

# TOWER ASSESSMENT REPORT

PREPARED FOR:

PREPARED BY: MAC-TOWER INC  
15-1201 GRASSMERE RD  
WEST ST. PAUL, MANITOBA  
R4A 1C4





MODEL: LSTA 5-125

SERIAL: 149520

# **EVAPCO – COOLING TOWER 1**

## **MANUFACTURED BY CIMCO LTD**

# Discharge Air Dampers

BOTH COOLING TOWERS MISSING DAMPERS. NO LOUVERS AND ELIMINATORS BROKEN.





# INLET LOUVERS

APPEAR TO BE FUNCTIONAL





# DISCHARGE AIR DAMPER MOTOR

NOT CONNECTED BECAUSE THERE IS NO LOUVERS



# CAPACITY CONTROL DAMPER

SHOULD BE REMOVED; NO LONGER NEEDED





# FILL

## DAMAGED AND DIRTY





# DAMAGED FILL AND PLUGGED NOZZLES





# NOZZLES

NOZZLES ARE PLUGGED





# ELIMINATORS

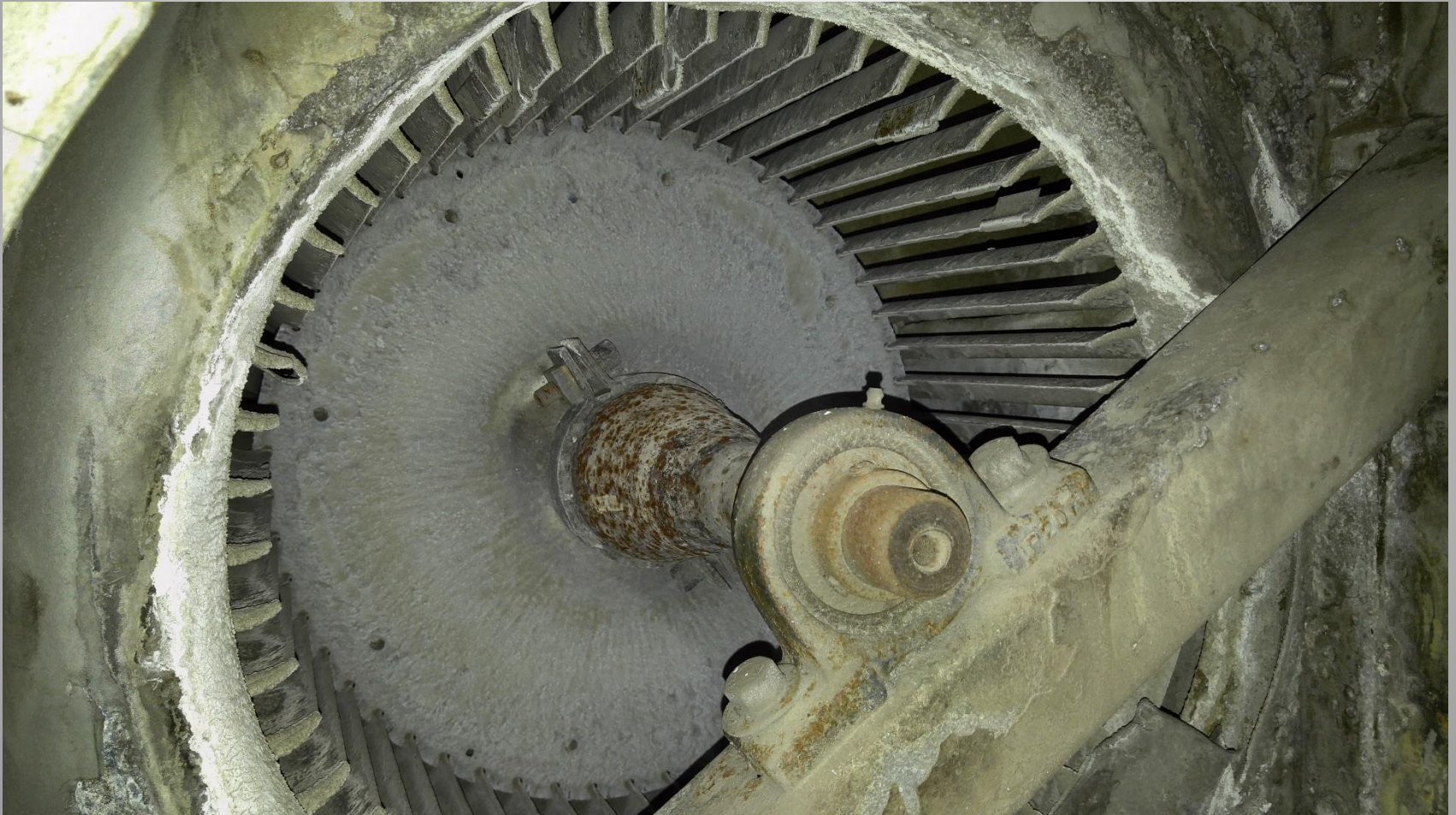
BROKEN & ALGAE GROWTH





# BLOWER SECTION

## SCALE BUILD UP



# MOTOR END BELL GREASE FITTING

DOES NOT APPEAR TO BE GREASED





# OPPOSITE MOTOR END BELL

GREASE RUNNING DOWN MOTOR



# BLOWER SECTION





# BLOWER SECTION

## SIGNS OF LEAKAGE



# BELTS

RECOMMEND USING 4 BANDED BELT





# GREASE LINE DISCONNECTED





# ELECTRONIC WATER LEVEL CONTROL

BROKEN OFF OF SIDE OF TOWER; NO ACCESS TO CLEAN





# ELECTRONIC WATER LEVEL CONTROL & HEATER CONTROLS



# SUMP HEATER CONTROL

SUMP HEATER NOT FUNCTIONAL





# ACCESS DOOR

ICE BUILD UP

SUMP HEATER NOT FUNCTIONAL; EWLC OUTSIDE COVER IS BROKEN



# ACCESS DOOR

## SIGNS OF LEAKAGE





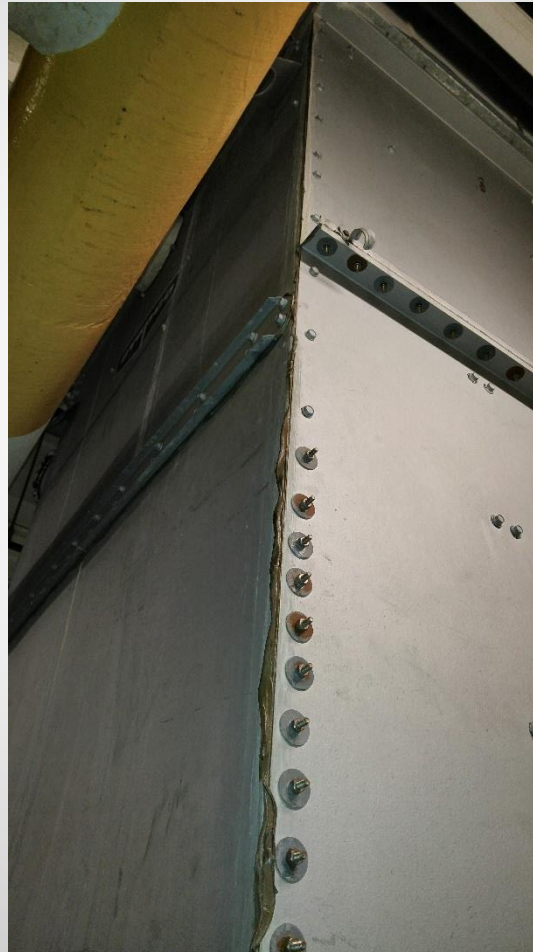
# SEAMS

NEED TO CONFIRM IF LEAKING CURRENTLY



# SEAMS

APPEARS TO HAVE BEEN SEALED – NEED TO CONFIRM IF CURRENTLY LEAKING





# SEAL

OLD LOCATION OF HEATER CONTROL



# PATCH

NOTE CORROSION





# LEAKING FITTING





# DRAIN

CHEMICAL BUILD UP FROM BLEED OR OVERFILL





# WATER METER

WAS LEAKING – FIXED DURING INSPECTION



# SUMP HEATER

LOCKED OUT SINCE 2007





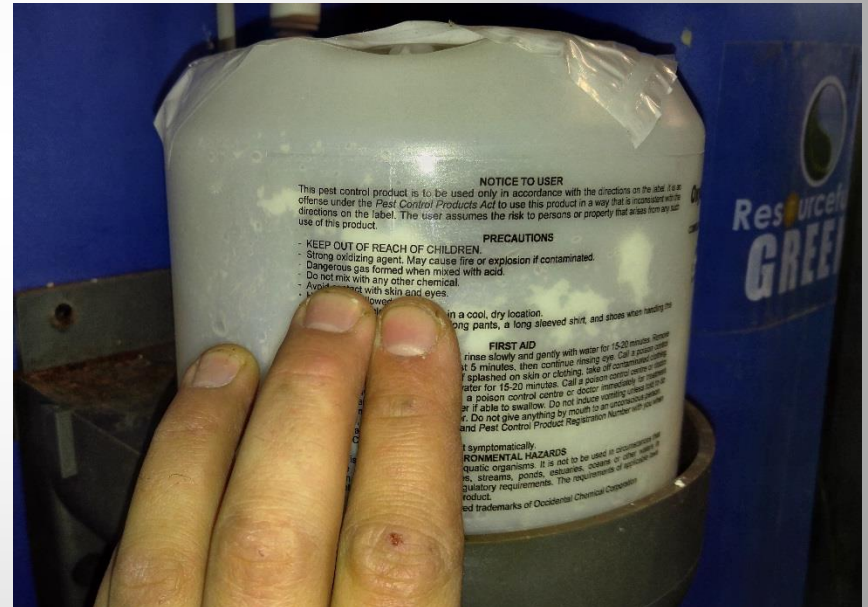
# SUMP

EXCESSIVE SEDIMENT AND DEBRIS IN SUMP

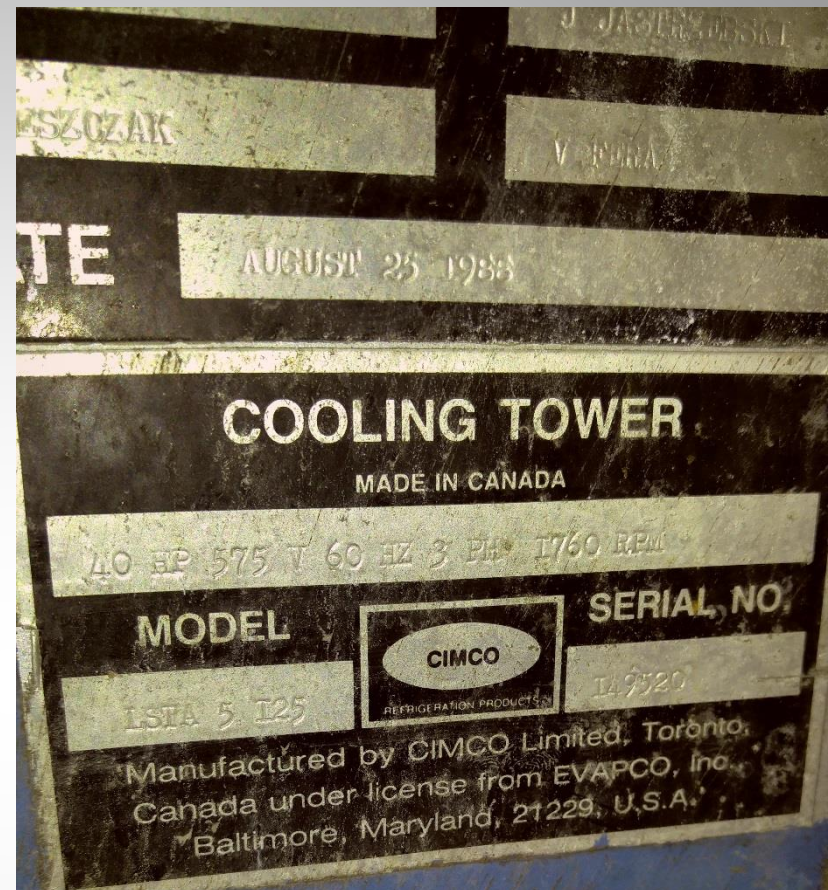


# CHEMICAL SET UP

**OXYCHEM: DANGEROUS GAS FORMED WHEN MIXED WITH ACID** (OTHER TOWER IS RUNNING ACID)







MODEL: LSTA 5-125

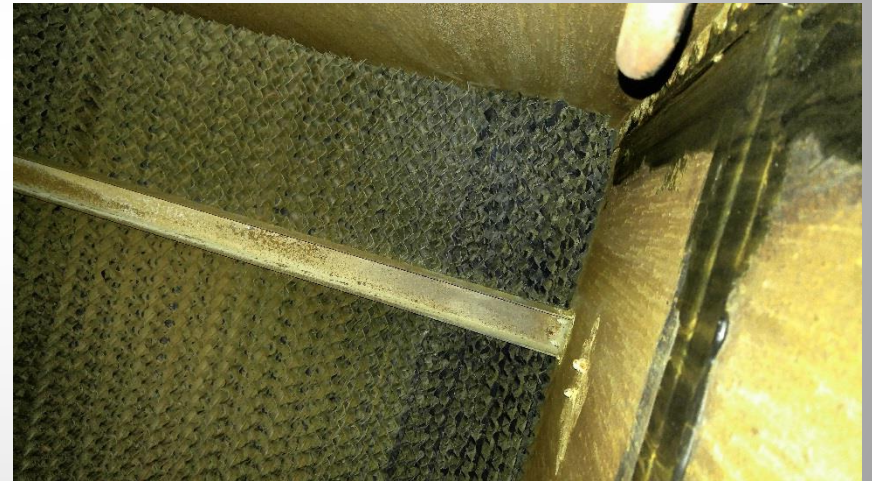
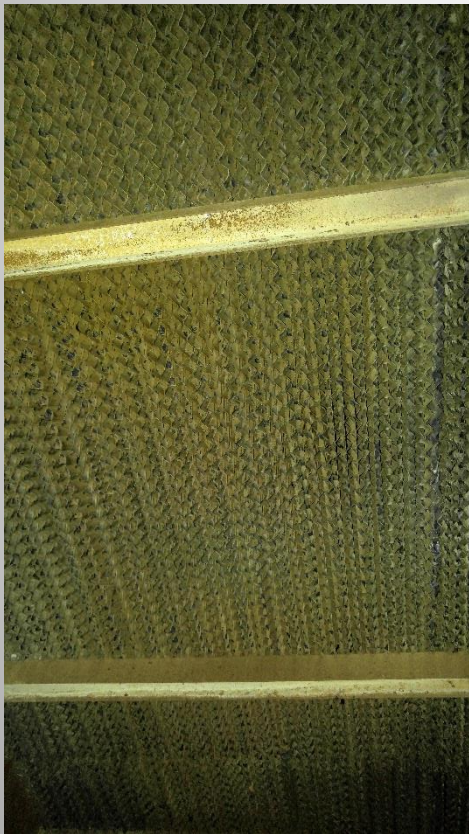
SERIAL: 149520

## EVAPCO – COOLING TOWER 2

MANUFACTURED BY CIMCO LTD

# FILL

DIRTY & BRITTLE





# BLOWER SECTION



# BELTS

RECOMMEND USING 4 BANDED BELT  
1 BELT MISSING





# BELTS

BELT STUCK IN MOTOR  
REMOVED BROKEN BELT DURING INSPECTION





# ELECTRONIC WATER LEVEL CONTROL

BROKEN OFF OF SIDE OF TOWER; NO ACCESS TO CLEAN





# ACCESS DOOR

## SIGNS OF LEAKAGE



# ACCESS DOOR

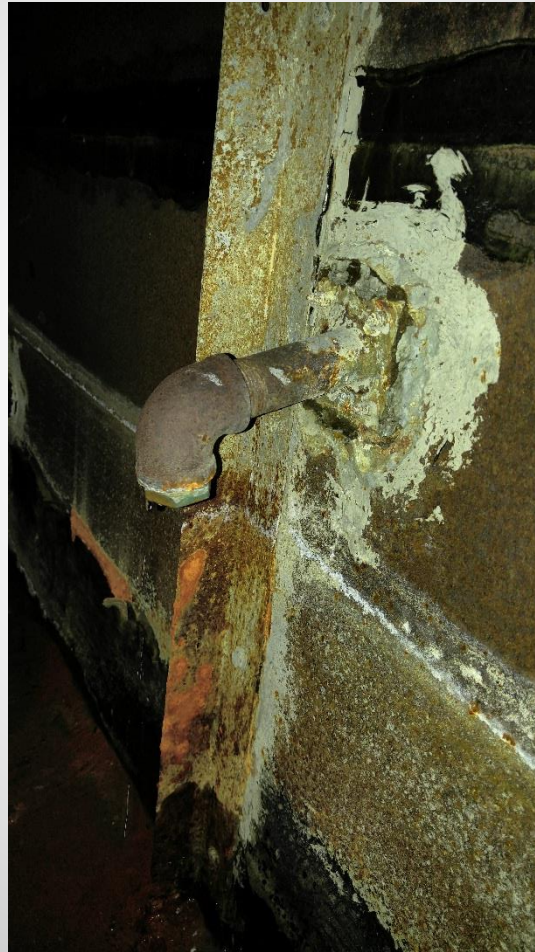
PANEL BENT





# WATER FILL VALVE LEAKING

ISOLATION VALVE LEAKS



# SEAMS

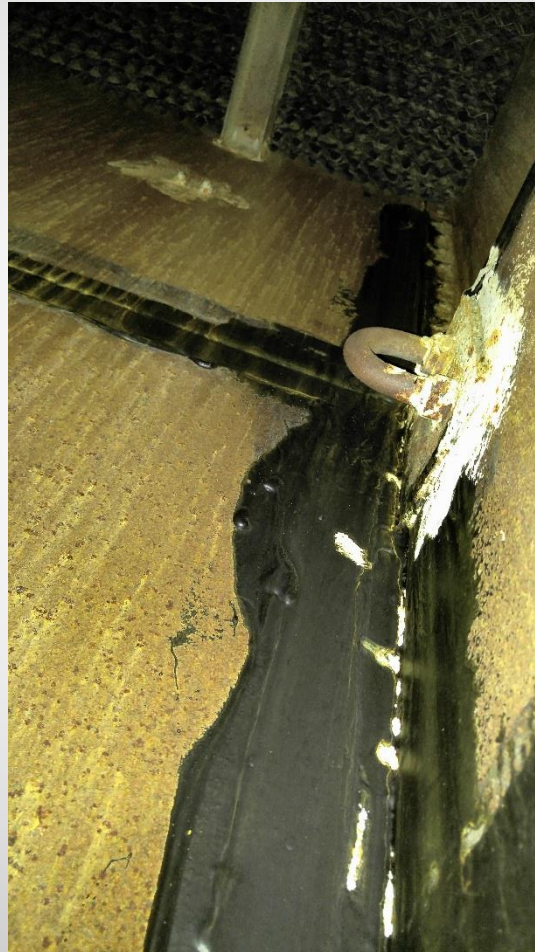
NEED TO CONFIRM IF LEAKING CURRENTLY





# SEAMS

APPEARS TO HAVE BEEN SEALED – NEED TO CONFIRM IF CURRENTLY LEAKING



# SCALE BUILD UP





# LEAK



# LINER

## PEELING





# LINER

## PEELING





# SUMP HEATER





# SUCTION INLET

MISSING STRAINER



# FINDINGS

## **THERMAL PERFORMANCE:**

### **FILL**

- Fill in Cooling Tower 1 is in poor condition and breaking apart. The fill is extremely dirty and very brittle.
- Fill in Cooling Tower 2 was not accessible from above. However, from the bottom, the fill appears quite dirty and is also very brittle.
- Fill in both cooling towers will need to be replaced.

### **WATER DISTRIBUTION**

- Headers are plugged solid; many nozzles plugged and damaging the fill.
- The spray pattern is poor and ineffective.
- The header section needs to be removed and cleaned or replaced. Nozzles should be replaced.

### **ELIMINATORS**

- The eliminators are plugged and covered with debris.
- Very brittle and falling apart.
- Algae and mold growth present.
- The eliminators are in poor condition.



# FINDINGS

## THERMAL PERFORMANCE:

### DRIVE SECTION

- Discharge louvers are missing.
- Seam leaks in the blower section.
- Over all condition of blower section is satisfactory, but is worth replacing while other upgrades are taking place.

### SYSTEMS CONTROL

- Sump heater in both towers are not working.
- Suction strainers are missing and need to be replaced.
- Electronic Water Level Control is broken in both towers.
- The overall poor condition of the Fill, Eliminators, and Water Distribution has considerably reduced the Thermal Performance of this cooling tower.

# FINDINGS

## **STRUCTURAL INTEGRITY:**

- Corrosion and scale build up on panels and support braces.
- Bent panel near access door causing excess leakage.
- Overall structural integrity is fair to satisfactory.

## **WATER LEAKS:**

- Towers were not running during inspection – current leaks were not able to be inspected.
- Appears sealing and patching in the past was attempted. The liner installed previously is peeling and is no longer effective.



# ACTIONS REQUIRED IN MANNER OF PRIORITY

# PART ONE: HIGH PRIORITY

- Clean or replace header section, and replace eliminators, fill and nozzles.
- Repair leaks at panel seams, bolts, and collars while fill and headers are removed for replacement.
- Replace discharge air damper section.
- Replace blower section.
- Evap-Line or replace entire cold water basin and install new strainer and supports.
- Replace electronic water level control.
- Replace sump heater and controls.



# PART TWO: MEDIUM PRIORITY

- Install new water treatment system that is safer and more effective.



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