

UPEI Heats Up The Town

By Cindy Venema

Have you ever wondered what goes on in the odd looking building that many call the "security building" or the "maintenance building"? Well, the proper name for that building is the physical plant, and located within its walls is a large heating system; a system that will soon be leased to Trigen.

About 2 times a day a truck delivers a load of wood chips which equals about 35 tonnes. These chips are the fuel for the 1000 horse power boiler. UPEI also has three oil fired boilers which are fuelled with bunker oil.

Not only do these boilers heat UPEI they also heat residences on Belvedere Ave., the Charlottetown Mall, the Rural High School, and the apartments at Brown's Crt.

UPEI became involved in district heating during the eighties. Because their fuel bills were draining the school's budget in the early part of the decade, UPEI became involved in an energy crunch.

At the time UPEI was using two 400 H. P. Bunker C Boilers, that produced 20,000 lbs. of steam per hour, to heat a campus of 500,000 square feet. So the University invested in a half million dollar retro-fit.

Around the same time,

the new 250,000 square foot Atlantic Veterinary College demanded excess heating than the current boilers could provide. Studies indicated that the new demand would require 1000 boiler horse power. The University's Board of Governors were convinced and passed the proposal to install a \$1.6 million wood biomass system.

When they fired up the wood boiler they realized they could handle most of the heating needs of the University with just this new boiler; and then during heating peaks they could use one of the oil boilers to assist and the second oil boiler as backup.

PEI Energy Corp. became interested in utilizing the university as a possible link in district heating. The University agreed to their proposal, and in 1985 they acquired another H.P. 1100 boiler and converted a 27 year old steam distribution system to hot water; a \$2.6 million project.

By converting the heating distribution from steam to water the physical plant has saved \$15,000 per month. The reason for this saving can be attributed to several factors: the return temperature of the water is monitored, and as it falls or rises the hydraulic pumps respond accordingly (this cannot be done with steam); the make-up water for

the boilers is 4,000 gallons a day compared to the 20,000 gallons that the steam system required; insurance costs are down; and maintenance was lowered considerably.

UPEI's heating system has become quite large. It currently employs 5 power engineers and one chief engineer. The system works by boiling water into steam. This steam remains in the physical plant, and serves the purpose of heating the water that is distributed to the external buildings.

Last February UPEI used 21,000,000 pounds of steam, which required about 1200 tonnes of wood and about 400,000 litres of oil. This is the equivalent of 12 tank truck loads of oil and 67 truck loads of wood chips in a month. The AVC used about 5,000,000 pounds of that steam, and the rest was distributed to the other university buildings and the surrounding community.

Now Trigen Energy Canada Inc. has formed a 30 year lease with UPEI. They purchased the Energy from Waste Plant (EFW) and they are converting the plant to serve as the single source of district heating.

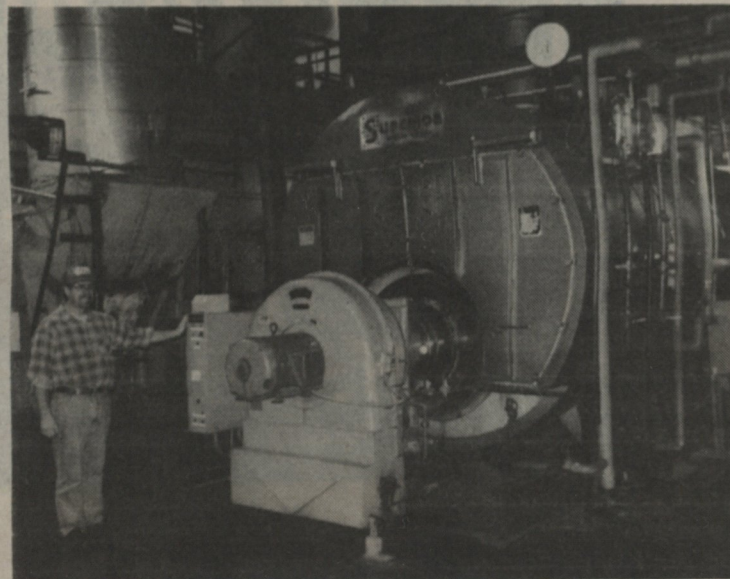
Currently, there are three production facilities in the area, the PE Home, UPEI and EFW, all using separate piping systems to serve their

customers. During the summer Trigen laid piping to connect all three systems. They also leased production equipment at the PE Home, UPEI, and the QE Hospital for backup.

The benefits of centralizing the heating system are: the base load production would be from energy-from-waste with wood waste being the next heating level, and oil being the final heating source; the EFW, with new pollution control devices, will reduce the amount of emitted acids and sulphur dioxide by 75%,

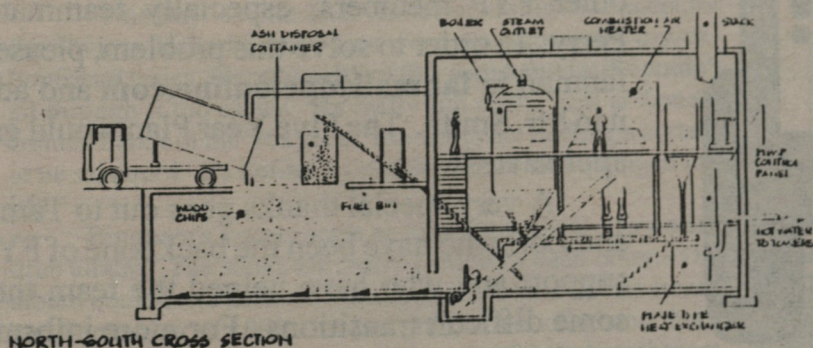
and particulates by 50%; and finally, their location on the city outskirts is appropriate for the truck traffic that was originally operating in residential and school areas.

UPEI and PE Home are satellite plants for EFW, and in the event that required heating exceeds the production limits of all the equipment located at EFW. UPEI's facilities, therefore, will remain unchanged. After the 30 year lease is up between UPEI and Trigen, UPEI will be able to continue operations the way they currently are.



Valmond Pineau, Power Engineer has worked at UPEI for twenty years. Pictured beside Mr. Pineau is one of the Bunker Oil Boilers.

Wood Chip Combustion Unit
U.P.E.I.



Write
NEWS for
the Panther
Prints