Each participant will have submitted at least three questions and or points for discussion prior to arriving at training. Instructor(s) will start with the most common threads and lead discussions through those and others as they arise.]

2:15 PM – Re-check drying samples
- Logging results
- Use of log books and or spread sheets [NOTE: Participants will receive by email sample spread sheets used for logging information, conversions, and comparisons of fuels.]
- Comparing costs
    - Wood sample v. oil (NET BTU to NET BTU)
    - Wood sample v. fuel delivery contract language [Participants are to bring notes on the contract language concerning the type and quality of fuel being delivered under their contract.]
- Disconnect and cool equipment.

2:45 PM – Use of data, information and logs.
- The opportunity to hand off the on-going sampling of wood deliveries to school science classes.
- The opportunity to email and or otherwise communicate the load by load cost savings as compared to purchasing oil of same NET BTU value.
- What School Superintendents and school boards might like to know.
    - How students learn hands-on & usefulness of students communicating with school administration.

3:15 PM – Q &A
- Re-packing equipment for travel
- Q & A
- Evaluation of training by participants

3:30 PM – Depart

[NOTE: Depending upon volunteers and arrangements short tours of nearby wood boilers will be offered.]