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Date: 20.11.2024

CORRIGENDUM

1	Tender ID	2024_TTPL_700860_1
2	Tender No	PROJ/PNG/KV-26/24-25 dt.30.10.2024
3	Tender title	Design, Engineering, Supply, Loading, Transportation, Unloading, Storage, Installation, Testing, and Commissioning of Conversion of Furnace Oil to Piped Natural Gas System Including Conversion of Dual (PNG & LPG) Burners for Calciner No. 2, 3, & 4, 20 TPH Boiler & Related Piping works in TTPL
4	Summary	Technical details of BMS panel & accessories and related instrumentation, piping, etc is enclosed as Annexure

Dy.General Manager (proj)

ANNEXURE

SECTION I

BMS Specification for Calciner No:2 (Existing)

I. IO details

Sl.No	Digital Input	Digital Output
1.	Instrument Air Pressure Low	Furnace Purge Interlock O.K. Lamp
2.	Combustion Air Pressure Low	Main Interlock O.K Lamp
3.	Combustion Air Fan Running	Furnace Purge required Lamp
4.	LPG Pressure not Low	Furnace Purge ready for start Lamp
5.	Oil Pressure not Low	Furnace Purge in progress Lamp
6.	Oil Pressure not High	Furnace Purge complete Lamp
7.	Atomising Air Pressure not Low	Oil Firing Interlock O.K Lamp
8.	Scanner Cooling Air Pressure not Low	Oil Firing ready for start Lamp
9.	Electric Heater Temperature Switch	Pilot Flame On Lamp
10.	Oil Temperature not Low	Oil Firing On Lamp
11.	Flame on	Oil Firing Fault Lamp
12.	Emergency PB not operated	Scavenging Ready For Start Lamp
13.	FO insufficient(from AVM)	Scavenging On Lamp
14.	Main LDO SSOV Open	Combustion Air Fan Running lamp
15.	Main LDO SSOV Close	Ignition Transformer
16.	Return LDO SSOV Open	Gas / Air mixer Solenoid Valve
17.	Return LDO SSOV Close	Scavenging Shut off Valve
18.	Atom. SSOV Open	Oil Main SSOV On
19.	Atom. SSOV Close	Oil Return SSOV On
20.	Scavenging SSOV Open	Atomizing Air. SSOV On
21.	Scavenging SSOV Close	Emergency PB Operated
22.	Com. Air Fan at Start position	Flame Failure
23.	Com. Air Fan at Purge position	Spare
24.	Oil Flow Control Valve at Start Position	Spare
25.	Purge Start Push Button	Spare
26.	Oil firing Burner Start Push Button	Spare
27.	Oil firing Burner Stop Push Button	Spare
28.	Scavenging Start Push Button	Spare
29.	Scavenging Stop Push Button	Spare
30.	HAG system ready for start	Spare
31.	Spare	Spare
32.	Spare	Spare
33.	Spare	
34.	Spare	

35.	Spare	
36.	Spare	
37.	Spare	
38.	Spare	
39.	Spare	
40.	Spare	

II. Facilities required in BMS Panel

a. BMS Panel suitable for FO/PNG/LPG Firing system.
b. Separate BMS Panel for FO Firing and PNG/LPG Firing and for Calciner 2
c. In FO, BMS Panel the following operations are to be incorporated.
    1. FO pumping from main storage to DOT
    2. PHF unit for FO system
    3. Compressed Air for atomizing, scanner cooling and Instrument Air, Flushing Line.
    4. Valve Stand
       FO Temperature control, Pressure control, atomizing air pressure control, etc
       Control of return oil flow to DOT
    5. ID Fan, Primary & Secondary blower
    6. UV Scanner for PNG/LPG firing

III. Interlocks

a. Purge Interlock
b. Dilution Air fan running
c. Oil firing Interlock

IV. Hardware details — Please see the Annexure -1

V. Flow chart — Sequence of operation
a) Pilot Flame Interlock
b) Main Oil Flame Interlock

VI. SLD — Not Available.

VII : Equipment details in Calciner no: 2 (Existing)

a) ID fan: Power: 40 HP, rpm : 1440 rpm, 3x 35 mm2 Aluminium Cable
b) Combustion fan: 15 HP,2800 rpm, 2run, 3x 4 mm2 Copper Cable

VIII Process Controllers details for FO

a) Combustion Temperature Controller
b) Combustion blower controller

c) Oil temperature Controller
d) Oil Flow meter
e) Feed end temperature control

SECTION II

BMS Specification for Calciner No:3 & 4 (Existing)

I. IO details (Existing)

Sl.No	Digital Input	Digital Output
1.	Oil level low low	Panel Hooter on
2.	Oil level low	Calciner ready for fire
3.	Oil level high	Ignition transformer on
4.	DOT temperature high	LPG Solenoid valve on
5.	Oil Temperature OK	Main oil Solenoid valve on
6.	Oil Pressure OK	Oil level low low (alarm)
7.	Atomising Air Pressure OK	Oil level low (alarm)
8.	LPG Gas Pressure OK	Oil level high(alarm)
9.	Instrument Air Pressure OK	DOT temperature high(alarm)
10.	Flame Sensor Cooling Air OK	Oil temperature low(alarm)
11.	Flame on feed back OK	Atomising Air Pressure(alarm)
12.	CA fan run feed back	LPG Gas Pressure low(alarm)
13.	Manual mode selected	Instrument air pressure low(alarm)
14.	Auto mode selected	Flame Sensor Cooling Air pressure low(alarm)
15.	Sequence start	Flame failure(alarm)
16.	Sequence stop	Spare
17.	Test	Spare
18.	Acknowledge	Spare
19.	Reset	Spare
20.	Spare	Spare
21.	Spare	Spare
22.	Spare	Spare
23.	Spare	
24.	Spare	
25.	Spare	
26.	Spare	

II. Facilities required in BMS Panel

a. BMS Panel suitable for FO|PNG|LPG Firing system.
b. Separate BMS Panel for FO Firing and PNG|LPG Firing and for Calciner 3 &
4. In FO, BMS Panel the following operations are to be incorporated.
    1. FO pumping from main storage to DOT
    2. PHF unit for FO system

3. Compressed Air for atomizing, scanner cooling and Instrument Air, Flushing Line.
4. Valve Stand
   Temp control, Pressure control, atomizing air pressure.
   Return Oil flow to DOT
   Atomizing Air
7. ID Fan, Primary & Secondary blower
8. UV Scanner for PNG/LPG firing

III. Firing Interlocks (Automode- existing)

a. SKO/FO Pump run feed back
b. CA fan run feed back
c. ID fan run feed back
d. Oil pressure OK
e. Oil temperature OK
f. Atomising air pressure OK
g. Instrument air pressure OK
h. LPG pressure OK
i. Flame Sensor Cooling Air pressure OK
j. Flame off

If all the above symbols are healthy, firing can be started. Ready for fire appeared in the panel and start command to be given.

IV. Equipment Details (Existing)

1. ID Fan 2Nos for one calciner (Total 4 Nos)
   Power: 40 HP
   rpm: 1440
2. Primary Blower (One for each Calciner)
   Power: 40HP
   rpm:2880 rpm
3. Secondary Blower (one for each Calciner)
   Power:10 HP
   rpm: 1440

4. FO Transfer pump: Gear Pump (1W+ 1S)
   Power: 2hp, 4pole
   Capacity: 4000 LPH
5. DOT Tank (1No)
   Dimension: 1600 mm dia X 2500mm Height
   Effective Capacity: below 4.5m^3
6. PHF unit (One for each Calciner)

Out Pump: Gear type
Flow rate: 14 LPM
Discharge Pressure:
Power: 1.5hp, 4pole
Motor : Flame Proof

V. PLC Details (Existing)
Make: Siemens
Model: S7-200

VI. SLD- Available

VII. Process Controller Details

a. PID Controller for Combustion Air Fan Valve Positioner
b. Digital flow indicator for temperature at combustion chamber/furnace
c. Digital flow indicator for temperature at feed end
d. Ratio Controller
e. Auto- manual station

SECTION III

Additional requirement for 20 TPH Boiler:

a) Gas damper Assembly
b) Linkage Assembly for Damper
c) UV Scanner for PNG/LPG

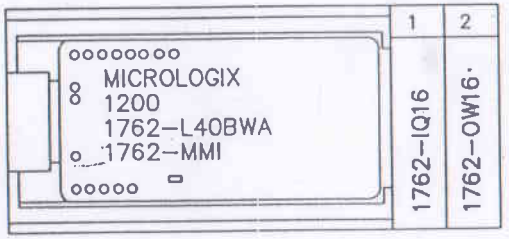
SECTION IV

Piping

1. Gas flow meter is to be provided at the battery limit closer to metering Station.
2. The pressure of gas to be maintained in the piping mentioned in the scope of work shall be between 4 to 5 bar. Necessary pressure reduction/ regulation to be done after metering station.
3. Leak detection system along with safety alarms/ warnings/ other systems to be provided at all flanged joints/ valve trains/ wherever necessary. All safety systems as per PNGRB guidelines to be incorporated.

Annexure - I

SYSTEM CONFIGURATION



MICROLOGIX HARDWARE BILL OF MATERIAL

SR. NO.	DESCRIPTION	MAKE	CAT.NO.	QTY.	REMARKS
01	MICROLOGIX 1200, 40PT. (24)24V DC DIGITAL INPUT (16)RELAY DIGITAL OUTPUT, AC POWER	ALLEN-BRADLEY	1762-L40BWA	1	
02	MEMORY MODULE	ALLEN-BRADLEY	1762-MMI	1	
03	16 CHANNEL 24VDC DIP MODULE	ALLEN-BRADLEY	1762-IQ16	1	
04	16 CHANNEL RELAY DOP MODULE	ALLEN-BRADLEY	1762-OW16	1	