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C.S. CHEMICAL SERVICE THAILAND

www.cschemical.co.th

HRSG PRESENTATION



ABOUT US

- Company profile
- Our focus



TERM OF SERVICE

- Water Treatment
- Chemicals Product
- Mechanical Clean
- Chemical Clean



BOILER CLEANING SERVICE

- Problem in the industry
- HRSG Mechanical clean
- Job reference



OUR CLIENT

- All Client



ABOUT US

C.S. CHEMICAL SERVICE [THAILAND]

“

Established in 2001, we operate a business related to maintaining water quality in an industrial factory system and providing consultation about water treatment and chemical cleaning to meet customers' needs by considering the significance of the environmental impact.

”



OUR FOCUS

C.S. CHEMICAL SERVICE [THAILAND]

“

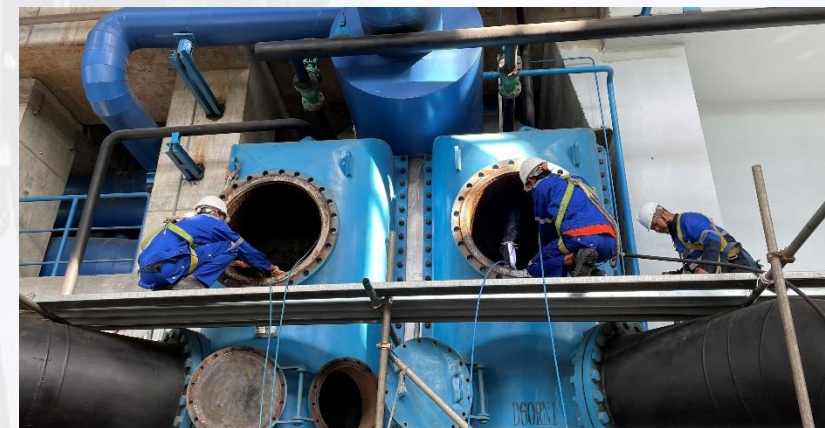
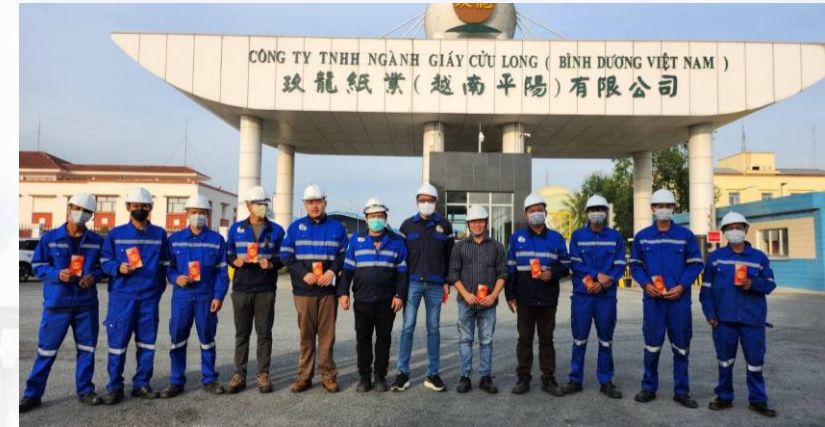
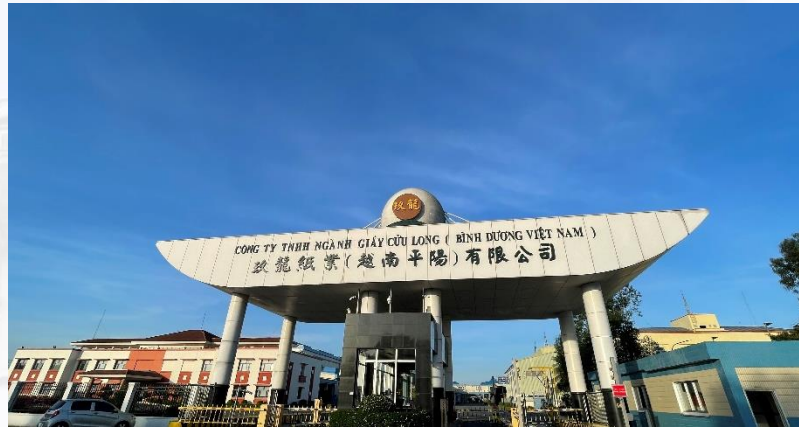
C.S. Chemical Service [Thailand] Co., Ltd. focuses on systematic management in order to efficiently serve target customers such as power plants, the sugar industry, and the food industry.

”



FIRST STEP VIETNAM

C.S. Chemical Service [Thailand] began to expand the market to foreign countries. Starting from establishing a company in Vietnam and operating the first customer is Nine Dragons Paper Factory Co., Ltd in Ho Chi Minh. Under the good feedback from customers.



TERM OF SERVICE

6



WATER TREATMENT & CHEMICAL PRODUCTS

C.S. Chemical Service [Thailand] has many chemicals product for water treatment. Our service team already analyzes water quality and services all clients perfectly.

As follows :

- Chemical treatment product
- Boiler Water Treatment
- Cooling Tower Water Treatment
- Condenser Water Treatment

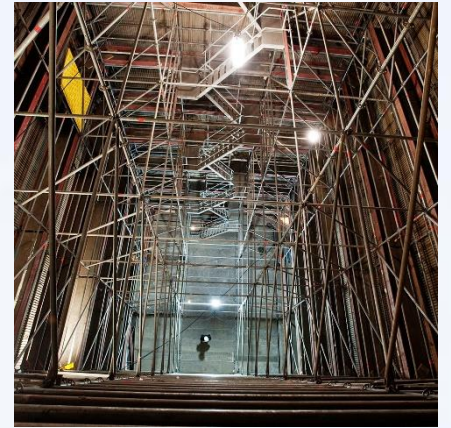


MECHANICAL CLEAN INDUSTRY SERVICE

C.S. Chemical Service [Thailand] has a special solution to remove slag & rust from inside and outside the tube surface. Using a high-pressure water jet from professionals who have been working at the workplace for more than 10 years.

As follows :

- Fire Tube Boiler
- Water Tube Boiler
- Tank farm
- Cooling tower
- Condenser
- Pipeline



CHEMICAL CLEAN INDUSTRY SERVICE

C.S. Chemical Service [Thailand] is a professional in the chemical cleaning process. We use acid for abrasive descaling. Our cleaning program is based on the type of slag. for removing calcium carbonate and magnesium carbonate.

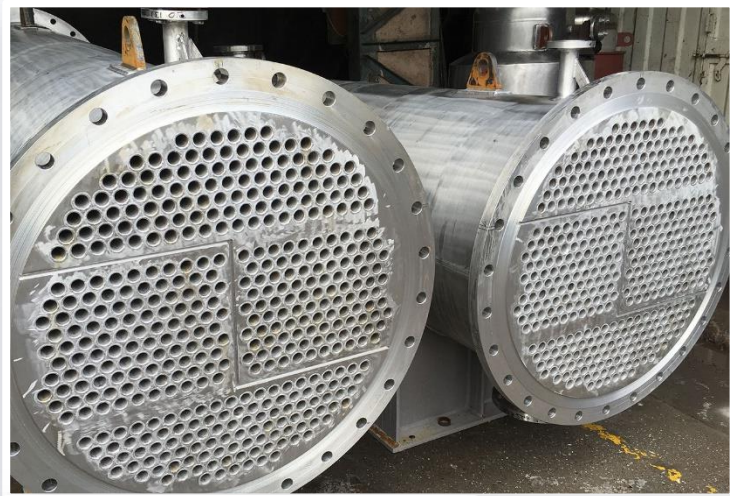
As follows :

- HRSG
- Water Tube Boiler
- Fire Tube Boiler
- Waste heat Boiler
- Condenser
- Pipeline
- Hot oil boiler
- Heat exchanger



TERM OF SERVICE

10





HRSG

MECHANICAL CLEAN

INTRODUCTION

C.S. Chemical Service [Thailand] is a professional chemical clean boiler with under 20 years of experience. We have many cleaning programs for many types of slag such as Calcium carbonate & magnesium carbonate.

PROPOSAL

Most of the problems encountered in operating the boiler systems in the industry. Found that the problem of scale and rust is a common problem and difficult to solve. which causes major problems as follows:

1. Reduce fluid flow rate due to tube diameter being small.
2. Decreases heat transfer efficiency.
3. Uses more power to operate.
4. Makes a high cost for operating.



SCOPE OF WORK

CUSTOMER SUPPLY

1. Coordination
2. Electric at the work site
3. Water supply
4. Forklift
5. Waste pond

C.S. SUPPLY

1. Cleaning chemicals
2. Temporary pipes connect the
3. system for chemical clean
4. Manpower
5. Safety technical
6. Drainage hose
7. Field Laboratory
8. Lighting in the working area

WORK SCHEDULE

- | | |
|--|----------|
| 1. Mobilization and Preparation: | 4 day |
| 2. Chemical cleaning: | 5 days |
| 3. Demobilization
and Pending Work: | 1 day |
| Total | 10 Days. |

CHEMICALS

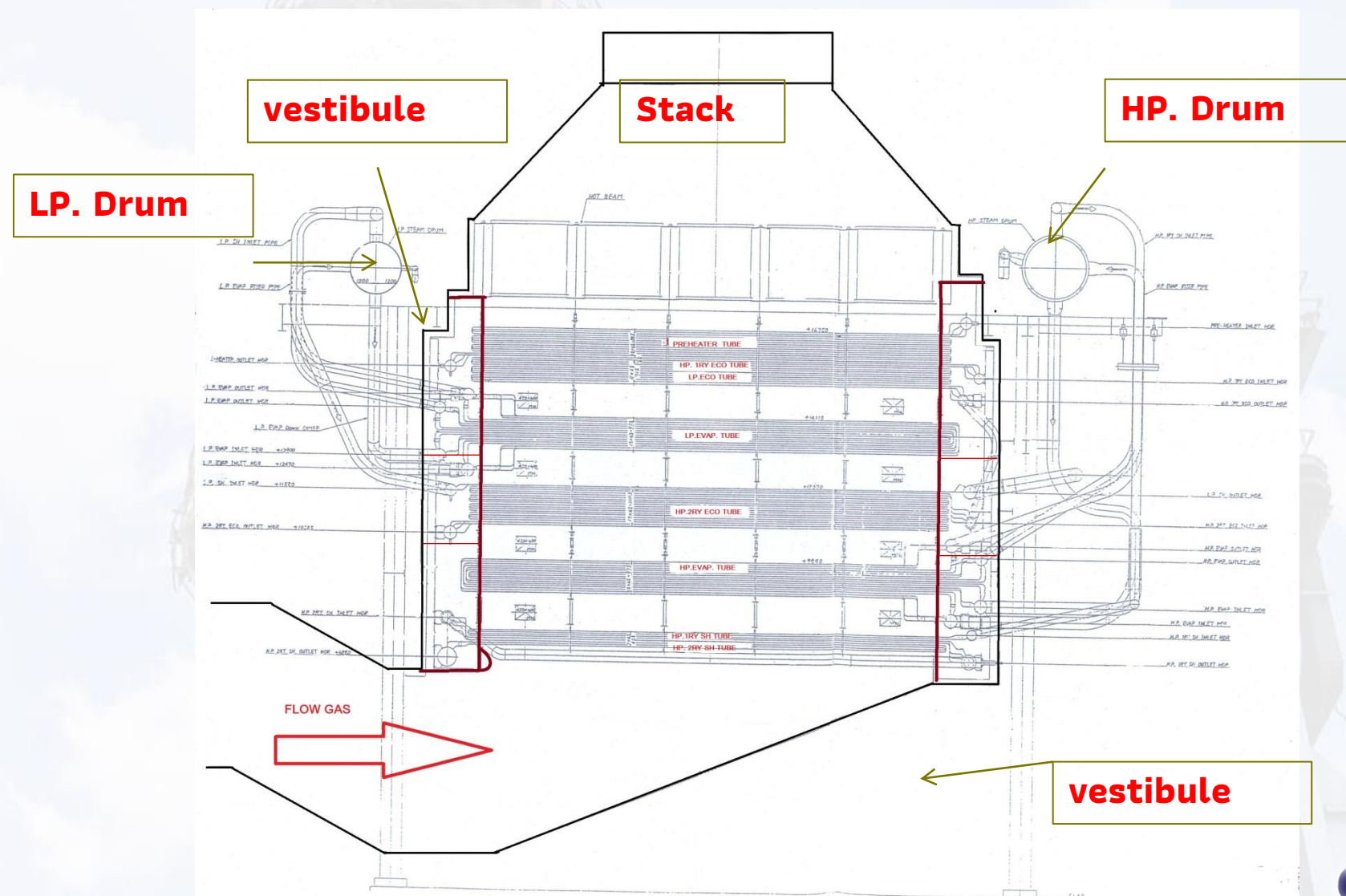
1. Thermoloid: Neutralizer Amine
2. Thermoloid: CS-7000 [Passivation]
3. Thermoloid: CS-7011 [Passivation]

MAIN EQUIPMENT

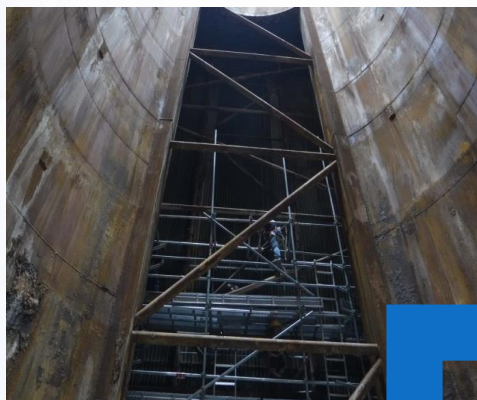
1. High-Pressure Water Jet
2. Main Distribution board
3. Aeration fan
4. Circulating Tank



HRSG DIAGRAM



MECHANICAL CLEAN PROCESS



INSTALLATION

Mobilization to the working area. Set up accessories and connect the pipe system with a circulation tank, circulation pump and temporary equipment



CHEMICAL NEUTRALIZER

Spray neutralizer amine chemical for adjust pH and soaking about 4-6 hours.



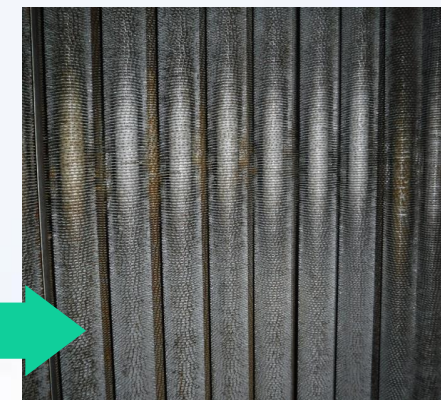
MECHANICAL CLEAN

Mechanical clean by high-pressure water jet [pressure 350-700 bar]



PASSIVATION

Uses a passivation chemical to protect the pipe from oxidation reactions

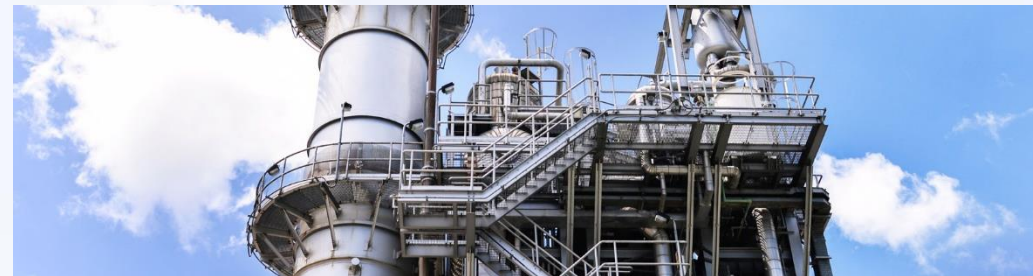


INSPECTION

Check the slag condition inside the pipe.



Process: 1 PREPARATION

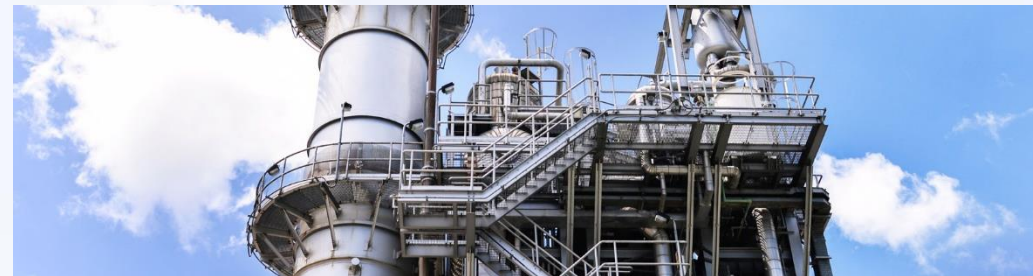


Mobilization to working area. Safety training programs and walks through the equipment. Set up accessories,





Process: 1 PREPARATION

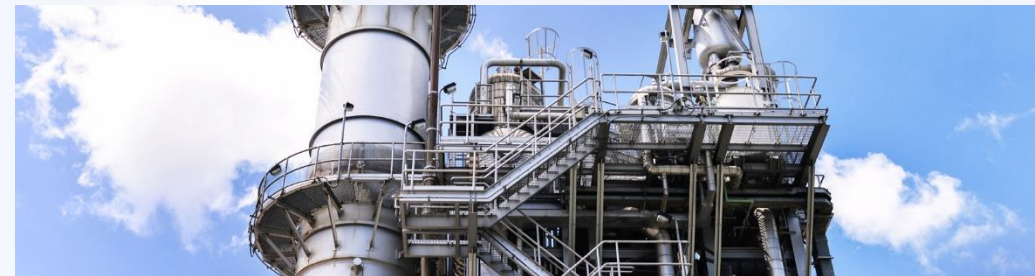


Set up accessories and installation circulation tank, prepare chemical for cleaning.

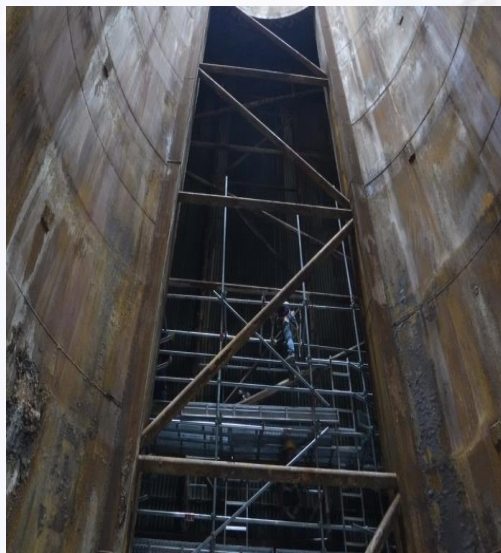




Process: 1 INSTALLATION



Set up accessories and installation waste sump, scaffolding and connect the high-pressure water jet with the water supply line. Checking electricity by the technicians from the industry.





Process: 2

CHEMICAL NEUTRALIZER



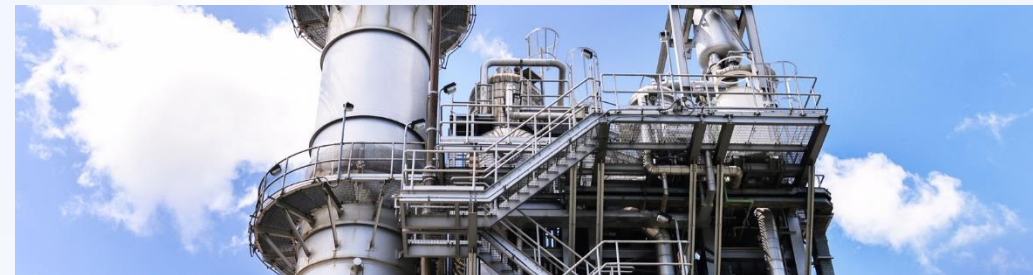
Spray neutralizer amine chemical for adjust the pH and soaking about 4-6 hours.





Process: 2

CHEMICAL NEUTRALIZER



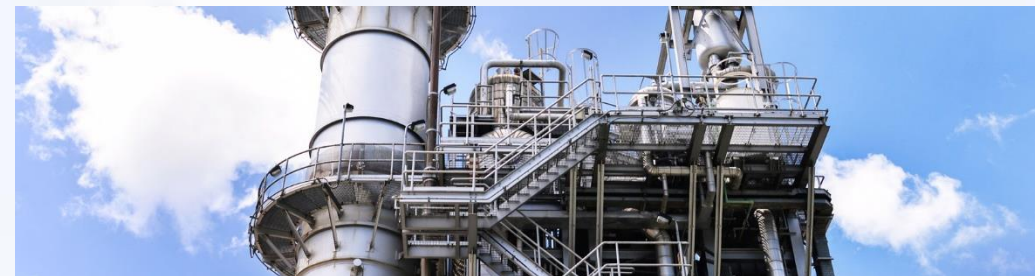
Chemical reaction after spray neutralizer chemical 4-6 hours. Slag and rust will be soft and ready to remove by high-pressure water jet.





Process: 3

MECHANICAL CLEAN



Clean slag and rust by using high pressure water jet [pressure 350-700 bar].





Process: 4 PASSIVATION

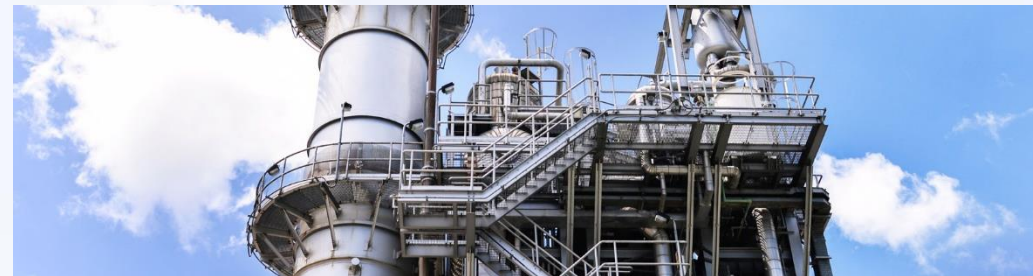


The passivation process makes a film for coating the materials from oxidation reactions. Fill up the water by slowly chemical passivation.





Process: 5 INSPECTION



Isolate the system temporary cleaning for visual inspection was found satisfactory of magnetite formation on the wall surface.

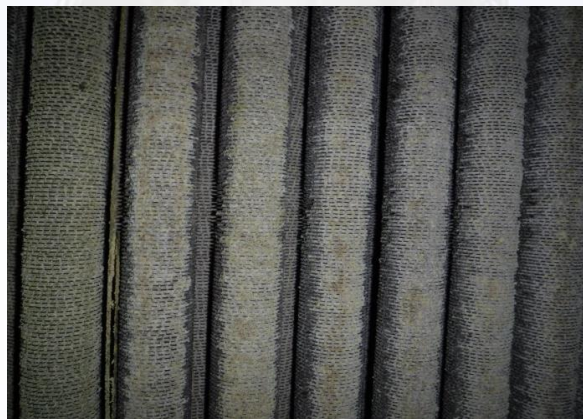
- No, rust in The steam pipe.
- Well of passivation surface



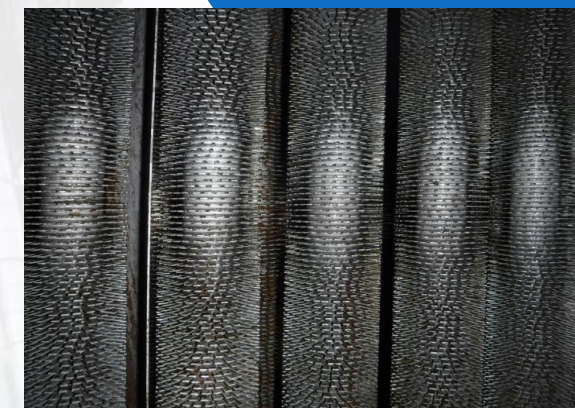
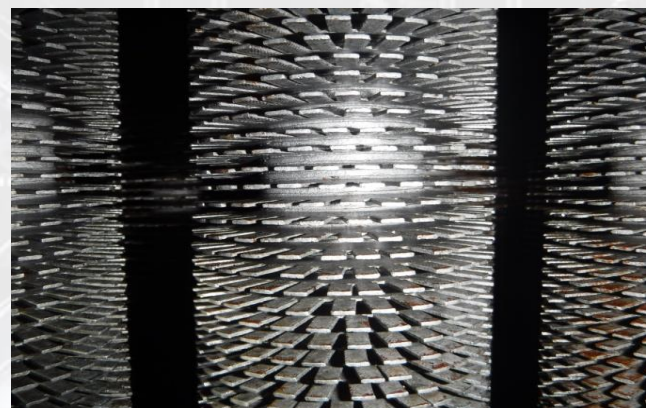
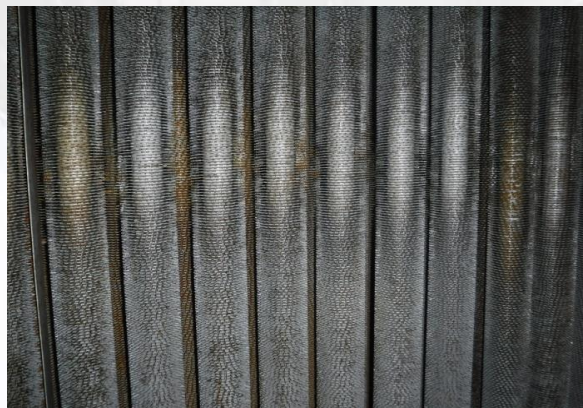


Before and After Cleaning

Before



After





Before and After Cleaning

Before



After



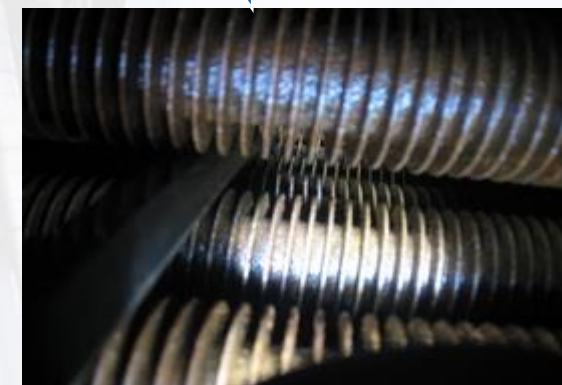


Before and After Cleaning

Before



After



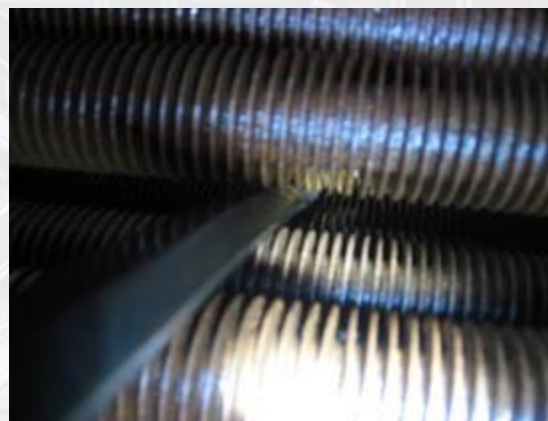
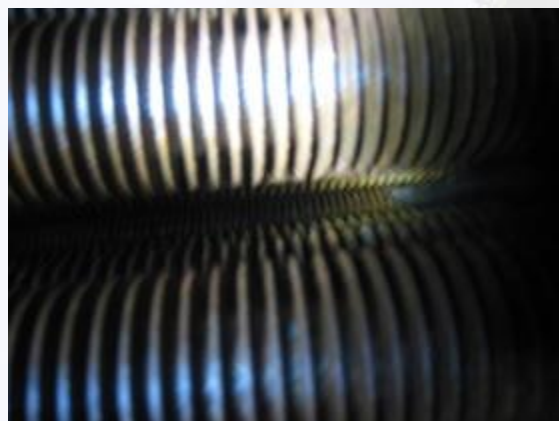


Before and After Cleaning

Before



After





Wang Noi Power Plant



Block #11



Block #12



Block #21



Block #22



Block #31



Block #32



Rojana Power Plant



Before



HRSG #1



HRSG #2



HRSG #3



HRSG #4



After



Amata B-Grim Power



Before



HRSG #11



HRSG #12



HRSG #21



HRSG #22



After



B-Grim Lam Chabang Power Plant



Before

HRSG #11



After



Nong Kae cogeneration



HRSG 1A



HRSG 1B

Before



After



Gulf Cogeneration- Kangkoi



HRSG #11



HRSG #12

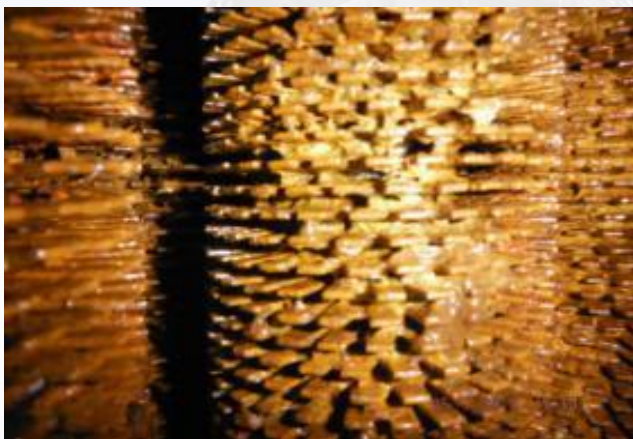
Before



After



Jana Power Plant



Before

HRSG #11



After

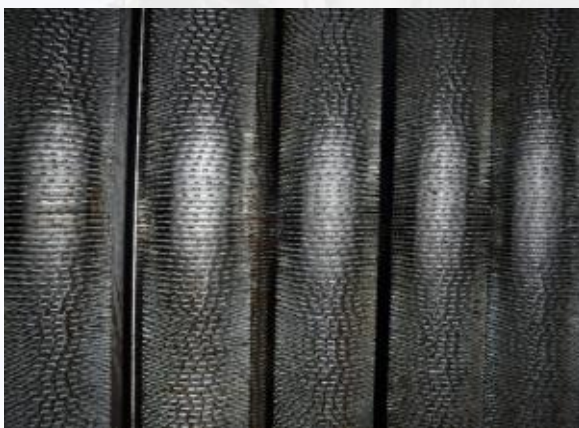


Bang Bo Combine Cycle Power Plant



Before

HRSG #1



After



Our Clients

Our clients in Thailand.





Our Clients

Our clients in Thailand.



MITR PHOL





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