

Appendix L: Recommendations to Replace Curling Brine Chiller - 2010 and 2011



7664 – 10th Street N.E., Calgary, AB
T2E 8W1
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E-mail address –

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Date:	October 05, 2010
From:	[REDACTED]
To:	[REDACTED]
Re:	Ice Plant Budgets

Dear [REDACTED],

As per your request, please see budgets for work that will be required in the arena ice plant room in the near future. Due to the age of the equipment it is strongly recommended that there be attention to replacing soon before major failure.

Evaporative Condenser:

We strongly recommend that this would be the first piece of equipment changed in the system. Due to its age and if failure were to occur you would be looking at a down time of 10 to 12 weeks and loss of ice surface for every facility. When on site last week I did notice that the scale build up on the condenser tubes is building up and this does cause excessive run time and less efficient operation of the condenser, resulting in electrical cost increasing substantially.

We are budgeting you an exact replacement so cost is kept to a minimal.

Budget for new condenser installed \$51,000.00

Curling Club Chiller:

This piece of equipment is also past its life expectancy and should be given great consideration on replacing. The average life for this chiller is 20 to 25 years and the age of this unit is at its peak.

We have budgeted an exact replacement keeping cost down to a minimal.

Budget for new CC chiller is \$57,000.00

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Two Mycom 2M series Complete Compressor Packages:

Mycom now have new energy efficient compressors saving the customer in operating cost and maintenance cost. By utilizing the M series compressor in replacement of the 8WA the approximate savings per year based on 6 cents per KW are \$1,070.81 per machine. You are also reducing the cylinders from 8 to 2 and increasing the maintenance schedule by approximately 60%.

Budget for new Compressor Packages will also include upgrading the old style oil separators and the entire relief system will be brought up to code.

Budget \$140,000.00

Domestic water heat recovery System:

Installation of a Doucette heat exchanger from domestic incoming water will be preheated from ammonia discharge resulting in free heat and savings on the hot water for zamboni and hot water for facility. A storage tank from Doucette will also be installed storing the pre heated water before entering the boiler. This installation includes everything on the ammonia side and water side.

Budget \$40,000.00

There should be programs in place in BC where you would probably receive funds from power suppliers installing new energy efficient equipment in your plant room.

If you have any questions or concerns, please do not hesitate to contact me at your convenience.

Regards,

Sales Representative

Toll Free: 1 800 555-9439

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T2E 8W1

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E-mail address – [redacted]@startec.ca

Date:	Jan 04, 2011
From:	[redacted]
To:	[redacted]
Re:	Ice Plant Projects

Dear [redacted],

As per your request, please see work that will be required in the arena ice plant room in the near future. Due to the age of the equipment it is strongly recommended that there be attention to replacing soon before major failure.

Safety Authority Inspection Issues:

As per the request of the Safety Authority, once the existing oil separators are replaced with new and to code, the new oil separators will require pressure relief valves designed for the separators which will make the existing relief header undersized. The existing relief header will then be required to be upgraded to a 3" header and all existing reliefs will then be required to be tied into new header. The relief header stack outside is also against code and will have to be 25ft away from any opening or walkway to facility. Also included in the oil separator portion will be new inline check valve, shut off valve and liquid drainer to compressor. We will also change the discharge line to accommodate the new style oil separators.

As per the request of the Inspection, we would recommend that the High pressure receiver be replaced instead of re-certifying. This would be cost effective rather than performing a re-certification that could result in a failure due to the age of unit. The money being spent on this procedure is costly and should go towards a new unit. We would install a new unit identical to the piping layout that is in place now eliminating the cost of re piping everything and keeping cost down. New valves are also included due to the age of existing.

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Safety Authority Inspection Issues:

Scope of work:

High Pressure Receiver, Oil Separators and Relief header

Startec will remove the existing ammonia charge to enable the removal of the High Pressure Receiver, Oil Separators and relief header. Once all is removed we will install a new high pressure receiver with the same design and operating conditions as existing. New sight glass and all required valves will be replaced with new. Existing oil separators will be replaced with Chil-Con oil separators designed for the compressors' that are existing. All check valves, isolation valves and oil return line will be included. Startec will install a new relief header as per code and designed for your systems capacities.

**Horizontal Ammonia Receiver Model DLRA-24 13 24" x 13' OAL all steel construction.
Chil-Con Oil Separators Model COS -070 All welded Coalescing Style.**

Price for this project Supplied and installed is \$97,400.00 plus applicable taxes.

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Mycom now have new energy efficient compressors saving the customer in operating cost and maintenance cost. By utilizing the M series compressor in replacement of the 8WA the approximate savings per year based on 6 cents per KW are \$1,070.81 per machine. You are also reducing the cylinders from 8 to 2 and increasing the maintenance schedule by approximately 60%.

Price for this project Supplied and installed \$86,000.00 plus applicable taxes.

Domestic water heat recovery System:

Installation of a Doucette heat exchanger from domestic incoming water will be preheated from ammonia discharge resulting in free heat and savings on the hot water for zamboni and hot water for facility. A storage tank from Doucette will also be installed storing the pre heated water before entering the boiler. This installation includes everything on the ammonia side and water side.

Budget \$40,000.00

As discussed on site regarding the VFD controls for all pumps. This cannot be installed at this time due to no way of controlling the VFD's on temperature. We suggest a plan should be in place for a total renovation of electrical system and brought up to date.

Budget \$100,000.00 for a complete new electrical system with a computerized control system.

If you have any questions or concerns, please do not hesitate to contact me at your convenience.

Regards,

██████████
Sales Representative
Dir: ██████████
Cel: ██████████
Fax: ██████████
Toll Free: 1 800 555-9439

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