

**Alaska-Yukon Wood Energy Conference Presents:
Hydaburg Biomass Boiler LIVE Virtual Tour**

Q&A Transcript

Questions and answers were edited slightly for clarity.

(asked and answered via chat)

Q: How long does wood need to season when freshly cut?

A: One year is optimal.

(asked and answered via chat)

Q: Are you using the GARN2000 or 3200 models?

A: We're using to 3200 models.

Q: What do you have to do for annual maintenance to take care of this system?

A: On a weekly basis, we shovel all of the ash out of the fireboxes. Annually, we pull all of the cleanout covers off and we brush out all of the tubes just like you would you wood stove at home. There's one clean out in particular, they won't tell you this in the manual, but it's been my experience over the years, that there's one pipe that plugs up more than any of them. Once a month we will pull the cover off and scoop the ash out of it. And that helps keep all the rest of the tubes clean and sometimes even after a year of burning you look in the tube and go, "Does that even need cleaning?" But we brush it out anyway. If you take the covers off once a month and scoop the ash out of there it keeps all of the tubes cleaner throughout the season.

Q: If people want to get their water tested, what is the costs? Can you do it yourself? Do you have to send it out?

A: There is free lifetime water testing with boilers. So, there is no costs. You can take the test yourself, but the testing goes to Precision Chemical and they do the work on it. They do the test and they send you back a jar.

Q: How many fires do you light a day?

A: These boilers run wide open; they heat up a thermal storage tank. We have one fire a day, we keep putting wood in it until the boilers come up to operating temperature and then we let the fire go out. And the school uses the thermal storage just like a battery. You use a battery until the charge goes low and then you recharge the battery. The school reaches out and gets more hot water as they need it and when the temperature goes low, we'll build another fire and heat the thermal storage tank. When you start a fire here, you're loading them about every 45 minutes with wood. We haven't tested this system long enough but there is a similar system across the island where they're burning a 12-hour fire and it heats the school for 12 hours. We're unsure right now how long the thermal storage will last in this system.

Q: There were some red pumps shown earlier in the tour, one for each building being serviced by this boiler system. Why is there a pump for each building and not a district heating route?

A: This is so that if one of the buildings is not calling for heat, that pump will shut off. It's more energy efficient this way. You won't be circulating extra heat if the building doesn't need it. As the buildings need the heat, they'll turn them on and off. If there was only one pump, and two of the buildings didn't need the heat, it would still be circulating three buildings' worth of heat.

Q: Is the system heating the greenhouse?

A: It's not heating the greenhouse yet. They're trying to come up with a plan for the greenhouse.

Q: What are your electrical costs for running the blower? What is the cost per kwh on Hyدابurg?

A: Unknown, but they have a plan to figure it out using previous electrical costs last year. The school is paying between 23 and 24 cents a kilowatt using hydropower.

Q: What is the square foot area of the greenhouse there?

A: 800 sqft.

Q: How much is a cord of wood?

A: \$200 a cord, split and stacked.

Q: REAP and SSP are working with the Hydaburg schools to get the greenhouse up and running. Will the greenhouse be incorporated into school programming?

A: Yes.

Q: Who is going to oversee the greenhouse program? The school district, or the community?

A: This is currently still unknown as the greenhouse still has a lot of work that needs to be done. Community help would be beneficial.

Q: How many operators do you need for the biomass boiler heating?

A: If we do a morning and evening shift, two people. If we add a weekend shift, then two more. So, four people working part time, only about an hour a day. It's operated by students from the schools and they have to be 16 to get a paycheck.

Q: Do you have any student operators lined up yet?

A: No. And because of the pandemic, school is very intermittent down here. So for now it will be run by maintenance.

Q: Do you have or need remote monitoring of the boilers or heat distribution?

A: Right now, there's no need for it because we're here every day. But it would be handy if we were gone for long periods of time.

Q: What is the temperature in Hydaburg on a cold day?

A: Let's just say it never gets below zero. It doesn't get too cold.

Q: What is the optimal wood moisture content?

A: Below 20%.

Q: Why did you choose cord wood for this system instead of wood chips?

A: We like to put people to work. It gives people jobs and helps the local economy. Cord wood is also a bit easier to get than chips, and chips are harder to dry.

Q: How many wood vendors are you buying from and how many cords of wood are you buying annually?

A: It's anticipated to use 200 cords of wood a year, but we haven't had a full heating season yet so we're not sure. This is based off of the diesel usage from previous years of these schools. We have three wood vendors. Two of them are local.