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FINAL REPORT

Name of the consignee	UNIDO Procurement Services Unit Operational Support Services Branch
Address of the consignee	Wagramer Str.5 ; P.O.Box 300 ; A-1400 Vienna ; Austria
Project no	MP/RER/05/010
Project title	Replacement of a Water Cooled Centrifugal Chiller at OHIS Chemical Complex
UNIDO Contract no	16001291

date	14.04.2008
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Responsible	GJORGJI GJORCEVSKI, B.Sc. El., Project Manager	

I. Counterpart on site activities

The Counterpart on site activities, in regards to the thermo-technical and electro installations and installment of the water chiller i.e. project : Replacement of a water cooled centrifugal chiller at OHIS Chemical Complex, UNIDO contract no. 16001291 **are finished**.

All thermo technical and electro connections to/and for the chiller were checked from our side, as supplier and supervisor of the works, and they are confirmed as satisfying in quality and technical design.

Development of activities:

- On 21.12.2007 first trial work start up, commissioning and functional testing of the chiller, in presence of the Counterpart representatives and technical personnel, was established. The start up was realized successfully and the chiller was working within the range of preset parameters.
- On 01.04.2008 the Counterpart eliminated the marked imperfections on the installations and we were in position to perform the preparation procedure for final start up, according manufacturer's recommendation.
- On 03.04.2008 final start up of the chiller was performed successfully and the chiller managed its stated working parameters.

The whole procedure, including the working parameters of the chiller, are given in the enclosed Report of chiller start up, that is duly signed and stamped by the two parties.

Also, we inform you that the power meter and all energy devices and instruments are installed and will start the gathering of energy measurements and comparison of the energy efficiency ratio, as soon as the chiller starts its continuous work and season.

II. Training of personnel

As informed with the Draft final report, the on-the-job training of the personnel assigned by the Counterpart, in terms of introduction to the basic features of the equipment, hints and basic functioning principles and procedure of following up of the equipment, was realized during the trial start up of the chiller in the period of December, 2007.

With the final start up, all training in regards to the microprocessor controller usage and readings, as well as standard performance of the equipment, was organized and performed in March/ April, 2008.

Enclosed:

1. Report for chiller start up procedure, commissioning, start up and training of personnel

REPORT

for startup the water cooled chiller

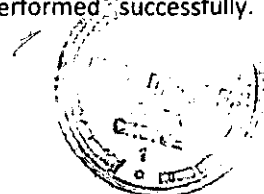
Type: McQuay
Model: WHS 196.2 XE ST
Serial No: OV07-05115
Year of manufacture: 2007

On day 01.04.2008, Tuesday, inspection (supervision) of the pipe and electrical installation was done for connecting the above mentioned chiller by the user. In the process few imperfections are noticed and for which we have reported to the user with suggestion for their removal.

After removal of these imperfections, preparation procedure for startup the chiller was done.

1. All electrical disconnects were open and confirmed that electrical connections are tight.
2. Confirmed that water piping flow directions are correct and properly connected at the evaporator and condenser.
3. Using a phase tester, confirmed that electrical phasing to each compressor circuit is A-B-C for phases L1, L2, & L3 respectively.
4. Confirmed that unit power supply is within 10% of nameplate rating.
5. Confirmed that power supply wiring is correct size and has a minimum temperature insulation rating of 75 °C.
6. Confirmed that all mechanical and electrical inspections have been completed according to local code.
7. It was made certain that all auxiliary control equipment is operative and an adequate cooling load is available.
8. Checked all compressor valve connections for tightness.
9. Compressor suction valve was opened until back-seated.
10. Discharge shutoff valve was opened until back-seated.
11. Air from the evaporator and condenser water system piping was vented.
12. All water flow valves were opened and chilled water pump was started.
13. Checked all piping for leaks.
14. Flushed the evaporator and condenser system piping.
15. Power was supplied to the chiller and the chiller's power supply switch was turned on for 24 hours for compressor's oil preheating before the chiller is started.

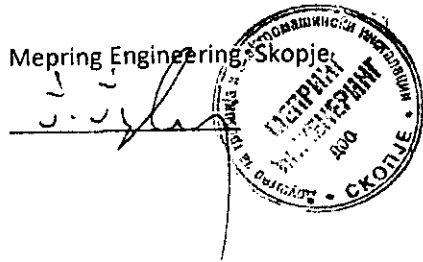
After 24h preheating on 03.04.2008 the chiller was startup and after operating for 2h it was established that no technical problems have occurred and it was performed successfully.



The chiller managed the nominal requirements and parameters, stated from the manufacturer for the first startup procedure, so that the functionality could be confirmed.

Training was performed for the user's personnel for usage and managing of the chiller, microprocess control along with the interface and, also, reading, identification and removal of the eventually appeared alarms.

Mepring Engineering, Skopje



A small, handwritten signature in black ink, consisting of a few stylized letters.

AD Ohis, Skopje

