SECONDARY ELECTRIC BOILER HEAT FEASIBILITY STUDY

Mayo, Yukon Territory

July 2000

Prepared for:
Yukon Territorial Government
Government Services
Property Management Agency
Box 2703
Whitehorse, Yukon
Y1A 2C6

Prepared by:
Northern Climate Engineering Ltd.
102-C Copper Road
Whitehorse, Yukon
Y1A 2Z6

Dorward Engineering Services Ltd.
3147 – 3rd Avenue
Whitehorse, Yukon
Y1A 1E9

With Assistance from:

- Yukon Energy Corporation

TABLE OF CONTENTS

Northern Climate Engineering Ltd. 102-C Copper Road
Whitehorse, Yukon Y1A 2Z6
P: (867) 667-6900 F: (867) 668-4252 e: nce@polarcom.com

Dorward Engineering Services Ltd. 3147-3rd Avenue
Whitehorse, Yukon Y1A 1E9
P: (867) 668-6888 F: (867) 633-4561 e: dorward@ieee.org

1. EXECUTIVE SUMMARY

The feasibility of installing secondary electric boiler heat in the Mayo Nursing Station and the Government of Yukon Administration Building in Mayo was examined. It is recommended that secondary electric boiler heat not be installed in either building.

2. INTRODUCTION

The following report was commissioned by the Yukon Territorial Government (YTG), Government Services Branch to evaluate the feasibility of installing electric boilers to take advantage of secondary power available on the Mayo Hydro grid. The facilities investigated were the Mayo Nursing Station (YTG Building #5983) and the Government of Yukon Administration Building in Mayo (YTG Building #5648).

The source of energy for the Mayo Hydro grid is the hydro dam located in Mayo. Currently, water is being flowed through the dam as wastewater due to the lack of electrical demand on the grid. This wastewater is considered lost revenue for the Utility, Yukon Energy Corporation (YEC). As such, the Utility is willing to offer special rates and incentives to Owners to take advantage of this energy as secondary power. By using the energy only for secondary power, YEC is able to discontinue the power during periods of high demand such that the Owner is required to revert to their primary power source during these periods (see Appendix A, Electrical Engineer's Report for further information). This arrangement between the Utility and the Owner can be beneficial for both if a suitable means for using the secondary power can be found.

One means of use for secondary power is electric boilers for building heat. Electric boilers can be an excellent option because they address two requirements: they are easily metered for secondary power, and they provide back-up building heat in the event that the primary source of heat fails. The disadvantage of using electric boilers is that historically, secondary power is only available during the summer months when building heat is not required. However, in Mayo, secondary power is available year round; therefore, the choice of electric boilers is good.

Both buildings studied are heated by hot water via boilers that are shut down during the summer months. The Nursing Station uses propane as the source of fuel, and the Administration Building uses oil. To determine the cost benefit of taking advantage of secondary rates, the cost of installing and running the electric boilers must be compared to the cost of running the existing boilers. Secondary considerations are maintenance and building infrastructure. Given the year round availability of secondary power, electric boilers sized for 100% of the heating load will be considered. The incremental reduction in cost of installing lower capacity boilers is outweighed by the reduction in return due to the lower incremental energy cost savings.

3. MAYO NURSING STATION – BUILDING #5983

3.1 Description

It is estimated that the Mayo Nursing Station was constructed in the 1950's. It underwent a major renovation in 1970 that included replacing of the heating piping as well as the addition of one boiler. The two boilers are propane fired and are fed from a propane tank farm of six, 1000-gallon tanks. The tanks each have two 1500-Watt heaters to keep the propane vapourized at low temperatures. The boilers are sized such that one boiler can carry the building at design temperatures. The heating system is glycoled to minus 20°C. The building envelope is, by today's standards, leaky and under insulated with single pane, wood frame windows. With the exception of exhaust fans, no mechanical ventilation is installed in the building.

The expected service life of heating equipment, boilers excepted, is 20 to 25 years. Cast iron, hot water boilers have a service life expectancy of 35 years. Given that the newest infrastructure is 30 years old, and the remaining is in excess of 40 years old, the heating system is well past its service life. This is verified by the maintenance personnel who attest that the system is becoming increasingly difficult to service, and the output is decreasing.

3.2 Required Renovations

The Mechanical/Electrical Room is tightly packed (see Appendix C, Photographic Documentation – Nursing Station). To avoid costly demolition, the electric boiler installation must be compact. Further, with a glycoled heating system, the power density of the electric boiler must be low (maximum 20 W/in^2) to avoid degrading the glycol. Given the leakiness of the building, it is recommended that the system remain glycoled.

There is room to install an electric circulation heater in the area of the workbench. A circulation heater can be manufactured to the required power density so that bulky, extra infrastructure such as heat exchanger and pumps are not required, and is compact enough to fit the space. Alternatively, there is slightly more room, if required, on the other side of the wall in the Generator Room. Piping can be run overhead to the electric boiler. Prior to installation, the existing heating system will need to be flushed and cleaned to avoid soiling the new boiler and destroying its efficiency. Flushing and cleaning the system does pose a major concern because of the systems age. There is significant probability that the flushing and cleaning procedure will create or expose leaks in the system leading to costly repair.

3.3 Cost Analysis

The following assumptions and costs were used in the analysis (see Appendix B, Cost Estimates for further information):

1. 60% annual heating system efficiency, propane.
2. 90% annual heating system efficiency, electrical.
3. Propane heat value of 24,251 Btu/L.
4. $0.3185/L propane fuel cost (from historical records).
5. Annual propane consumption of 67,480 litres (from historical records).
6. Boiler operation from September to May, inclusive.
7. Circulation heater standard of acceptance: Caloritech EXI72260F1477DMY, 600V, 3 phase, 260 kW complete with CPS40012 twelve stage control panel.
8. No system upgrade or repair costs will be required (can not be calculated).
9. Mechanical supply and installation costs: $45,000.
10. Electrical supply and installation costs: $10,500.
11. Engineering costs: $11,100.

The heating system efficiencies take into affect heating piping loss. Due to the age of the system and conversations with the maintenance personnel, the efficiencies are assumed to be lower than normal.

The potential annual load on the electric circulation heater can be calculated from the historical records of the building. By establishing a heat load ratio between the output and efficiencies of the propane system versus the electrical system, an accurate indication of the buildings heat load, and therefore, fuel consumption, can be obtained as indicated below:

$$F = HL*24*DD/\eta/P/\Delta T$$

where: F = annual fuel consumption
HL = building design heat loss
DD = degree-days
η = heating system efficiency
P = heating value of fuel
ΔT = design temperature difference

Given that the building heat loss, degree-days, and design temperature difference remain constant regardless of the heating system, the expected annual fuel consumption for the circulation heater is obtained from the following ratio:

$$F_e/F_p = (\eta_p*P_p)/(\eta_e*P_e)$$

where: subscript e indicates electric fueled system
subscript p indicates propane fueled system

As can be seen from the payback analysis in Appendix B, installing the electric circulation heater has a final payback of eight years. If the money for this project is borrowed from YEC, the loan payback is eleven years.

A further cost savings may be achieved by removing four of the six tanks in the propane tank farm. This should leave enough fuel for the installed propane emergency generator and domestic hot water heater, and reduce the building electric load by 12 000 Watts in cold temperatures when the propane heating blankets are required.

The feasibility analysis procedure is the same as indicated above for the Nursing Station. Examining the payback analysis in Appendix B, installing the electric boiler has a final payback of eighteen years. If the money for this project is borrowed from YEC, the loan payback is in excess of twenty years.

5. CONCLUSIONS AND RECOMMENDATIONS

The Nursing Station does have a reasonable payback. However, although the payback is reasonable, the age of the infrastructure does not warrant spending the capital on this type of project. It is expected that if work was to proceed, many repair and upgrade requirements to the system will become apparent. Addressing these issues will cause the project to overrun its budget. With the lack of a mechanical ventilation system, the building itself does not meet current codes. As well, the building is poorly insulated and constructed such that energy will still be wasted.

It is recommended that capital be put aside for a new Nursing Station instead of installing an electric circulation heater. In the meantime, other energy saving measures can be implemented such as insulating the propane tanks to reduce electrical costs during cold temperatures, and installing storm windows or shrink-wrap over the windows during the winter months.

The Administration Building does not have a reasonable payback. Although a simple payback within twenty years may be considered marginally acceptable, the cost of borrowing the capital combined with the age of the facility (twenty years) does not warrant spending the capital on this type of project. By the time the project pays for itself, it is expected that the building systems will require major upgrading, and the availability of secondary power will be drastically reduced given the plans for extending the Mayo power grid to Dawson and the potential for mine development in the area.

It is recommended that the installation of a packaged electric boiler in the YTG Administration Building not proceed. The building is in good condition and well insulated. The existing systems are economically reasonable to continue operating the building for the next several years.

APPENDIX A

ELECTRICAL ENGINEER'S REPORT

1.0 Introduction

The following report is an evaluation of the physical feasibility of installing the electrical infrastructure required to take advantage of secondary power available on the Mayo Hydro grid. Two facilities were investigated as a part of the study, the Mayo Nursing Station and the YTG Administration Building.

2.0 General

In order to qualify for reduced hydro rates the Yukon Energy Corporation (YEC) requires that the boiler supply be equipped with a separate, lockable disconnection means and that the supply be metered with an independent electric meter. This presents some problems in existing buildings since the Canadian Electrical Code (C22.1-1998) requires that buildings have only one service of the same voltage and also that in buildings with service entrances of differing voltages all of the service entrance equipment be grouped in a common location where practical.

In relation to the size of existing service the electric boiler capacity is quite large and therefore lends itself well to a service voltage of 600 volts. By installing a second service at 600 volts both the electrical code rules and YEC requirement for separate metering are satisfied. The installation of 600 volt service does require some additional infrastructure by the utility however in the interest of promoting the program YEC is willing to commit to substantial company investment to these projects.

3.0 Mayo Nursing Station

The boiler capacity required to heat the Nursing Station has been estimated at 260 KW. This will require a 400 Amp capacity 600 volt service. YEC will be required to install another bank of transformers behind the building to supply the 600 volts. From these transformers power lines will be brought in overhead in a similar fashion to the existing service. There is enough free space available in the boiler/electrical room to group the new 600 volt service beside the existing 120/208 volt service. The new service switch will be lockable and will supply directly the new circulation heater specified by the mechanical engineer. A CT cabinet and meter base will be installed to the requirements of the utility.

We estimate the supply and installation cost of the electrical equipment described above to be $10,500.00.

YEC has indicated that the cost of their infrastructure will be covered by their company investment.

4.0 Mayo Administration Building

The boiler capacity required to heat the Administration Building has been estimated at 120 KW. This will require a 150 Amp capacity 600 volt service. YEC will be required to install an additional pole in the parking area of the facility. This pole will carry the bank of 600 volt transformers that are required for the boiler. Service from the pole will be brought into the building overhead. The service will be metered directly with the utility meter being located on the back outside wall of the building. The size of the existing electrical room does not permit grouping the new service with the old however the YTG chief electrical inspector has ruled that the installation would be permitted if the new service entrance switch is located in the boiler room. The new service switch will be lockable and will supply directly the new boiler specified by the mechanical engineer.

We estimate the supply and installation cost of the electrical equipment described to be $5,500.00.

YEC has indicated that the cost of their infrastructure will be covered by their company investment.

APPENDIX B

COST ESTIMATES

The following cost estimate is a class "D" estimate for design, supply, and installation of an 100% heating back-up system for the Mayo Nursing Station and Government of Yukon Administration Building in Mayo to take advantage of secondary electric power sales. These costs are considered to have a 33% chance of being within plus or minus 10% of actual costs. There is a 33% chance that the actual costs will overrun or underrun the estimated costs. These estimated costs should carry a 40% contingency.

The cost estimate is based on the design and installation outlined in the body of the report, and in Appendix A. Due to the lack of investigation that is required for a design, but is outside the scope of a feasibility report, it is assumed that all building systems are in good working condition and meet all applicable codes. Please note, however, that there is considerable doubt this will be true in the case of the Nursing Station as outlined in the report.

Nursing Station:

• Mechanical supply and installation costs	$45,000.00
• Electrical supply and installation costs	$10,500.00
• Engineering design costs	$11,100.00
Total	**$66,600.00**

Administration Building:

• Mechanical supply and installation costs	$22,000.00
• Electrical supply and installation costs	$ 5,500.00
• Engineering design costs	$11,100.00
Total	**$38,600.00**

The engineering costs assume one design trip and one inspection trip to Mayo for each of a mechanical engineer and an electrical engineer. The electrical supply and installation costs assume that Yukon Engineering Corporation (YEC) will cover the cost of their infrastructure for this work as outlined in Appendix A.

Please note that YEC has advised they are willing to loan the money for the capital cost of the installations at Bank of Canada prime. If approached on this, YEC may be willing to collect on the loan through the savings obtained from the installation. This is indicated in the loan analysis for each building in the following pages. Details of the feasibility analysis for each building are included as well. These spreadsheets were completed in cooperation with YEC.

CUSTOMER BUSINESS CASE

Project	Mayo Nursing Station Electric Circulation Heaters	***Date***	29-Jun-00

Capital Cost	$66,600	***Fuel Type***	Propane
Discount Rate	6.00%	***Fuel Heat value (BTU per Liter)***	24,251
Fuel Inflation	1.00%	***Base Year Fuel Price per Liter***	$0.3183
		Fuelled Boiler Efficiency	60%
Base Year	2000	***Equivalent Fuel Cost per kWh***	$0.0747
In-service Year	2001	***Retail Secondary Sales Rate***	$0.0330
Boiler Rating (kW)	264	***Electric Boiler Efficiency***	90%
Capacity Factor	13.8%	***Savings per kWh***	$0.0380
Potential Annual Load (kWh)	319,731	***% Savings***	51%
Served Annual Load (kWh)	287,758	***Surplus Hydro Availability***	90%

Year	Capital Expense	Project Savings	Simple Cash Flow	Cumulative Cash Flow	Discounted Cash Flow	Cumulative DCV
2000	-$66,600	$0	-$66,600	-$66,600	-$66,600	-$66,600
2001		$11,057	$11,057	-$55,543	$10,431	-$56,169
2002		$11,168	$11,168	-$44,375	$9,939	-$46,230
2003		$11,279	$11,279	-$33,096	$9,470	-$36,759
2004		$11,392	$11,392	-$21,704	$9,024	-$27,736
2005		$11,506	$11,506	-$10,198	$8,598	-$19,138
2006		$11,621	$11,621	$1,423	$8,192	-$10,945
2007		$11,737	$11,737	$13,160	$7,806	-$3,140
2008		$11,855	$11,855	$25,015	$7,438	$4,298
2009		$11,973	$11,973	$36,988	$7,087	$11,385
2010		$12,093	$12,093	$49,081	$6,753	$18,138
2011		$12,214	$12,214	$61,295	$6,434	$24,572
2012		$12,336	$12,336	$73,631	$6,131	$30,702
2013		$12,459	$12,459	$86,090	$5,841	$36,544
2014		$12,584	$12,584	$98,674	$5,566	$42,110
2015		$12,710	$12,710	$111,384	$5,303	$47,413
2016		$12,837	$12,837	$124,221	$5,053	$52,466
2017		$12,965	$12,965	$137,186	$4,815	$57,281
2018		$13,095	$13,095	$150,281	$4,588	$61,869
2019		$13,226	$13,226	$163,507	$4,371	$66,240
2020		$13,358	$13,358	$176,865	$4,165	$70,405

NOTES: 1/ Fuel price and secondary sales price assumed to increase at the fuel inflation rate
2/ Discount rate for discounted cash flows assumed to be Bank of Canada prime rate

CUSTOMER BUSINESS CASE WITH LOAN @BANK OF CANADA PRIME RATE

Project Mayo Nursing Station
Electric Circulation Heaters

Date 29-Jun-00

Capital Cost	$66,600
Loan Rate	6.00%
Loan Repayment as % of Savings	75%
Discount Rate	6.00%
Fuel Inflation	1.00%
Base Year	2000
In-service Year	2001
Boiler Rating (kW)	264
Capacity Factor	13.8%
Potential Annual Load (kWh)	319,731
Served Annual Load (kWh)	287,758

Fuel Type	Propane
Fuel Heat value (BTU per Liter)	24,251
Base Year Fuel Price per Liter	$0.3183
Fuelled Boiler Efficiency	60%
Equivalent Fuel Cost per kWh	$0.0747
Retail Secondary Sales Rate	$0.0330
Electric Boiler Efficiency	90%
Savings per kWh	$0.0380
% Savings	51%
Surplus Hydro Availability	90%

Est. of Customer Savings		***Loan Remaining***
After 5 Years	$14,101	-$47,282
After 10 Years	$28,920	-$13,704
After 15 Years	$85,440	$0
After 20 Years	$150,921	$0

Year	***Capital Expense***	***Remaining Principal***	***Interest Expense***	***Project Savings***	***Customer Savings***	***Loan Repayment***
2000	-$66,600	-$66,600	$0	$0	$0	$0
2001		-$66,600	-$3,996	$11,057	$2,764	$8,293
2002		-$62,303	-$3,738	$11,168	$2,792	$8,376
2003		-$57,666	-$3,460	$11,279	$2,820	$8,459
2004		-$52,666	-$3,160	$11,392	$2,848	$8,544
2005		-$47,282	-$2,837	$11,506	$2,876	$8,629
2006		-$41,490	-$2,489	$11,621	$2,905	$8,716
2007		-$35,263	-$2,116	$11,737	$2,934	$8,803
2008		-$28,576	-$1,715	$11,855	$2,964	$8,891
2009		-$21,400	-$1,284	$11,973	$2,993	$8,980
2010		-$13,704	-$822	$12,093	$3,023	$9,070
2011		-$5,456	-$327	$12,214	$6,430	$5,783
2012		$0	$0	$12,336	$12,336	$0
2013		$0	$0	$12,459	$12,459	$0
2014		$0	$0	$12,584	$12,584	$0
2015		$0	$0	$12,710	$12,710	$0
2016		$0	$0	$12,837	$12,837	$0
2017		$0	$0	$12,965	$12,965	$0
2018		$0	$0	$13,095	$13,095	$0
2019		$0	$0	$13,226	$13,226	$0
2020		$0	$0	$13,358	$13,358	$0

NOTES: 1/ Fuel price and secondary sales price assumed to increase at the fuel inflation rate
2/ discount rate for discounted cash flows assumed to be the loan rate
3/ Loan rate assumed to be Bank of Canada prime lending rate
4/ Loan repayments made using a percentage of savings until paid off

CUSTOMER BUSINESS CASE

Project	Mayo Administration Building Electric Boiler	***Date***	29-Jun-00

Capital Cost	$38,600	***Fuel Type***	Arctic Fuel oil
Discount Rate	6.00%	***Fuel Heat value (BTU per Liter)***	35,399
Fuel Inflation	1.00%	***Base Year Fuel Price per Liter***	$0.4881
		Fuelled Boiler Efficiency	74%
Base Year	2000	***Equivalent Fuel Cost per kWh***	$0.0636
In-service Year	2001	***Retail Secondary Sales Rate***	$0.0330
Boiler Rating (kW)	120	***Electric Boiler Efficiency***	94%
Capacity Factor	12.2%	***Savings per kWh***	$0.0285
Potential Annual Load (kWh)	128,686	***% Savings***	45%
Served Annual Load (kWh)	115,817	***Surplus Hydro Availability***	90%

Year	***Capital Expense***	***Project Savings***	***Simple Cash Flow***	***Cumulative Cash Flow***	***Discounted Cash Flow***	***Cumulative DCV***
2000	-$38,600	$0	-$38,600	-$38,600	-$38,600	-$38,600
2001		$3,337	$3,337	-$35,263	$3,149	-$35,451
2002		$3,371	$3,371	-$31,892	$3,000	-$32,451
2003		$3,405	$3,405	-$28,487	$2,859	-$29,593
2004		$3,439	$3,439	-$25,049	$2,724	-$26,869
2005		$3,473	$3,473	-$21,576	$2,595	-$24,274
2006		$3,508	$3,508	-$18,068	$2,473	-$21,801
2007		$3,543	$3,543	-$14,525	$2,356	-$19,445
2008		$3,578	$3,578	-$10,947	$2,245	-$17,200
2009		$3,614	$3,614	-$7,333	$2,139	-$15,061
2010		$3,650	$3,650	-$3,683	$2,038	-$13,023
2011		$3,687	$3,687	$4	$1,942	-$11,081
2012		$3,724	$3,724	$3,728	$1,850	-$9,230
2013		$3,761	$3,761	$7,488	$1,763	-$7,467
2014		$3,798	$3,798	$11,287	$1,680	-$5,787
2015		$3,836	$3,836	$15,123	$1,601	-$4,186
2016		$3,875	$3,875	$18,998	$1,525	-$2,661
2017		$3,913	$3,913	$22,911	$1,453	-$1,207
2018		$3,953	$3,953	$26,864	$1,385	$177
2019		$3,992	$3,992	$30,856	$1,319	$1,497
2020		$4,032	$4,032	$34,888	$1,257	$2,754

NOTES: 1/ Fuel price and secondary sales price assumed to increase at the fuel inflation rate
2/ Discount rate for discounted cash flows assumed to be Bank of Canada prime rate

CUSTOMER BUSINESS CASE WITH LOAN @BANK OF CANADA PRIME RATE

Project Mayo Administration Building
Electric Boiler

Date 29-Jun-00

Capital Cost	$38,500
Loan Rate	6.00%
Loan Repayment as % of Savings	90%
Discount Rate	6.00%
Fuel Inflation	1.00%
Base Year	2000
In-service Year	2001
Boiler Rating (kW)	120
Capacity Factor	12.2%
Potential Annual Load (kWh)	128,686
Served Annual Load (kWh)	115,817

Fuel Type	Arctic Fuel oil
Fuel Heat value (BTU per Liter)	35,399
Base Year Fuel Price per Liter	$0.4881
Fuelled Boiler Efficiency	74%
Equivalent Fuel Cost per kWh	$0.0636
Retail Secondary Sales Rate	$0.0330
Electric Boiler Efficiency	94%
Savings per kWh	$0.0285
% Savings	45%
Surplus Hydro Availability	90%

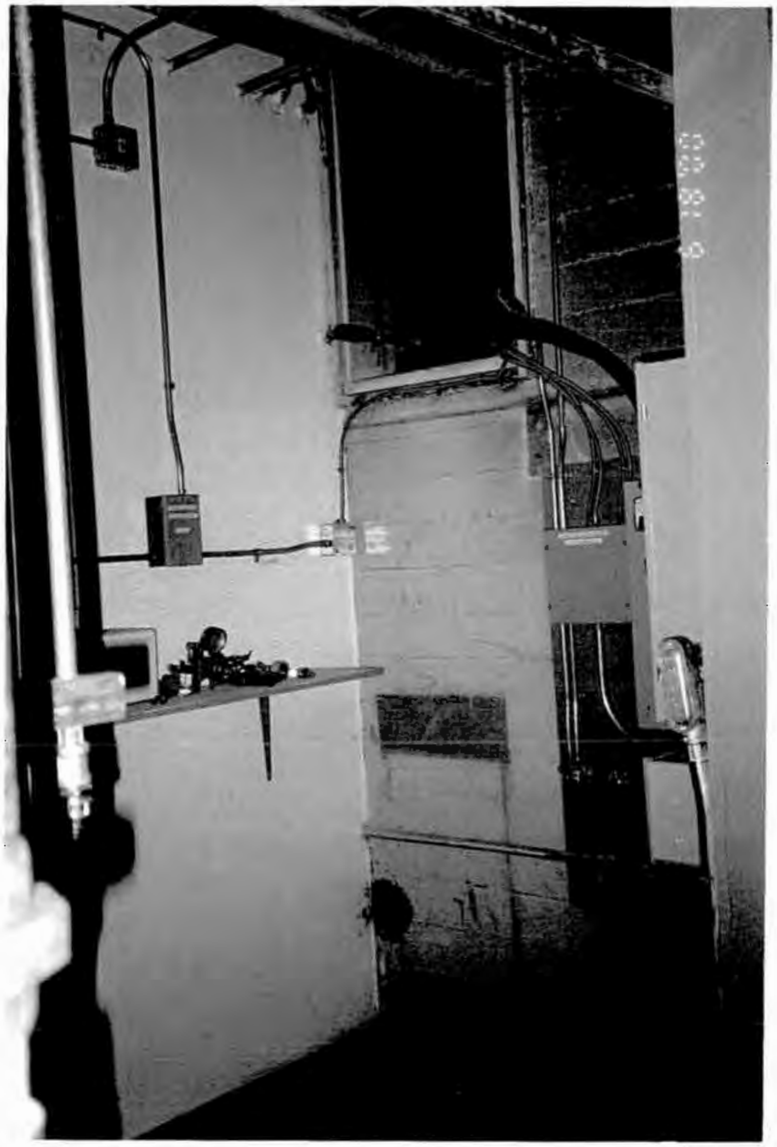
Est. of Customer Savings		***Loan Remaining***
After 5 Years	$1,702	-$35,276
After 10 Years	$3,492	-$29,253
After 15 Years	$5,372	-$20,276
After 20 Years	$7,349	-$7,301

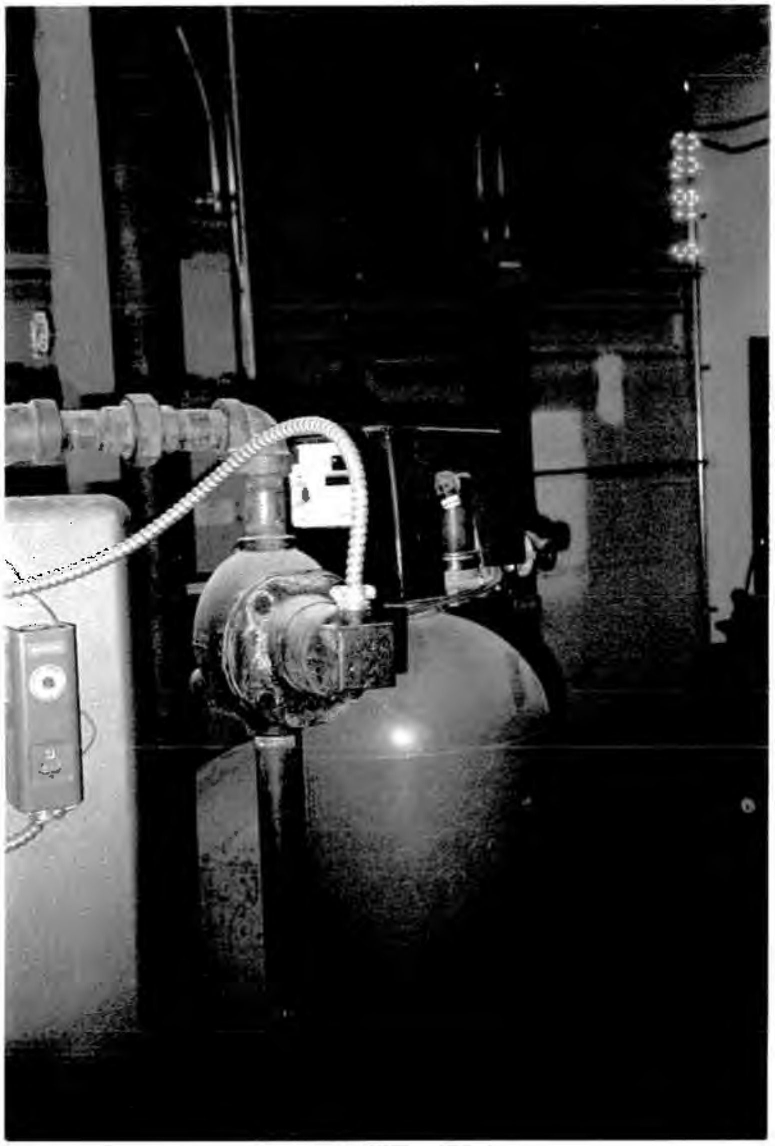
Year	***Capital Expense***	***Remaining Principal***	***Interest Expense***	***Project Savings***	***Customer Savings***	***Loan Repayment***
2000	-$38,500	-$38,500	$0	$0	$0	$0
2001		-$38,500	-$2,310	$3,337	$334	$3,004
2002		-$37,806	-$2,268	$3,371	$337	$3,034
2003		-$37,041	-$2,222	$3,405	$340	$3,064
2004		-$36,199	-$2,172	$3,439	$344	$3,095
2005		-$35,276	-$2,117	$3,473	$347	$3,126
2006		-$34,267	-$2,056	$3,508	$351	$3,157
2007		-$33,166	-$1,990	$3,543	$354	$3,189
2008		-$31,968	-$1,918	$3,578	$358	$3,220
2009		-$30,666	-$1,840	$3,614	$361	$3,253
2010		-$29,253	-$1,755	$3,650	$365	$3,285
2011		-$27,723	-$1,663	$3,687	$369	$3,318
2012		-$26,068	-$1,564	$3,724	$372	$3,351
2013		-$24,281	-$1,457	$3,761	$376	$3,385
2014		-$22,353	-$1,341	$3,798	$380	$3,419
2015		-$20,276	-$1,217	$3,836	$384	$3,453
2016		-$18,040	-$1,082	$3,875	$387	$3,487
2017		-$15,635	-$938	$3,913	$391	$3,522
2018		-$13,051	-$783	$3,953	$395	$3,557
2019		-$10,277	-$617	$3,992	$399	$3,593
2020		-$7,301	-$438	$4,032	$403	$3,629

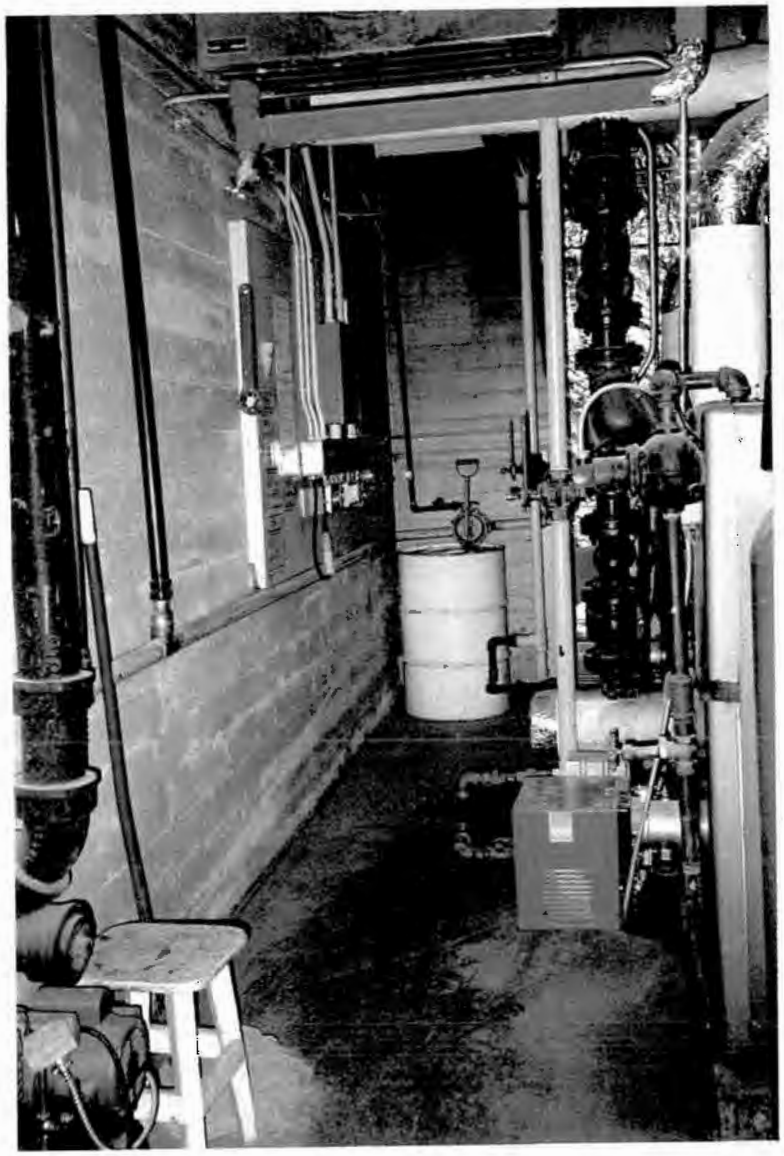
NOTES: 1/ Fuel price and secondary sales price assumed to increase at the fuel inflation rate
2/ discount rate for discounted cash flows assumed to be the loan rate
3/ Loan rate assumed to be Bank of Canada prime lending rate
4/ Loan repayments made using a percentage of savings until paid off

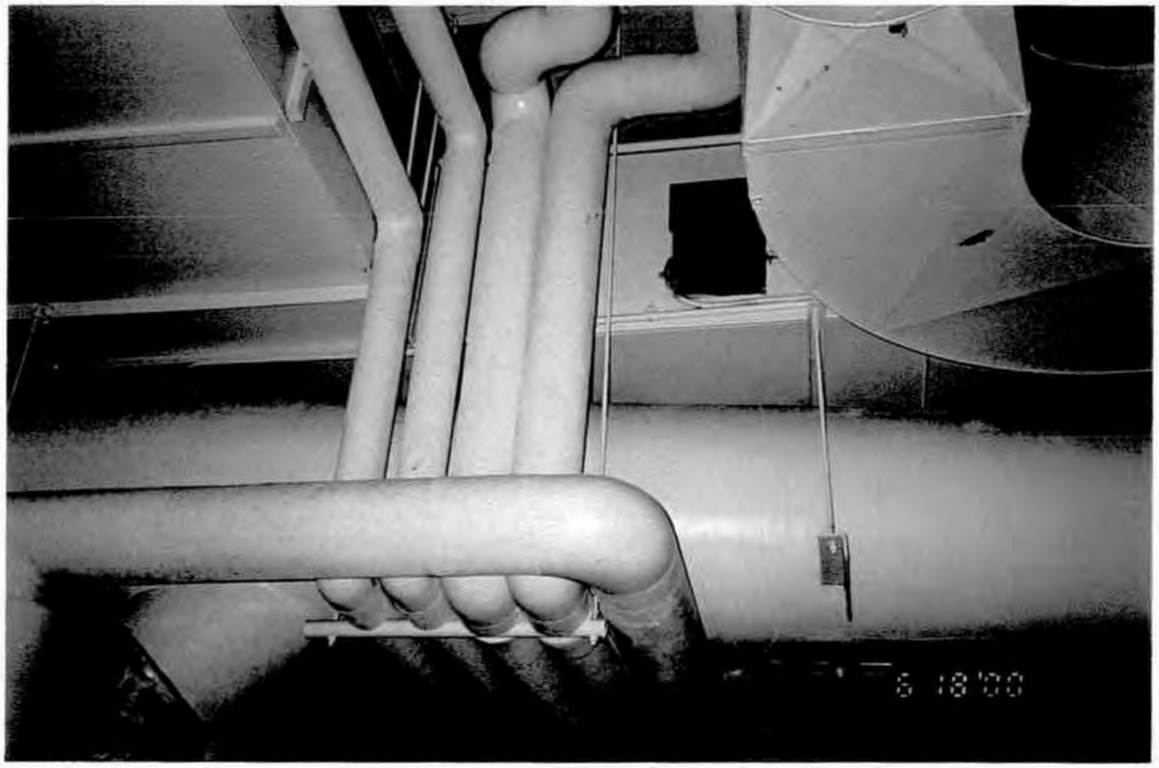
APPENDIX C

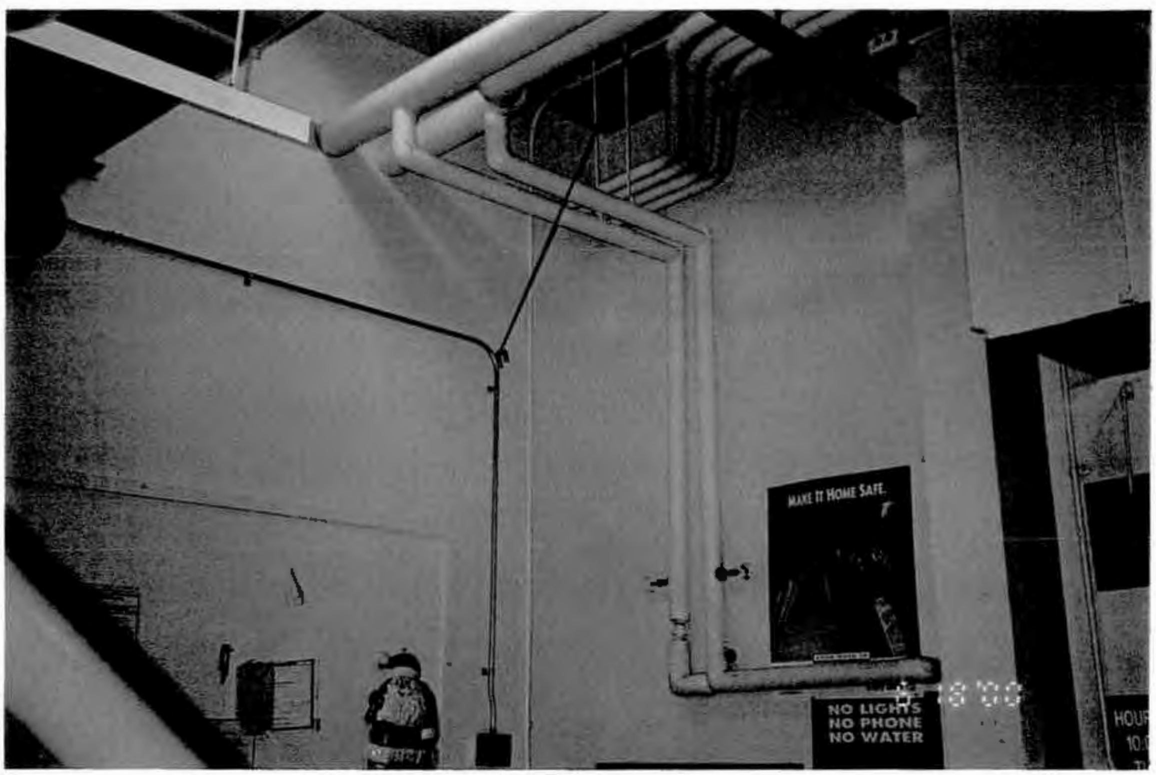
PHOTOGRAPHIC DOCUMENTATION – NURSING STATION

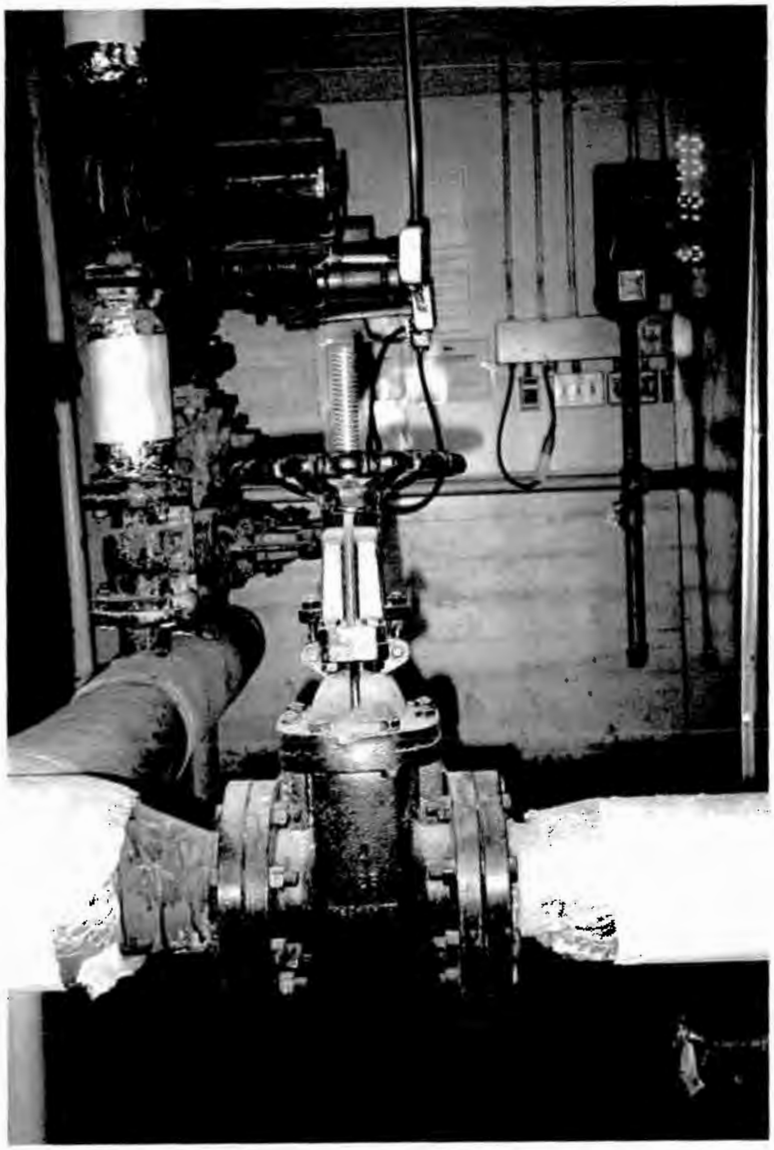


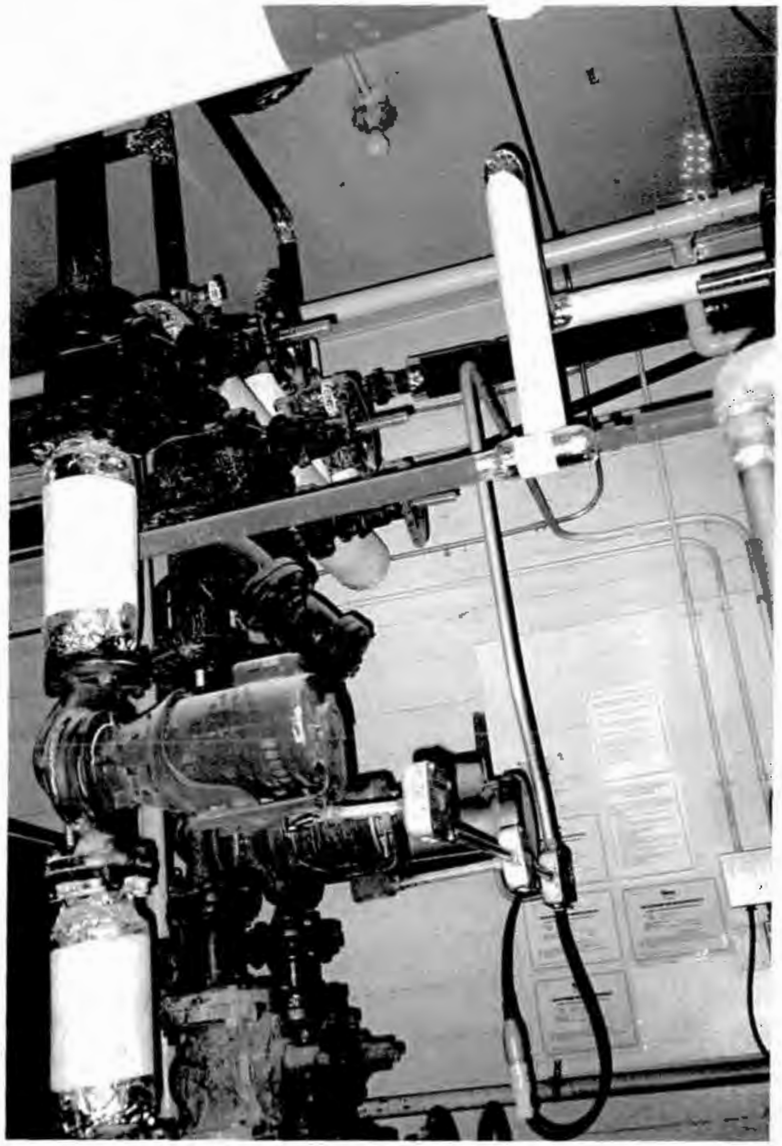






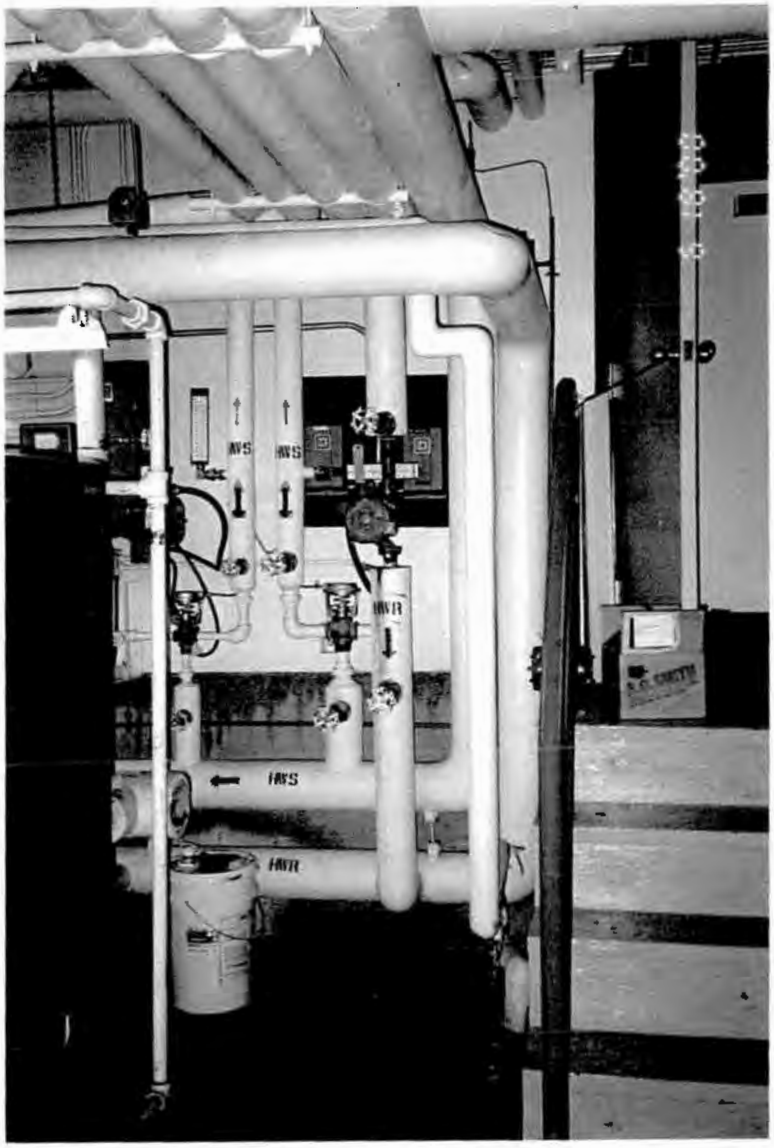

MAKE IT HOME SAFE.
NO LIGHTS
NO PHONE
NO WATER





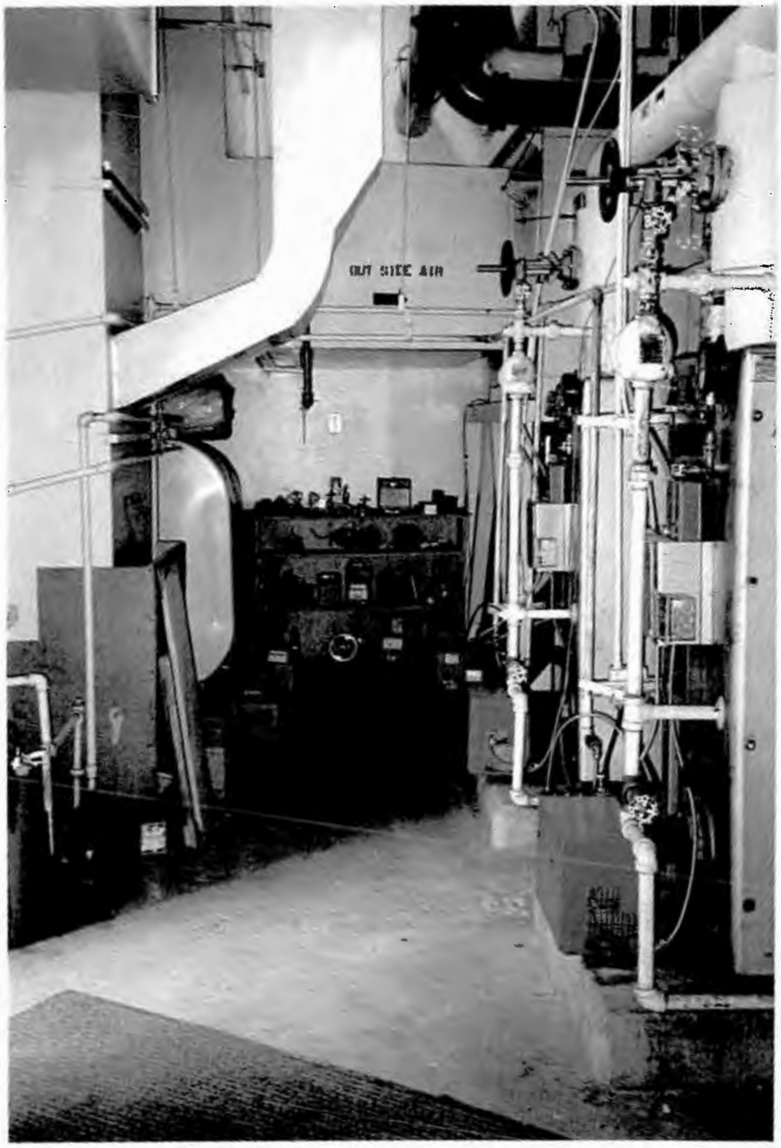
APPENDIX D

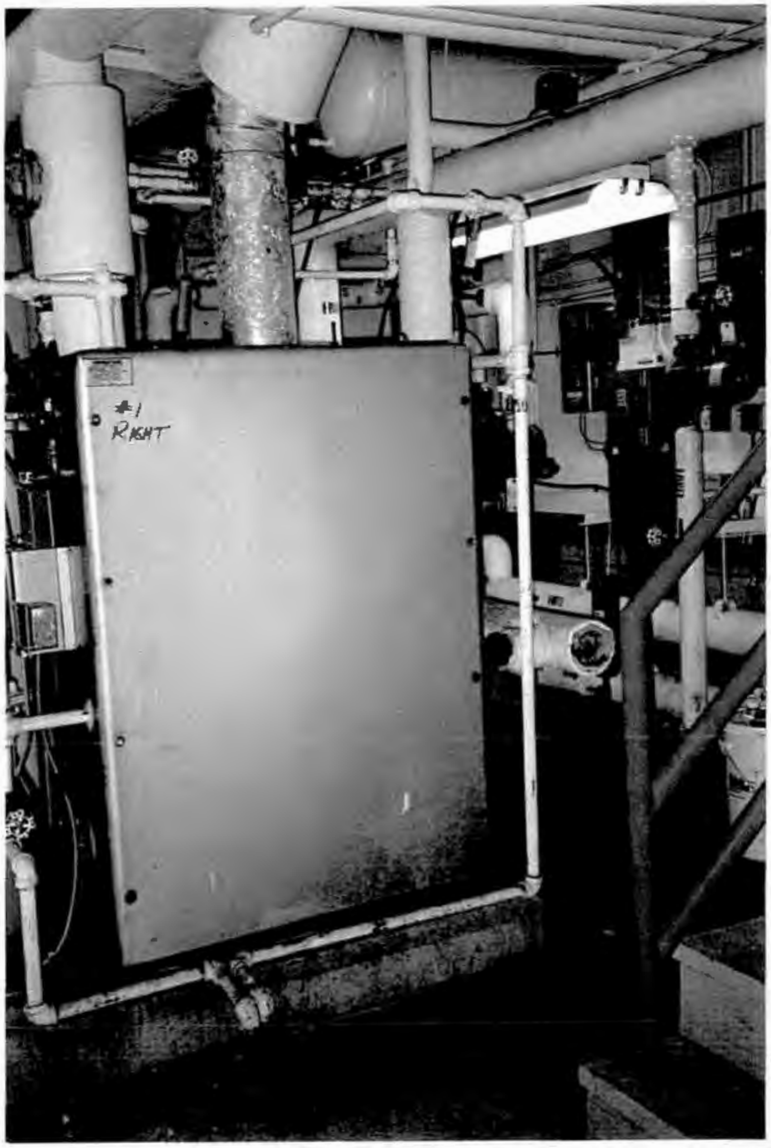
PHOTOGRAPHIC DOCUMENTATION - ADMINISTRATION


HWS
HWS
HWR
HWS
HWR


MAKE IT HOME SAFE.
NO LIGHTS
NO PHONE
NO WATER
NOW WHAT?


HOME SAFE.
NO LIGHTS
NO PHONE
NO WATER
NOW WHAT?
HOURS OF OPERATION
10:00AM TO 5:00PM
TUESDAY - FRIDAY


OUT SIDE AIR


#1
RIGHT


HOT DECK S