DIFFCOR
New Generation Surface Engineering

DIFFUSION
Innovative superconditioning solutions

REPORT NO: DCQ/ NGP/2023-24/09

APPLICATION REPORT

INTERNAL ANTI CORROSION COATING
OF
DM PLANT- DUAL MEDIA FILTER(DMF) TANK(VESSEL)

AT
ITC LIMITED
PAPERBOARDS & SPECIALTY PAPERS DIVISION, SARAPAKA, BHADRACHALAM, DIST. BHADRADRI-KOTHAGUDEM (TELANGANA)

INTRODUCTION:-

DIFFCOR division of DIFFUSION ENGINEERS LIMITED successfully completed job work for Anti corrosion coating in DMF tank. This job work was carried out for our customer ITC Limited, Bhadrachalam. Our customer was facing the problem of corrosion. Coating was done with DIFFGLASS XTREME.

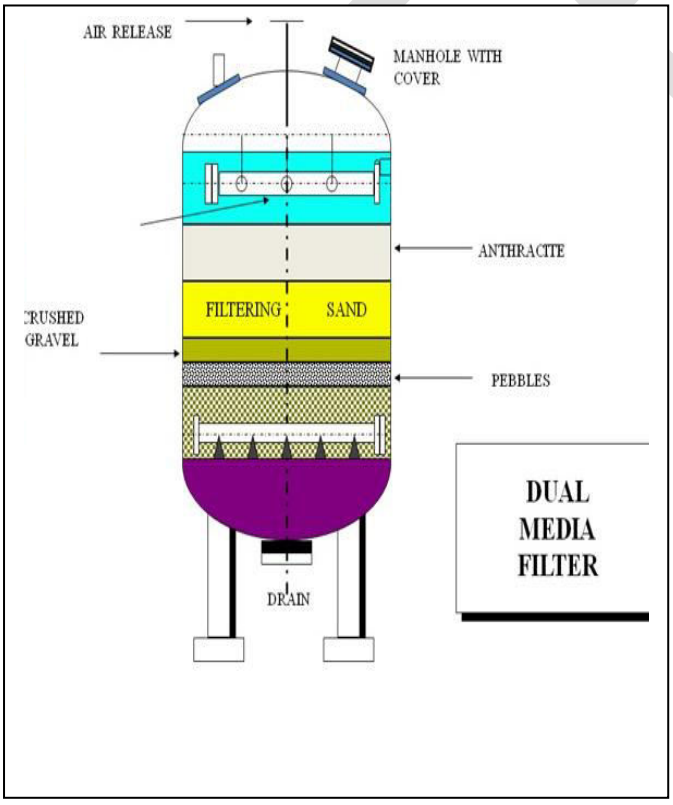
Dual media filter (DMF):-

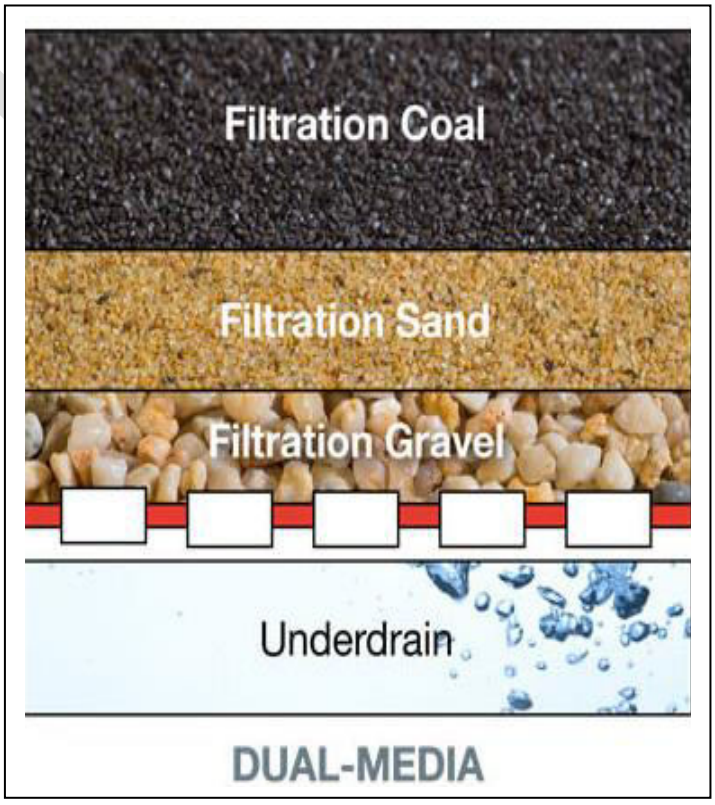
A dual media filter utilizes two layers for the filter process which is known as in-depth filtration. This process uses different layers to screen out or remove any impurities before they reach the filter bed. A dual filter system is commonly used in the industrial water treatment industry and requires proper selection of filter media to suit the filter use.

The ideal top layer for a dual media filter is Anthracite, a filter coal, as it has a greater surface area and can hold more dirt and impurities over sand. Anthracite provides in-depth filtration with its larger storage capacity and thereby retains efficiency due to the high-carbon nature of the media which makes it durable and can resist erosion. Placing sand as the bottom layer of the filter keeps it relatively unpolluted due to the qualities of the Anthracite and enables more effective filtration. As the sand is naturally unpolluted and relatively clean, this layer isn't as dependent on backwashing and also reduces the chance of it becoming biologically corrupt.

The main benefits of dual media filtration:-

- Extended filter cycles
- Improved water quality
- Higher retention of solids
- Generally lower pressure losses





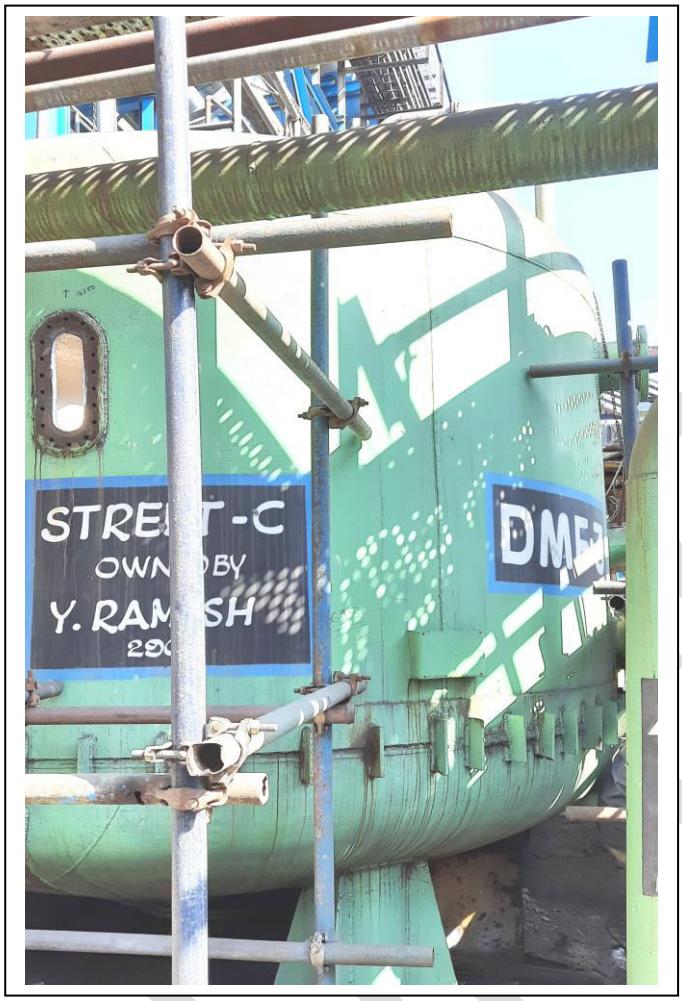
Process diagram of DMF TANK (VESSEL)

PROBLEMS:-

1) Activated carbon filters are used during the process to eliminate organic matter, chlorine and disinfectants from the water in the tank that cause cracks and damage to the rubber lining..

2) As cracks develop on the rubber lining, the corrosive media attacks the base metal of the tank.

3) Corrosion begins beneath the rubber lining and pits the base metal of the tank.



Rubber lining damages inside DMF TANK (VESSEL)

PRODUCT RECOMMENDED:-

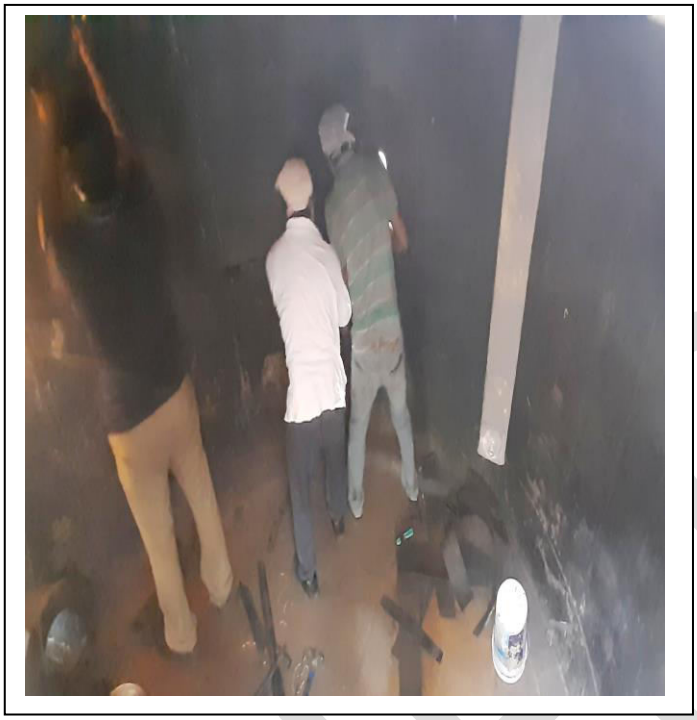
DIFFGLASS XTREME:-

DIFFGLASS XTREME , a heavy-duty lining system for concrete and steel substrates that offers unique combination of vinyl ester novolac resin with Glass flake reinforcement and inert mineral fillers produce a dimensionally stable coating with extremely low permeability and ideally suited for immersion service ,splash/spillage exposure of concentrated acids and aggressive solvents.

APPLICATION PROCEDURED:-

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. Removed existing rubber lining inside the DMF tank before started Grinding and Blasting.
3. After removed rubber lining, rubber spatters removed by Grinding from base metal of tank.
4. After Grinding, surface was cleaned by grit blasting to remove all loose particles. As per ISO standard surface preparation of SA 2 1/2 by blasting with surface profile achieved of 70-90 microns.



Rubber lining removed & Surface preparation done by Grit Blasting

B.PRODUCT APPLICATION:-

1) After surface preparation, priming coat of **DIFFGLASS XTREME** was applied inside the DMF Tank.

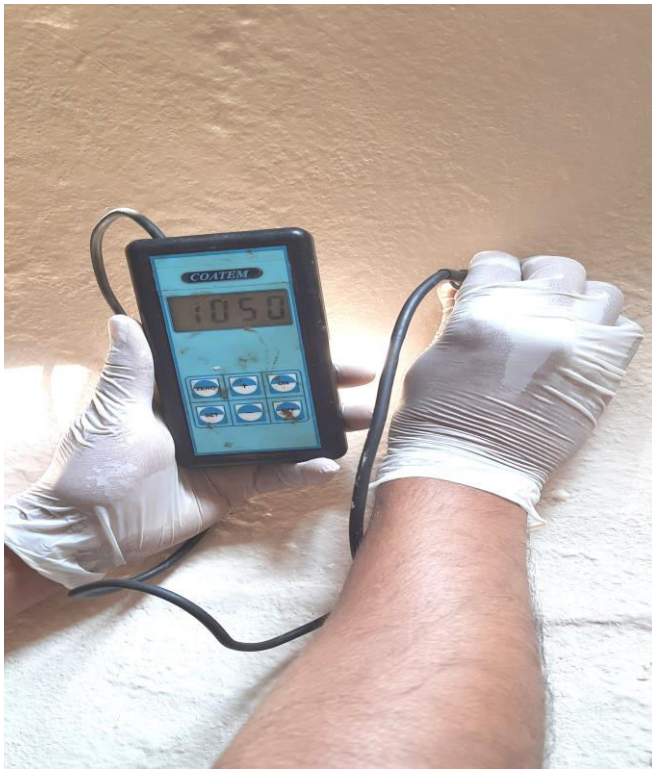
Application of DIFFGLASS XTREME as a Primer coat

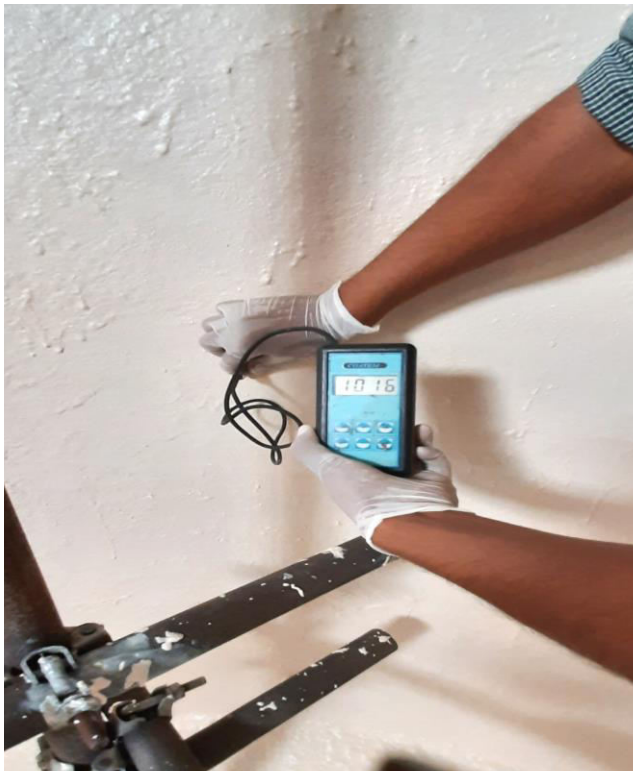
2) After Priming, Top coat of **DIFFGLASS XTREME** was applied inside DMF Tank to improve resistance against corrosion.

Application of DIFFGLASS XTREME as a Top coat

INSPECTION OF COATING:-

1) Dry Film Thickness (DFT): Min. 1000 Microns.





DFT measured on Top coat of DIFFGLASS XTREME coating

2) Spark test (Holiday detector): Min. 8 Kv

Spark checked on Top coat of DIFFGLASS XTREME coating

ACKNOWLEDGEMENT:-

SITE ENGINEER: -

Mr. Ashish Ganvir (Sr. Technical Officer)

AREA ENGINEER:-

Mr. Vinod Yadgiri (Business Manager)

AGENCIES INVOLVED:-

Shri. Lakshmi Tulsi Enterprises, Rajahmundry

APPLICATION TEAM:-

Ashish Deshmukh, Baliram Bisen and Jagendra Kawale.