DIFFCOR
New Generation Surface Engineering

DIFFUSION
Innovative superconditioning solutions

REPORT NO: DCQ/ NGP/2020-21/04

APPLICATION REPORT

SURFACE CONDENSER COATING (TG-5)

ITC Enduring Value | PAPERBOARDS AND SPECIALTY PAPERS DIVISION

AT

ITC LIMITED, PAPERBOARDS & SPECIALTY PAPERS DIVISION, SARAPAKA, BHADRACHALAM (TELANGANA)

INTRODUCTION:-

DIFFCOR division of DIFFUSION ENGINEERS LTD successfully completed job work for Internal coating of SURFACE CONDENSER. This job work was carried out for our customer ITC LIMITED, PSPD, BHADRACHALAM. Our customer were facing problem of high corrosion and pitting. Coating was done with DIFFGLASS PRIME and CERAMETAL 3.

Turbo generator (TG):

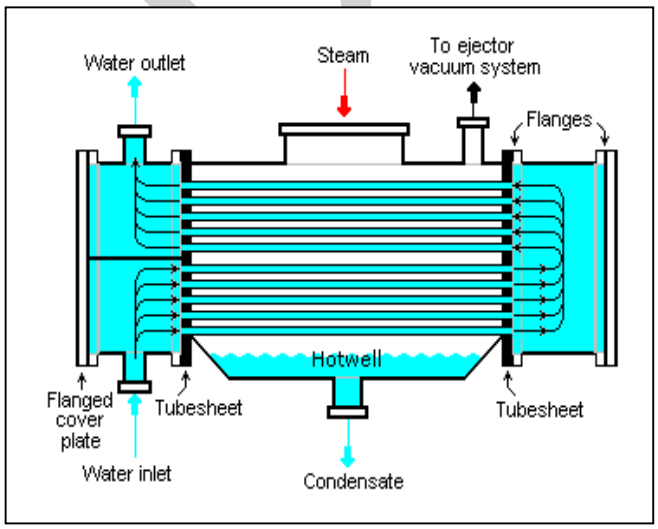
A turbo generator set or turbine generator set is the compound of a steam turbine or gas turbine shaft-connected to a fast running electric generator for the generation of electric power. Large steam-powered turbo generators provide the majority of the world's electricity and are also used by steam-powered turbo-electric ships.

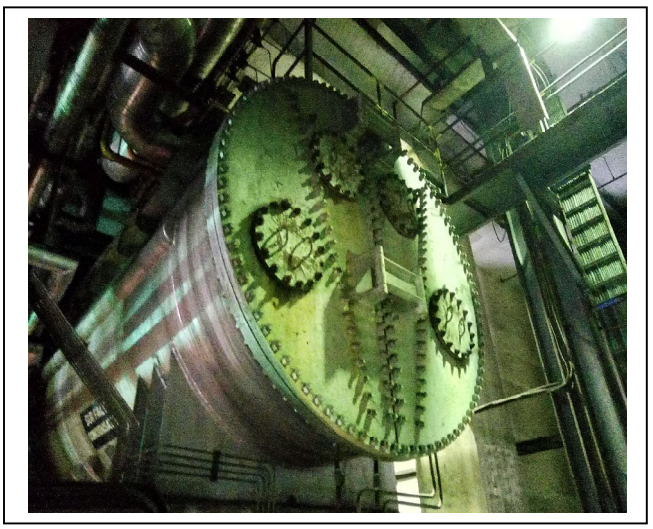
Surface condenser:

A surface condenser is a commonly used term for a water-cooled shell and tube heat exchanger installed to condense exhaust steam from a steam turbine in thermal power stations. These condensers are heat exchangers which convert steam from its gaseous to its liquid state at a pressure below atmospheric pressure. Where cooling water is in short supply, an air-cooled condenser is often used. An air-cooled condenser is however, significantly more expensive and cannot achieve as low a steam turbine exhaust pressure (and temperature) as a water-cooled surface condenser.

The cooling water from the cooling water inlet is filled inside the tubes and the exhaust steam from exhaust steam inlet enters into the cylinder surrounding, thereby rejecting the heat and condenses the steam into the water which is collected at the bottom of the condenser and the impure water is sent out from the water outlet.

Base metal: Mild steel (C.S, IS 2062)
Media: Cooling water
Shape: Circular
Type: SCD2-2100
No. of tubes: 5950
Cooling water inlet temp.: 36^0C
Cooling water outlet temp.: 46^0C





PROBLEMS:-

Crevice Corrosion refers to the localized attack on a metal surface at, or immediately adjacent to the gap or crevice between two joining surfaces. The gap or crevice can be formed between two metals or a metal and non-metallic material. Outside the gap or without the gap, both metals are resistant to corrosion.

1. Corrosion of Condenser tube sheets was major problem for customer.

2. Loss of tubesheet metal due to corrosion leads to the compromise of tube-to tubesheet joint integrity.

3. The outer edge was severely corroded and lost its original shape and thickness.

PRODUCT RECOMMENDED:-

1. DIFF GLASS PRIME:

DIFF-GLASS PRIME is a Two-pack polyamine cured epoxy priming surface tolerant compound incorporating a rust inhibitor and passivator.

2. CERAMETAL 3:

CERAMETAL 3 is a low friction corrosion resistant two component solvent-free lining compound specially designed to combat erosion/corrosion found in fluid flow environments. It is easily applied by brush or roller, keeping application cost to a minimum. The finished system can be spark tested to ensure that no pinholes or holidays are present in the lining. It is a ‘resin rich’ system that ‘wets out’ surfaces completely thus ensuring maximum adhesion. It is the most economical chemical and corrosion resistant coating system for the most aggressive industrial environments. It exhibits excellent adhesion to concrete as well as metal surface.

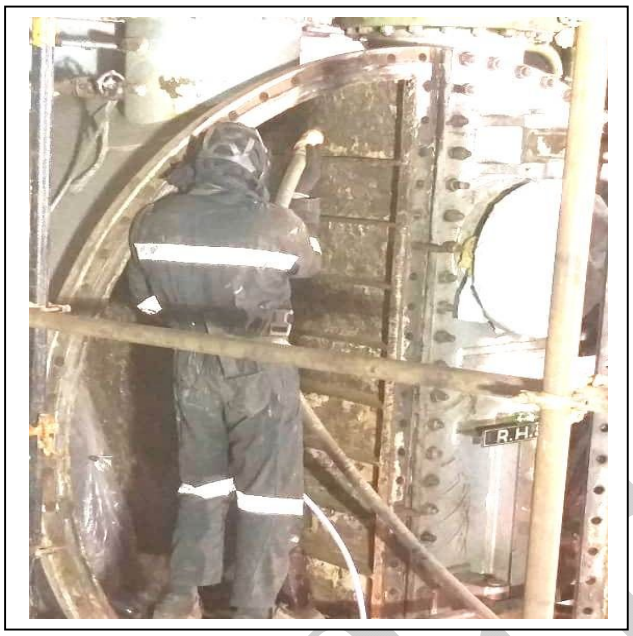
APPLICATION PROCEDURE:

A.SURFACE PREPARATION

1. Before application of any kind of coating surface preparation is must to activate the base metal so that coating will have better bonding.

2. Fixed dummy plug in condenser tube before started blasting.

3. The surface preparation was done by Abrasive grit blasting.



B.PRODUCT APPLICATION:-

1. After surface preparation First coat of **DIFFGLASS PRIME** was applied with slight pressure.

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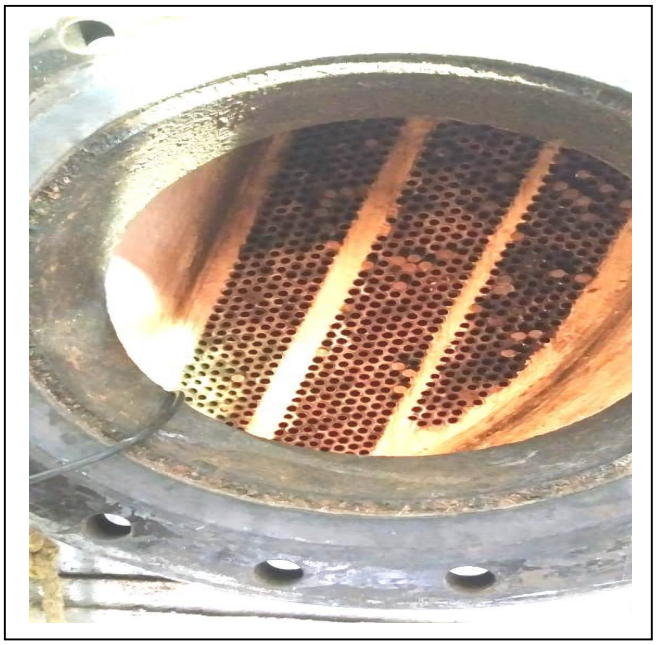

Fig: Application of DIFFGLASS PRIME as primer

2. Top coat of **CERAMETAL 3** was applied after that to increase the corrosion resitance.

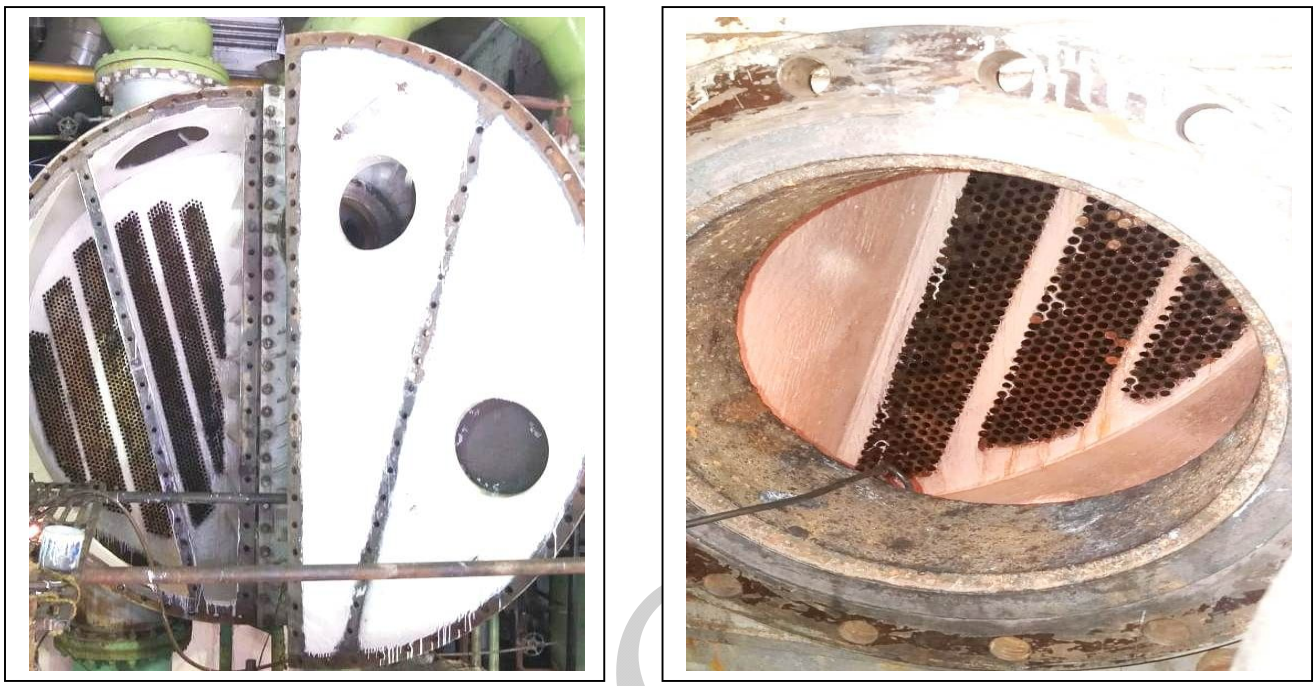

Fig. Application of CERAMETAL 3 as Top coat

ACKNOWLEDGEMENT:-

SITE ENGINEERS:-

Mr. Ashish Ganvir (Product Specialist)

AREA ENGINEER:-

Mr. Balla Sandeep (Area Manager)

AGENCY INVOLED:-

Sri Lakshmi Tulasi Enterprises, Rajahmundry

APPLICATION TEAM:-

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