

# CEMENT PRODUCTION LINE UPGRADE

Electrical & Automation Works Report

LAFARGE BATANGAS PLANT  
Philippines  
October 2015

# LAFARGE BATANGAS PLANT IN PHILIPPINES

Lafarge Philippines – Republic Cement – has decided in 2015 to Upgrade its complete cement production line located in Batangas by renovating the existing outdated Automation System as well as the Main part of the existing MCCs. This project has been awarded to ASA and implemented in 3 phases. The new installed Process Control System is Siemens PCS7 and all panels including MCCs have been manufactured in ASA Automation Workshops.



# LAFARGE BATANGAS PLANT IN PHILIPPINES

## ➤ Plant Condition

- The previous control for Batangas plant was manual operation from Mimics installed in local CCR for each workshop. Some local outdated PLCs are controlling specific areas.

## ➤ Project Overview

- **Step(1):** The new upgraded system is based on Siemens PCS7 V8.0 using Cemat & Lafarge Library blocks.

A new CCR building has been built for housing the Control & Command part of this new system.

- **Step(2):** The main target that all the electrical wiring, control/system to be matching with LAFARGE standards This is to be accomplished by the followings:
  - i. Electrical revamping for all the electrical panels wiring/control “M.V panels, Liquid starters , MCC Panels, LVDBs, Local Panels,..etc”.
  - ii. Supply MCCs for particular workshops as some have an obsolete components and causing a lot of operation interruption .
  - iii. Supply UPS for CCR, UPSs per each Substations, ACC Panels & Marshalling Panels.
  - iv. Supply control/power cables for some instrumentation which have only local indication at site.
  - v. Supply VCSs for some equipment “Bucket Elevators, Belt Conveyors”.
  - vi. Supply Emergency stop & LCB for the M.V motors”.
  - vii. Dismantling the old control disk “Mimics”

## ➤ Project Phases Itemization

- |   |                           |
|---|---------------------------|
| ▪ <b>Phase#1:</b> Crusher & Finish Mill#5.                | <b>Duration:</b> 8 Days.  |
| ▪ <b>Phase#2:</b> Raw Mill#2,3, Preheater, Kiln & Cooler. | <b>Duration:</b> 21 Days. |
| ▪ <b>Phase#3:</b> Finish Mill#2,3,4 & Pack House#1,2,3.   | <b>Duration:</b> 15 Days. |

# LAFARGE BATANGAS PLANT IN PHILIPPINES

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## Pre-Shutdown Activities

CCR Furniture Installation

Fiber optic cable Pulling

I/O Panel Installation

ACC Panel Installation

UPS + Aux. Transformer Installation

Actuator transformer Installation

New interface/control cables Pulling

E.S & LCB for crusher main motor  
Installation

Old control and power cables tagging

New & old cables connection for the I/O  
& ACC panels

UPS Installation

## Shutdown Activities

Old control cables dismantling from  
the control disk

Old cables rearrangement/rerouting  
to the new panels

Old & New cables connection for the  
new panels & existing panels

New control cables connection from  
MV , Filter panel & local panels side

Local panels rewiring/modification

MCC power boxes modifications

Old control disk dismantle

Old I/O Box dismantle

Crusher operator station installation

I/O , Rotation & Sequence test

Start-up

# CRUSHER SUBSTATION UPGRADE ACTIVITIES

Dismantle Old Control Disk "Mimic" & Modify Local Filter Panel



Before



After



# CRUSHER SUBSTATION UPGRADE ACTIVITIES

## MCC Wiring Modifications



Before



After

# CRUSHER SUBSTATION UPGRADE ACTIVITIES

## MCC Drawers Modifications



Before



After

# CRUSHER SUBSTATION UPGRADE ACTIVITIES

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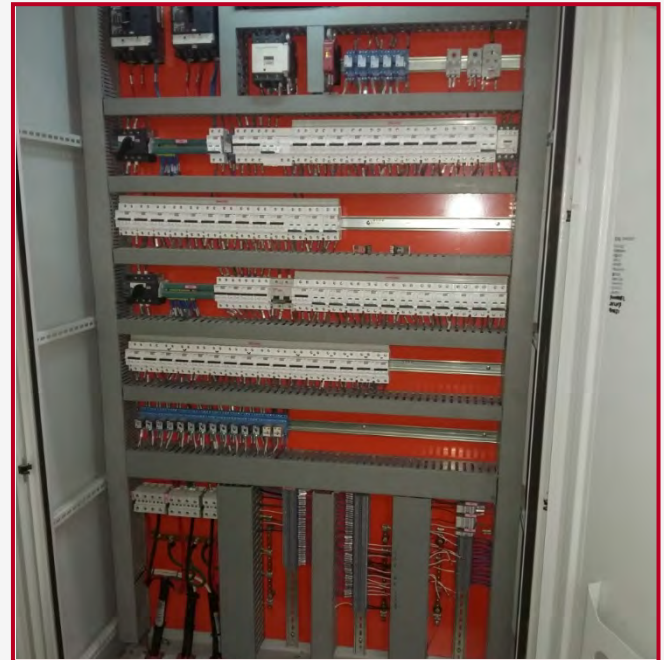
Installation of New Marshalling Panels





# CRUSHER SUBSTATION UPGRADE ACTIVITIES

Installation of New ACC Panel



# CRUSHER SUBSTATION UPGRADE ACTIVITIES

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Installation of UPS & Auxiliary Transformers



# RAW MILLS 2&3 SUBSTATION UPGRADE

## Pre-Shutdown Activities

- Panels Frame Fabrication
- Fiber optic cable Pulling
- Digital I/O Panels Installations
- ACC Panels Installations
- UPS + Aux. Transformer Installation
- Actuator transformer Installation
- New interface cables pulling
- E.S & LCB for MV motors Installations
- Old control and power cables tagging
- VCS frames fabrication & installation
- New I/O panel for central hopper Installation + Old Panel Modification
- Pulling new cables for all the temperature sensors & Local Panels

## Shutdown Activities

- Old control cables disconnection from the control desk
- Old cables rearrangement/rerouting to the new panels
- Old & New cables connection for the new panels & existing panels
- New control cables connection from MV , Filter panel & local panels side
- Local panels rewiring/modification
- Old control desk dismantle
- MCC power boxes modifications
- Analog I/O Panels installation
- New cables routing Installation
- Installing Raw Mill#2-3 operator stations
- I/O , Rotation& Sequence test
- Start-up

# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

Old Control Desk, Front & Back view





# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

Dismantle Raw Mills 2&3 Old Control Desk &  
Panels + Install New Analog Panels



Before



After



# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

Cables rearrangement under the old control desk



Before



After

# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

Installation of Raw Mill #2 ACC



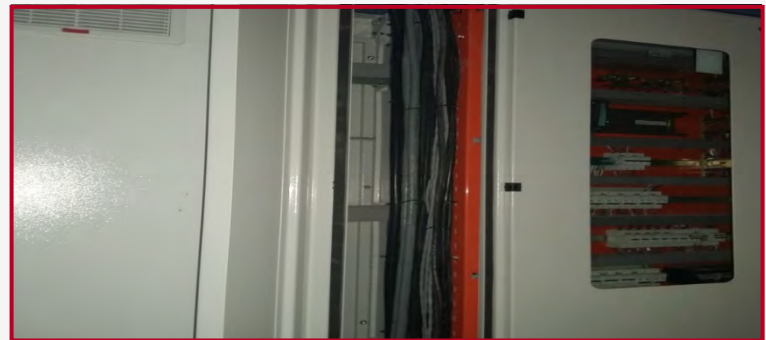
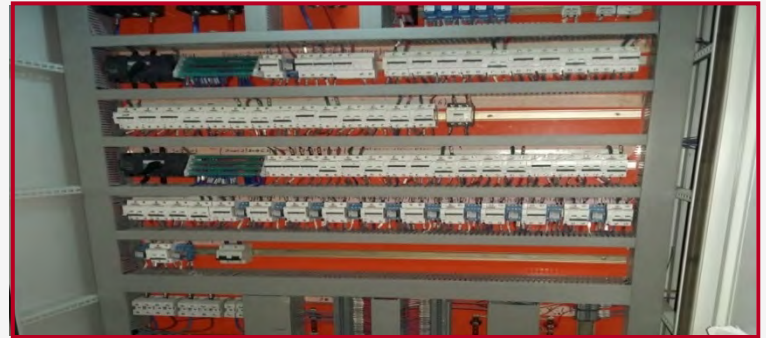
Before



After

# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

Installation of Raw Mill #3 ACC





# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

Installation of Raw Mill #2 Digital Marshalling Panels



# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

Installation of Raw Mill #2 Digital Marshalling Panels





# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

Installation of Raw Mill #3 Digital Marshalling Panels



# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

Installation of Raw Mills 2&3 Analog Marshalling Panels



# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

Raw Mill #2 MCC Wiring Modifications



Before



After



# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

Raw Mill #2 MCC Drawers Modifications



Before



After

# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

Raw Mill #3 MCC Wiring and Drawers Modifications



Before



After



# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

Raw Mills 2&3 UPS + Auxiliary Transformers



Before



After

# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

Raw Mills 2&3 UPS + Auxiliary Transformers



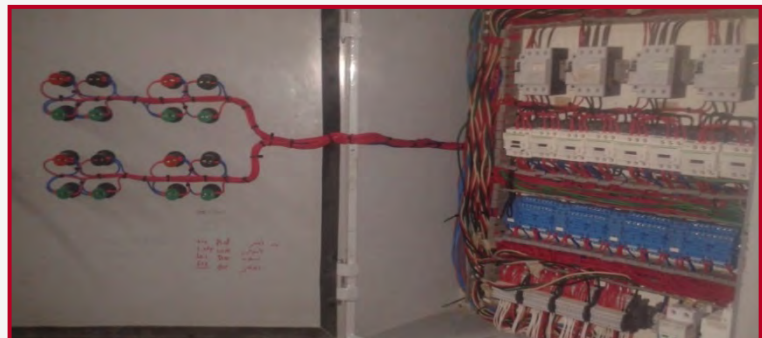
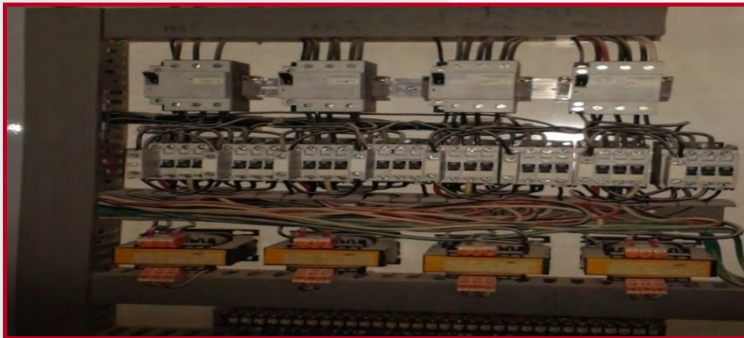
RM2



RM3

# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

## Local panels Wiring Modifications



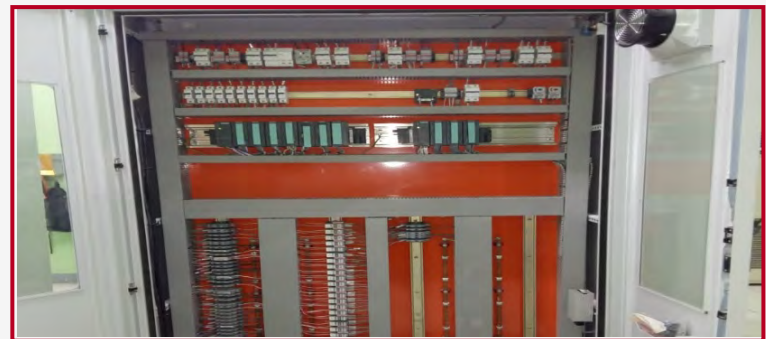
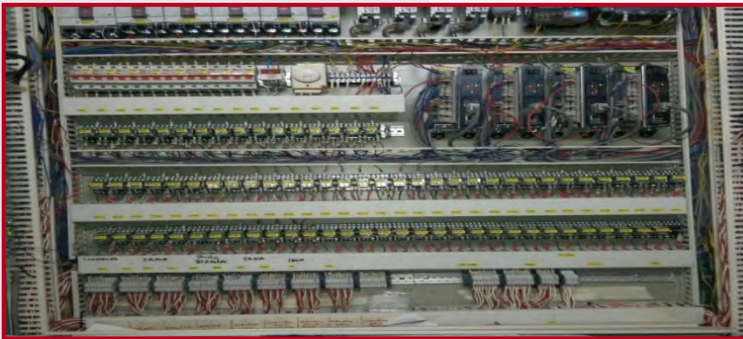
Before

After



# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

Central Hopper New Marshalling Panel + Old Panel Modification



# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

VCS Installations Samples



RM2



RM3



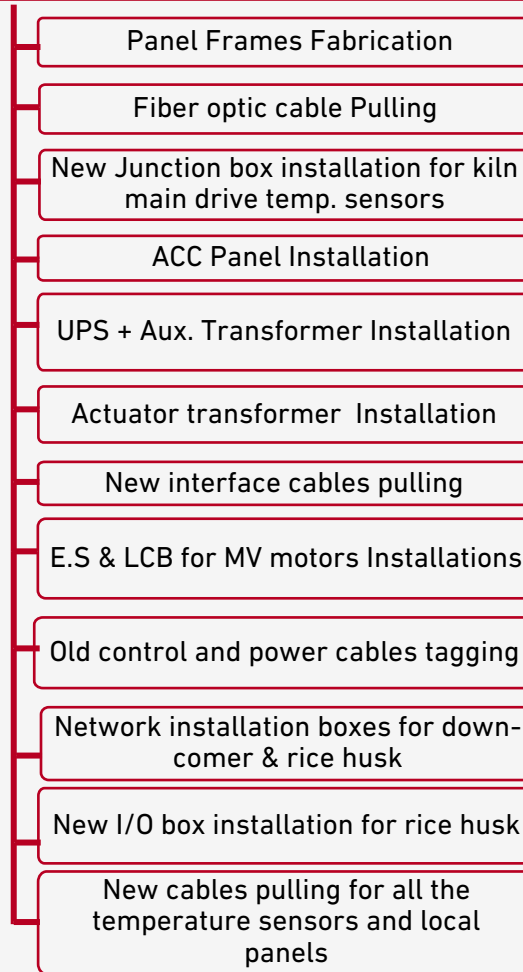
# RAW MILLS 2&3 SUBSTATION UPGRADE ACTIVITIES

LCB Installations Samples

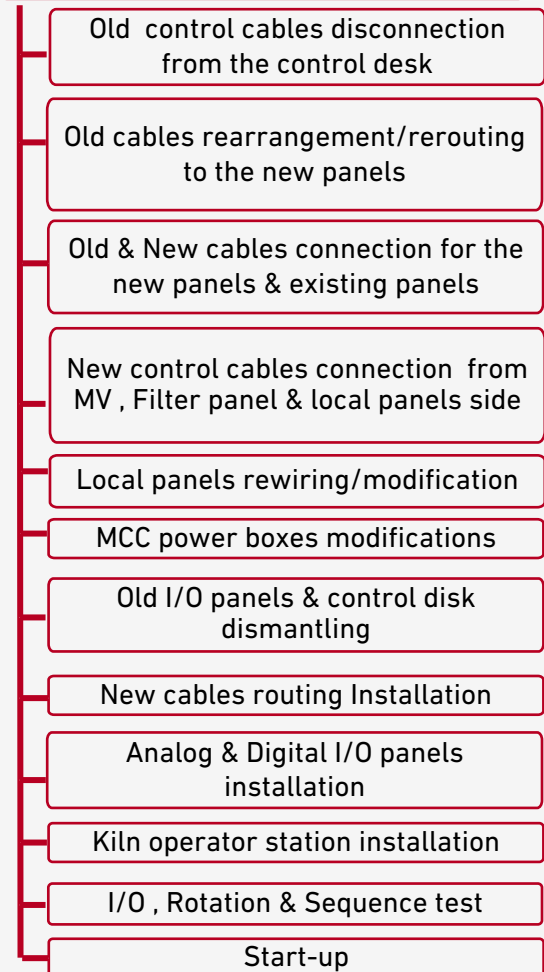


# KILN SUBSTATION UPGRADE

## Pre-Shutdown Activities



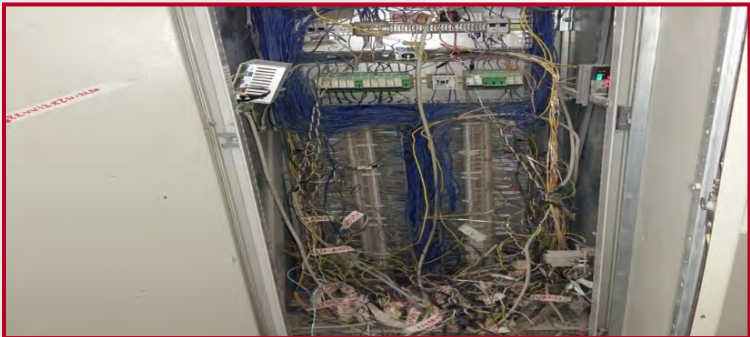
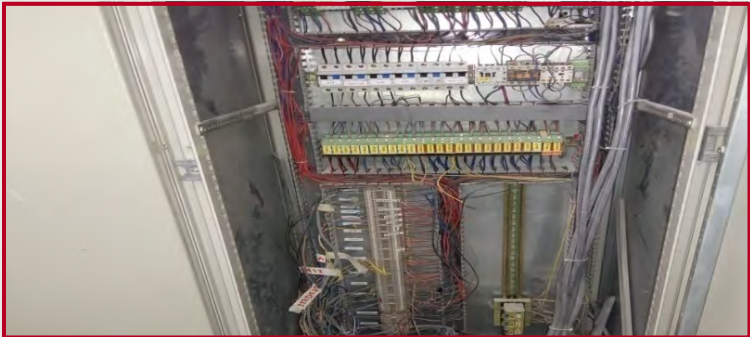
## Shutdown Activities



# KILN SUBSTATION UPGRADE ACTIVITIES

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Installation of new Digital Marshalling Panels



Before



After

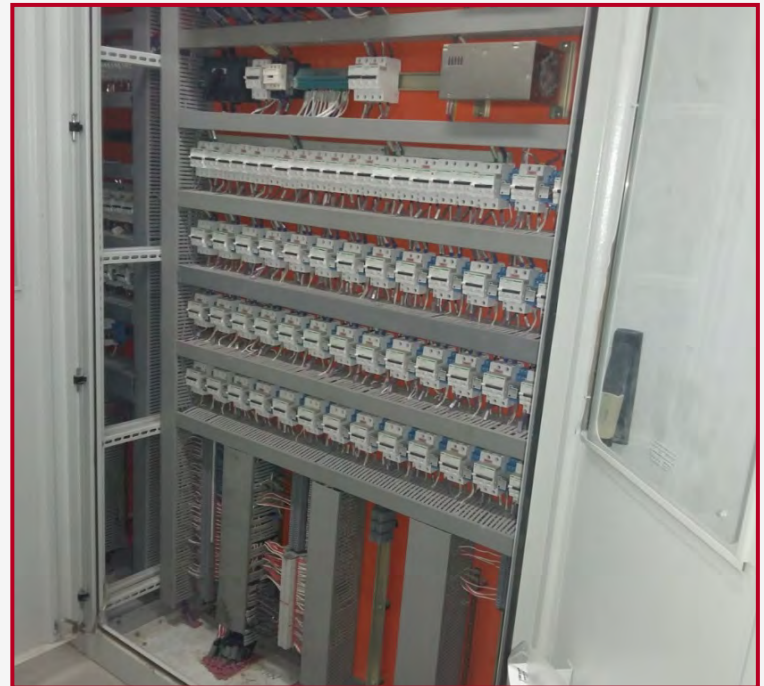
# KILN SUBSTATION UPGRADE ACTIVITIES

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## Installation of New ACC Panel



Before



After



# KILN SUBSTATION UPGRADE ACTIVITIES

Installation of New Analog Marshalling Panels



# KILN SUBSTATION UPGRADE ACTIVITIES

Installation of New UPS + Auxiliary Transformers

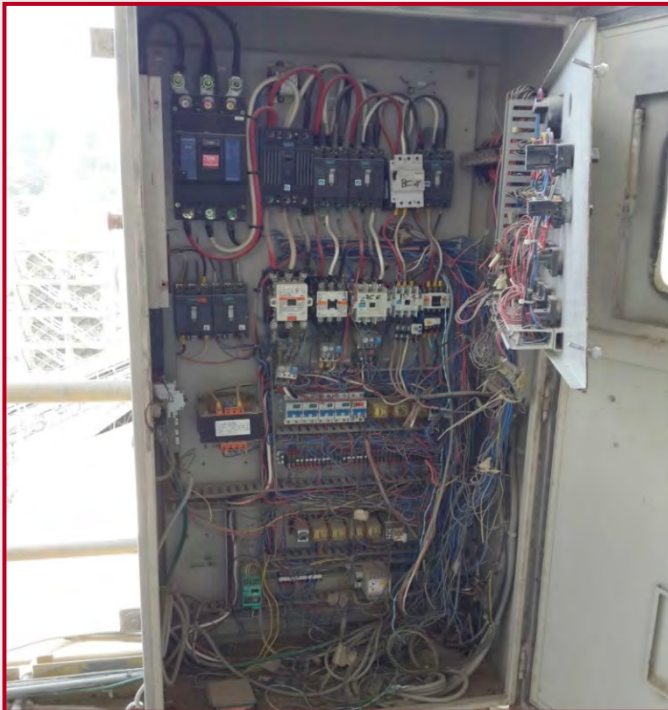


## MCC Drawers Modifications



# KILN SUBSTATION UPGRADE ACTIVITIES

## Modification of Rice Husk Panel



Before

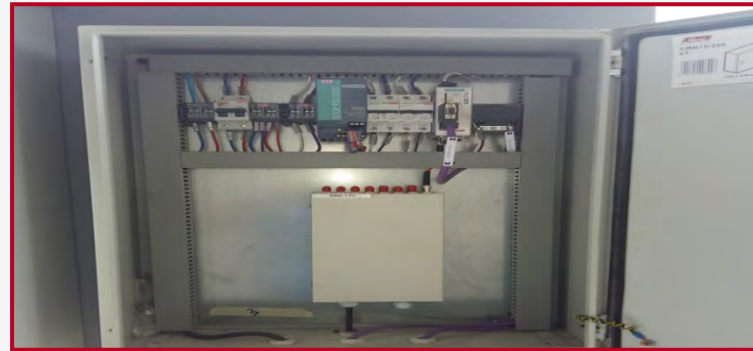
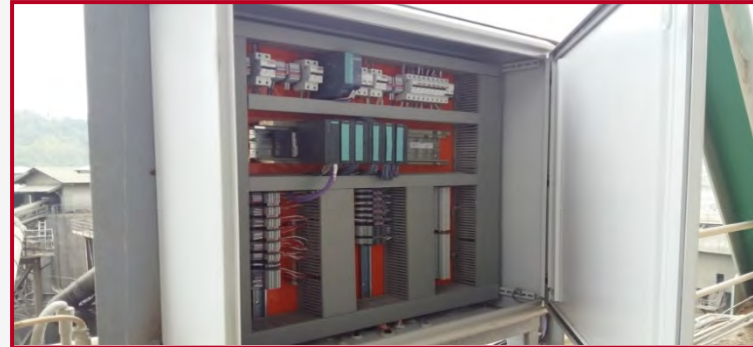


After



# KILN SUBSTATION UPGRADE ACTIVITIES

Installation of new Network & I/O Boxes For Rice Husk



# KILN SUBSTATION UPGRADE ACTIVITIES

## Cooling Water Pumps Local Control Box

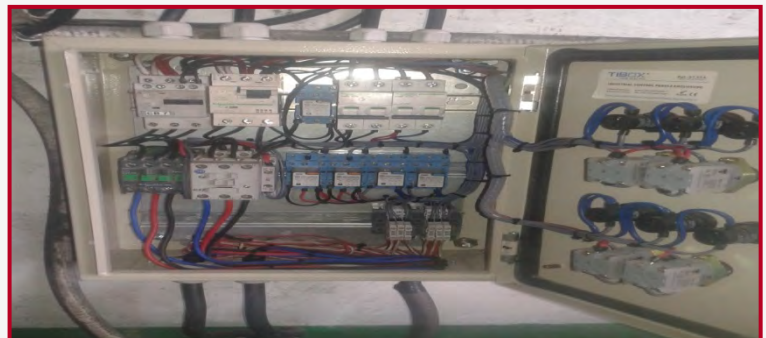


Before

After

# KILN SUBSTATION UPGRADE ACTIVITIES

Cooling Water Pumps Local Control Box



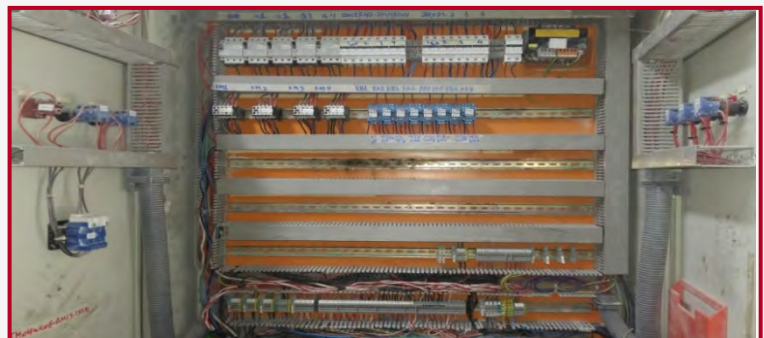
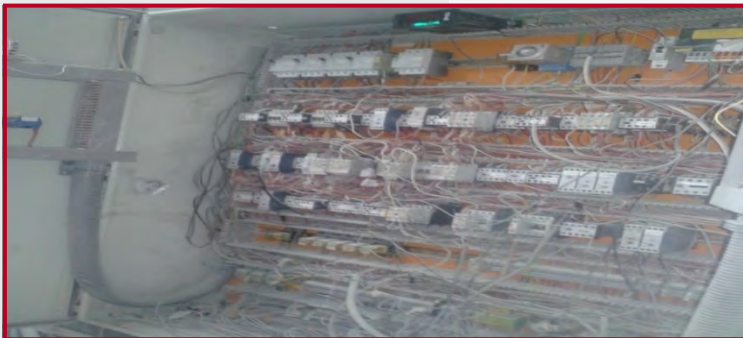
Before

After



# KILN SUBSTATION UPGRADE ACTIVITIES

Thrust Local Control Box



Before

After



# COOLER SUBSTATION UPGRADE

## Pre-Shutdown Activities

- Panel Frames Fabrication
- Fiber optic cable Pulling
- ACC Panel Installation
- Installing Actuator transformer
- UPS + Transformer Installation
- Actuator transformer Installation
- New interface cables pulling
- E.S & LCB for MV motors Installations
- Old control and power cables tagging
- Network box for Bag filter room installation
- New cables pulling for all temperature sensors and local panels in the filed

## Shutdown Activities

- Old control cables disconnection from the control desk
- Old cables rearrangement/rerouting to the new panels
- Old & New cables connection for the new panels & existing panels
- New control cables connection from MV , Filter panel & local panels side
- Local panels rewiring/modification
- MCC power boxes modifications
- Old control disk dismantle
- New cables routing Installation
- Analog & Digital I/O panels installation
- Cooler operator station installation
- I/O , Rotation & Sequence test
- Start-up

# COOLER SUBSTATION UPGRADE ACTIVITIES

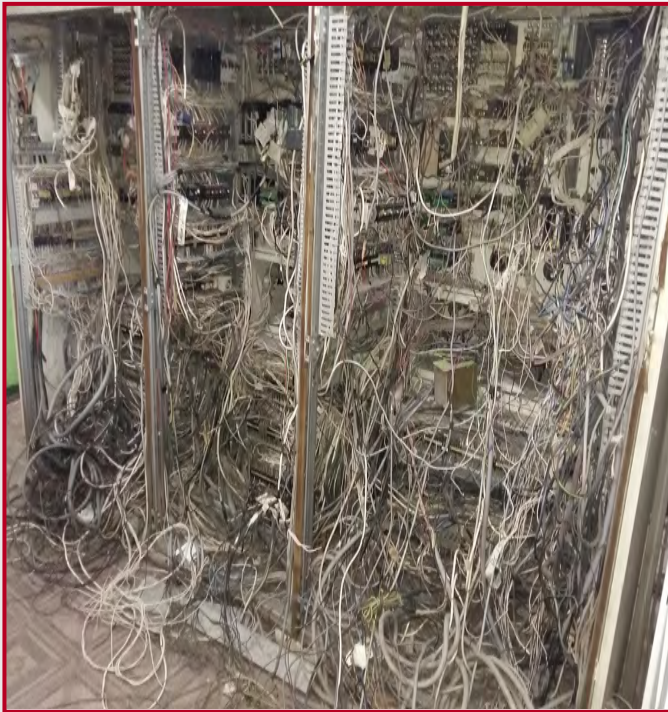
Old Control Desk - Front View



# COOLER SUBSTATION UPGRADE ACTIVITIES

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Old Control Disk-Back View





# COOLER SUBSTATION UPGRADE ACTIVITIES

Dismantling Kiln & Cooler Old Control Desk & Panels



Before

After



# COOLER SUBSTATION UPGRADE ACTIVITIES

Installing new Digital Marshalling Panels



# COOLER SUBSTATION UPGRADE ACTIVITIES

Installing New Analog Marshalling Panel



# COOLER SUBSTATION UPGRADE ACTIVITIES

Installing of New ACC Panel



# COOLER SUBSTATION UPGRADE ACTIVITIES

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Installing of UPS + Transformers





# COOLER SUBSTATION UPGRADE ACTIVITIES

## MCC Drawers Modifications



Before



After

# COOLER SUBSTATION UPGRADE ACTIVITIES

## MCC Wiring Modifications



Before



After

# COOLER SUBSTATION UPGRADE ACTIVITIES

## Cooler Fans VSD Modifications



Before



After

# COOLER SUBSTATION UPGRADE ACTIVITIES

## Cooler Grate Wiring & I/O Cards Modifications



Before

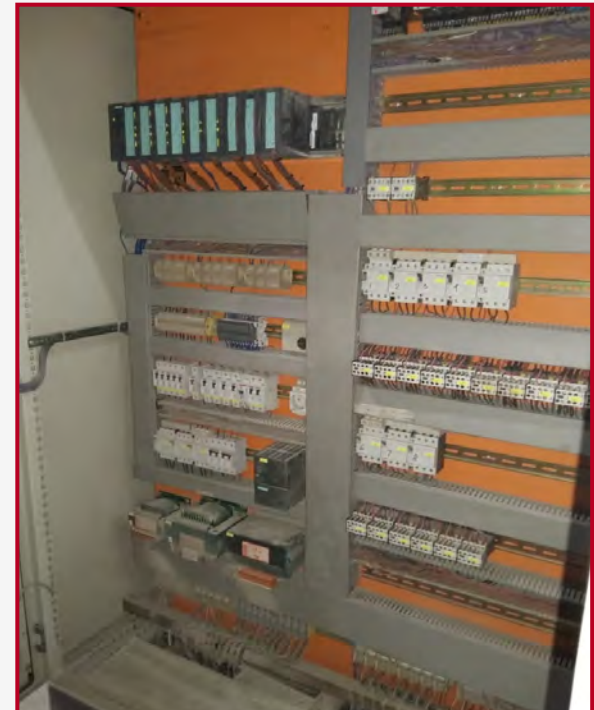
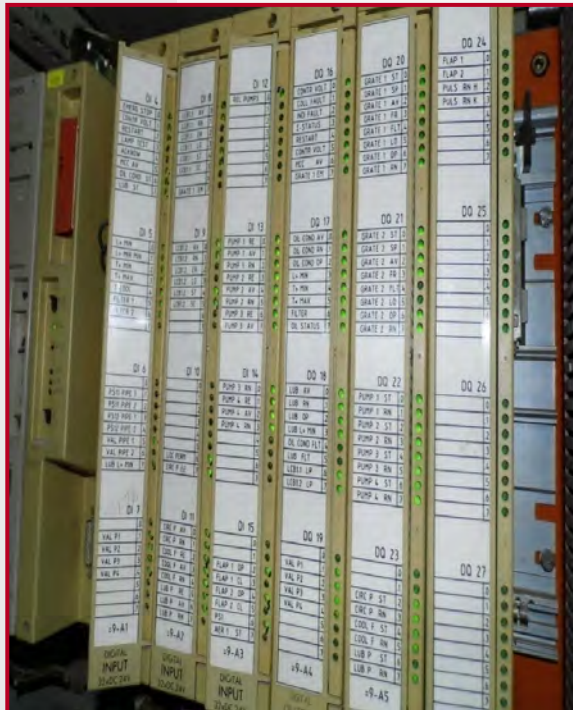


After



# COOLER SUBSTATION UPGRADE ACTIVITIES

## Cooler Hopper Wiring & I/O Cards Modifications



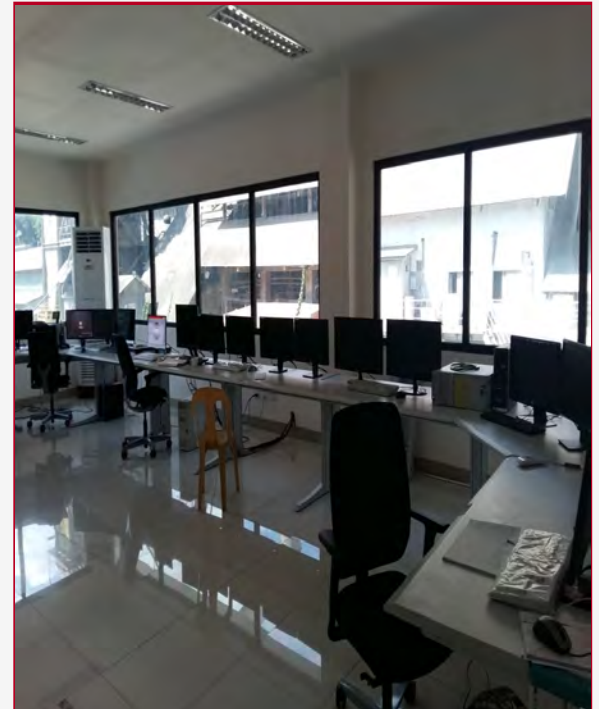
# COOLER SUBSTATION UPGRADE ACTIVITIES

Install Heat Exchanger New Network Box



# NEW CENTRAL CONTROL ROOM

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# SERVICES, OS, IMS, and PLCs ROOM

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# THANK YOU

## CONTACT

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