

Note that these field results were gathered by York engineers on York equipment with York software

YORK AIR CONDITIONING CHILLER EQUIPMENT PILOT **IceCOLD™ REFRIGERANT COMPRESSOR OIL FOULING REMOVER**

Objective

The objective is to determine the effect of IceCOLD™ Refrigerant Compressor Oil Fouling Remover on performance of a 120 ton York Chiller as measured by power used by the chiller.

Facility

The facility is a 25 story building in Mexico City in the Republic of Mexico.

AC Equipment

The equipment is a 120 ton York Chiller unit. The unit is the primary unit that works in series with 5 additional units.

Methods

Performance data was collected for an 11 day period in order to establish a performance baseline. IceCOLD™ Refrigerant Compressor Oil Fouling Remover was added and performance data was collected for an 11 day period. The performance data was gathered internally with the York instrumentation system installed in Torre Esmeralda. A portable unit was also used to collect the kWh and amperes data for the treated Chiller. The performance data included kWh, amperes, run time, starts, chiller water temperatures, suction pressures, and outside temperature. The data was collected every 15 minutes. The data collection was done by Ing. Roberto Sandoval, a York supervisor. See Attachment 3 for all data gathered by York for this analysis of energy savings using York Talk II software.

Installation

The installation was sponsored by York (Manufacturer) Air Conditioning Equipment Company and by observed by David Pickett, CEO of U.S. Refrigeration Technologies, LLC, Inc. of Dallas, Texas and its Mexican affiliate, Xicron Partners. The installation was conducted by CYVSA, the largest air conditioning maintenance company in Mexico, which provides 24/7 AC maintenance to the Esmeralda Tower.

Calculation Methodology

Calculation of changes in efficiency in refrigeration systems consists of a relationship between the following parameters:

- Refrigeration load demand as measured and expressed in kilowatt-hours (kWh)
- Refrigeration load demand as measured and expressed in cooling degree days (CDD)

The amount of power consumed to extract heat from the air volume of the building per cooling degree-day (kWh/CDD) was calculated daily to compare the average power consumption before and after treatment to measure changes in energy efficiency.

Evaluation Results

Pretreatment Period: Average baseline energy consumption was 787.020182 kWh/CDD. (May 6 to May 19)

Post Treatment Period: Average energy consumption was 563.00578 kWh/CDD. (May 20 to June 2)

Efficiency Improvement: The combined efficiency improvement of all systems was **28.0%**.

Return on Investment (ROI)

The ANNUAL ENERGY SAVINGS for 10 YEARS is shown in Attachment 1. The projected 10 year energy savings is \$262,844 (US dollars).

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