CASE STUDY

Team : **MINA SERVICE**

Customer: **GRUPPO MARCEGAGLIA**

December 20, 2021 – December 31, 2021

Project Details : The work consists of the Revamping of the Hydraulic Pipes for the Ravenna plant, the largest metallurgical plant of the Group and the most important logistic and intermodal hub for all the industrial and commercial activities of the supply chain.

MiNA SERVICE

We operate in the industrial sector, in particular in the field of supply of goods (specific equipment and software) and services (maintenance, engineering, training)

We make use of professionalism and extremely qualified workers with a consolidated and proven know-how in the specific fields of intervention, to guarantee quality and reliability of the service offered. We use customized contractual forms and offer our administrative and technological advice to always satisfy the customer, with “key in hand" solutions. We guarantee full support in all phases of the project, from pre-analysis to final implementation, ensuring qualified after-sales assistance.

MISSION

We believe in the value of every single person and the positive contribution they can make in every relationship or project development. Whether it's a customer, a supplier or a collaborator. We sincerely support our clients in the realization of their projects. Guaranteeing safety, protection of health and the environment, quality of processes and products, competence and punctuality in the provision of services.

VISION

We always use innovative and at the same time sustainable and environmentally friendly resources, in all phases of our work.

Scope Of Work

The purpose of the Service is to carry out corrective maintenance activities of broken SS tubing and replace PVC tubing that was temporarily installed in the hydraulic section of TANDEM Mill, which lately has been an HSE matter of concern for the Company. All the activities were finalized to find and remove any anomalies and ensure efficiency and integrity of equipment and supporting structures.

Poor overall condition of the tube

Leakage

Lingering/unproperly supported

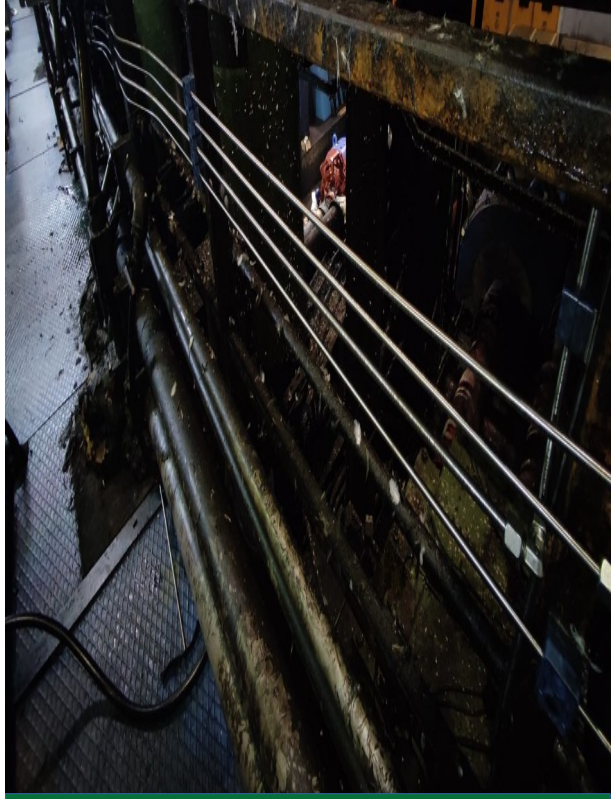
Partially corroded

Condition Of Hydraulic Pipe Before Maintenance

The condition of the tube was poor overall, it was covered with grease and dust which could increase external corrosion. There was leakage of hydraulic oil at the elbow joints creating a potential hazard for people and the environment. Furthermore, it was unable to provide the desired amount of efficient work needed to maintain the hydraulic system at prior levels.

The frame was improperly supported, partially corroded, and loose at the ends, which eventually led to shaking. Therefore, the compromised support structure caused the tubes to bend, in certain cases. This eventually lead to the inefficiency of the whole system.

Tube is in mint condition



Leakage issue has been resolved

Strengthened supporting structure

Properly supported frame structure

Condition Of Hydraulic Pipe After the Maintenance

In order to revamp the system and ensure its functionality the leaks were eliminated, new tubing was installed and improvements were carried out on the support structure. Proper casing & elbows were provided to protect and reinforce the pipe from bending for any reason.

Fixing elements with a different shape and design were installed to provide extra supports and avoid vibrations, as they ensure the stability and rigidity of the structure.

The adjustable elbow was placed as per the safety norms

Casing re-considered

Extra frame rail as per HSE recommendation

Extra frame rail as per HSE recommendation

New Resolution taken during Maintenance activity.

Extra base support was provided to the 8mm and 10mm tubes to pass through the base. The elbow visible on the left side of the picture could not be attached to the side rail as it contained wirings. We resolved this issue by attaching it to the previously mounted pipeline in order to maintain safety and structural integrity.

The metal rails were extended as per HSE recommendation. The extra rails support the tube and provide extra space for the workers in case of an emergency evacuation.

Job Planning

Group Discussion

Process Guiding

Documentation Control

Safety & Control

A Solid Safety Program Ensures Workers Return Home Every Day Safe and Sound:

- Everyone is responsible for their own safety and the safety of others
- Respect company rules, regulations and procedures
- Assess the risks: stop and think
- Be proactive about safety
- Practice Good Housekeeping

PROJECT

The maintenance work that was planned and requested was fully accomplished with some additional mechanical design improvements that were realized with the input and discussion in agreement with client personnel.

The work team included four expert technicians, who worked during the ten days during which the TANDEM Mill was shut down (from 20th December to 31st December). The team completed the assigned tasks one day in advance.

The date of execution of the plan's activities was agreed upon in advance to ensure that the equipment be available for maintenance services and could receive assistance from qualified operators during the plan execution.

MiNA SERVICE