WET FGD DUCT SURFACE PROTECTION

Corrosion & Erosion protection - Duromar® coatings & linings

A. Problem

The duct surfaces (Inlet, Bypass & Outlet) of a fully operational 8-year-old wet FGD system was severely damaged, due to the varying temperature levels & viscosity of the flue gas flowing through the ducts under continuous operation.

Arudra was required to assess the condition of the duct and provide a suitable protective coating solution to prevent further corrosion, erosion & metal loss damage to the duct.

Protective coating & lining of Wet FGD System Ducts		
1	Industrial Unit	1300 MW Thermal (Coal Fired) Power Plant
2	FGD System Equipment	Inlet, Bypass & Outler Ducts - Wet FGD System
3	No of operating years	8
4	Year of Coating Installation	March 2023
5	Surface Metal Type	Carbon Steel
6	Operating Conditions	Max Wet operating temp: 120^0C
		pH level – 3-12
		Flue Gas Velocity – 20 mtr per second
		Surface Area Coverage: 650 m^2
		Inspection Date: Sept 2023

i. Severely corroded duct surface, specifically around the weld joint areas.
ii. Wall thickness loss noted upto 3mm across several portions of the duct.
iii. Extensive erosion and metal damage across various areas of the duct surface
iv. Frequent downtime and weld repair of dissimilar metal plates carried out to tackle on going corrosion & erosion issues.

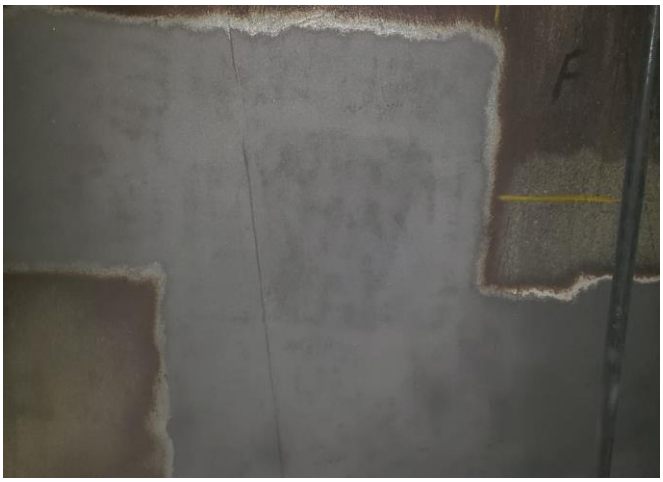
DUROMAR by Arudra

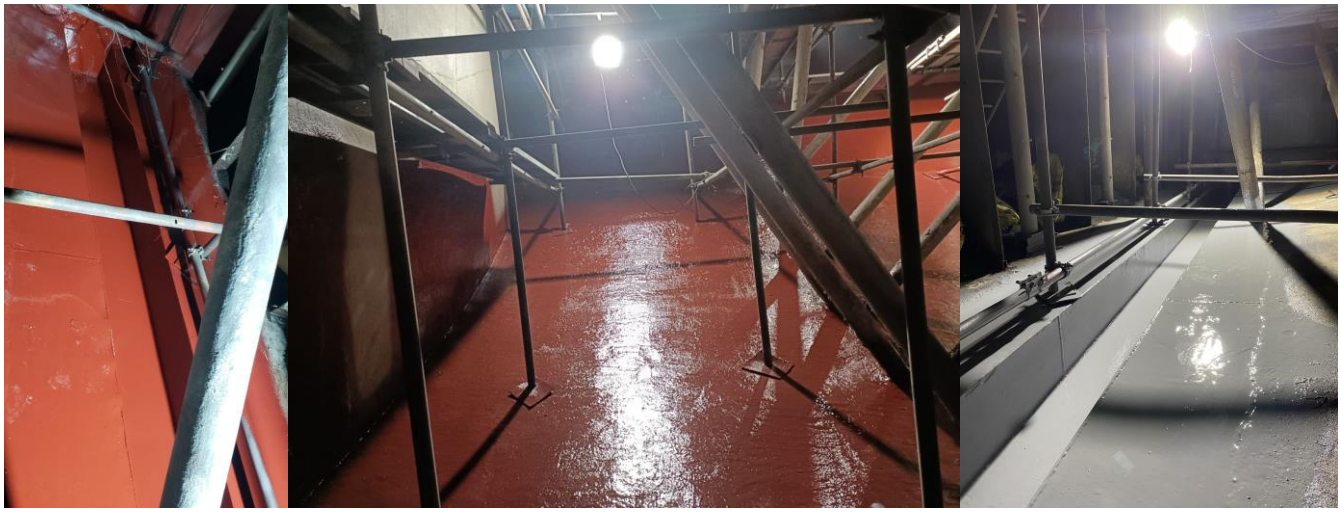
Arudra Engineers Private Limited
No 79, Valmiki Street, Thiruvanmiyur, Chennai – 600041.
Phone No: +91 44 24901623 **email id:** coatings@arudra.co **Website**: www.arudracoatings.com

B. Solution

Upon inspection, the amount of erosion damage seemed to e significant, thereby requiring Arudra to propose a rebuild solution in addition to the topcoat protective coating liner.

i. Installation of scaffolding & cleaning entire internal surface of bypass duct
ii. Holiday inspection of the internal surface of the duct
iii. Abrasive blasting the surfaces as per SSPC 10 standards to achieve SA 2.5 profile.
iv. Installing the Duromar® SAR ceramic putty to cover all eroded portions and across the weld joints and letting the Duromar® SAR cure for 24 hours before installation of topcoat.
v. Installation of Duromar® HPL – 4320 using a singular spray system to achieve an overall thickness of 1.5mm – using a 2 coat system.
vi. Letting the Duromar® HPL – 4320 cure for 48 hours and conducting a thorough holiday tests across coated areas.





C. Result

The condition of the coatings installed across the ducts were inspected for the first time after 7 months of operation and inferred:

i. Duromar® HPL – 4320 was intact across all areas of the duct protected, showcasing outstanding adhesion levels and bond strength.

ii. Duromar® HPL – 4320 provided the required thermal shock resistance given its flexible nature.

iii. Duromar® HPL – 4320 withstood any temperature spikes and chemical attacks that often occur over the course of operation.

iv. Eliminated any wall thickness loss or erosion damages that commonly occur due to the high velocity of flue gas particles.

Arudra – in technical collaboration with Duromar Inc (USA) - is a licensed Indian manufacturer of Duromar® range of epoxy putties, grouts & coating grade products.