

# **Request for Proposal (RFP) for Balance of Plant Package for Overhaul of GMDC's 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat**



**RFP No: GMDC/Power/ATPS/10/23-24**

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## Glossary

Abbreviation	Full form
<b>ACP</b>	Auxiliary Control Pump
<b>APC</b>	Auxiliary Power Consumption
<b>ASME</b>	American Society for Mechanical Engineers
<b>ATPS</b>	Akrimota Thermal Power Station
<b>BFP</b>	Boiler Feed Pump
<b>BMCR</b>	Boiler Maximum Continuous Rating
<b>BOQ</b>	Bill of Quantities
<b>C&amp;I</b>	Control and Instrumentation
<b>CCW</b>	Closed Cooling Water
<b>DP</b>	Differential Pressure
<b>DPT</b>	Dye Penetrant Test
<b>EMD</b>	Earnest Money Deposit
<b>EOT</b>	Electric Overhead Travelling
<b>EPDM</b>	Ethylene Propylene Diene Terpolymer
<b>ERV</b>	Electronic Relief Valve
<b>ETU</b>	Ethernet Terminal Unit
<b>FAT</b>	Factory Acceptance Test
<b>FIS</b>	Financial Score
<b>GI</b>	Galvanized Iron
<b>GMDC</b>	Gujarat Mineral Development Cooperation
<b>HFTR</b>	High Voltage Rectifier Transformer
<b>HSE</b>	Health, Safety, Environment
<b>KPI</b>	Key Performance Indicators
<b>LOA</b>	Letter of Acceptance
<b>MCC</b>	Motor Control Centre
<b>MCR</b>	Maximum Continuous Rating
<b>MD</b>	Maximum Demand
<b>MFT</b>	Master Fuel Trip
<b>MOC</b>	Material of construction
<b>MOV</b>	Motor Operated valve
<b>MRV</b>	Multi Role Valve
<b>MS</b>	Mild Steel
<b>MSME</b>	Micro, Small, Medium enterprises
<b>MSSV</b>	Main Steam Safety Valve
<b>NABL</b>	National Accreditation Board for Testing and Calibration Laboratories
<b>O&amp;M</b>	Operations and maintenance
<b>OEM</b>	Original Equipment manufacturer
<b>P&amp;ID</b>	Piping and Instrumentation Design
<b>PG</b>	Performance Guarantee
<b>PHE</b>	Plate Heat Exchanger

<b>Abbreviation</b>	<b>Full form</b>
<b>PMC</b>	Project Management Consultancy
<b>PPA</b>	Power Purchase Agreement
<b>PSU</b>	Public Sector Undertaking
<b>QAP</b>	Quality assurance plan
<b>QCP</b>	Quality control plan
<b>QIP</b>	Quality Inspection Plan
<b>RC</b>	Remote Control
<b>RFP</b>	Request for proposals
<b>RH</b>	Reheater
<b>RPM</b>	Revolutions per minute
<b>RTD</b>	Resistance Temperature Detectors
<b>SA</b>	Secondary Air
<b>SAT</b>	Site Acceptance Test
<b>SCAPH</b>	Steam Coil Air Preheater
<b>SH</b>	Superheater
<b>SHR</b>	Station heat rate
<b>SIR</b>	Switched Integrated Rectifier
<b>SOV</b>	Solenoid Operated Valve
<b>SS</b>	Stain Steel
<b>TDS</b>	Tax Deducted at source
<b>TEFC</b>	Totally Enclosed Fan Cooled
<b>TeS</b>	Technical Score
<b>TPH</b>	Tons / hour
<b>TR</b>	Ton of refrigeration
<b>VFD</b>	Variable Frequency Drive

## Disclaimer

This RFP is being issued by the Gujarat Mineral Development Corporation Ltd (GMDC) (hereunder called "Authority"/ "GMDC") to the Bidders interested in providing services for the Overhaul of Balance of Plant (BOP) at 250 (2\*125) MW lignite based Akrimota Thermal Power Project in Kutch District, Gujarat.

It is hereby clarified that this RFP is not an agreement, and the purpose of this RFP is to provide the Bidder(s) with information to assist in the formulation of their proposals/Bids. While the RFP has been prepared in good faith with due care and caution, GMDC does not accept any liability or responsibility for the accuracy, reasonableness, or completeness of the information, or for any errors, omissions, or misstatements, negligent or otherwise, relating to any feasibility / detailed project report or any other reference document mentioned, implied, or referred herein. This RFP may not be appropriate for all persons. It is not possible for GMDC to consider the investment objectives, financial situation and particular needs of each Proposer/Bidder who reads or uses this RFP. Each Proposer/Bidder should conduct its own investigations and analysis and should check the accuracy, reliability, and completeness of the information in this RFP and where necessary obtain independent advice from appropriate sources.

Bidder should carefully examine and analyze the RFP and bring to the notice of GMDC any error, omission, or inaccuracies therein that are apparent and to carry out its own investigation with respect to all matters related to the captioned subject, seek professional advice on technical, financial, legal, regulatory and taxation matters and satisfy himself of consequences of entering into any agreement and / or arrangement relating to the captioned subject. GMDC and its employees make no representation or warranty, express or implied, and shall incur no liability under any law, statute, rules, or regulations as to the accuracy, reliability or completeness of the information contained in the RFP or in any material on which this RFP is based or with respect to any written or verbal information made available to any Proposer or its representative(s).

GMDC may in their absolute discretion, but without being under any obligation to do so, update, amend or supplement the information in this RFP as per its requirements. GMDC reserves the right not to proceed with the project, to alter the timetable reflected in this document or to change the process or procedure to be applied. It also reserves the right to decline to discuss the Project further with any Party submitting a Proposal. No reimbursement of cost of any type will be paid to persons, entities submitting a Proposal/Bid.

The Bidder shall bear all costs associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by GMDC, or any other costs incurred in connection with or relating to its Bid, regardless of the conduct or outcome of the Bidding process.

## **Part 1: Introduction**

### **1. Background about GMDC**

Gujarat Mineral Development Corporation Ltd (GMDC) is a leading state-owned mining and minerals company in the western Indian state of Gujarat with operational experience spanning nearly 50 years. GMDC is a zero-debt company listed on national and Bombay Stock Exchanges. The Government of Gujarat (GoG) disinvested 26% stake to the public shareholders vide an IPO in 1997 while the balance ownership is held by the Government of Gujarat.

GMDC's product portfolio spans across mining, value added products, and power, with mining activities spread across the state of Gujarat in districts Kutch, Devbhoomi Dwarka, Panchmahal, Vadodara, Bhavnagar, Bharuch, Surat and Chotaudepur. It currently mines Lignite from five operational mines, with five upcoming mines in the pipeline, and other minerals including Bauxite, Fluorspar, Manganese, Ball Clay, Silica Sand, Bentonitic Clay, and Limestone. It provides value added services through works such as Pyrite removal from Lignite, Beneficiation of Bauxite, low-grade Manganese, and Fluorspar.

To leverage its experience in mining operations, GMDC has set up a diversified power portfolio with forward integration into a 2X125 MW lignite-based thermal power Plant in Nani Chher, Gujarat, and clean energy sources including 200.9 MW of Wind power assets in Maliya, Jodiya, Gorsar, Bhanvad, Bada, Varvala, Rojmal, and a 5 MW Solar power project in Panandhro.

### **2. Plant details**

#### **2.1 Background about ATPS**

GMDC has been operating a 250 MW lignite-based thermal power Plant (Akrimota Thermal Power Station, ATPS) over the past 15 years. ATPS has two units of 125 MW each commissioned in July 2006, and March 2007 respectively.

ATPS procures lignite required for generation of power from GMDC's mines (Mata na Madh, and Umarsar) located at proximity (~60 km) and transported directly to the Plant via road. Furthermore, the water supply to the power Plant is ensured through nearest Kori creek (through 1.4 km long sea water intake channel).

ATPS has a long-term power purchase agreement with GUVNL for supply of power till 2036, for the recovery of fixed charges and variable charges as per the actual Plant performance parameters (net availability, station heat rate, auxiliary power consumption).

#### **2.2 Technical specifications**

The key technical specifications and process parameters for the Balance of Plant (BOP) as per the OEM design and commissioning documents have been detailed below. The detailed technical specifications are enclosed in Annexure 1.

## 2.2.1 Design specifications

Design specifications of the lignite handling plant have been detailed below:

<b>Equipment Name:</b>	Lignite Apron feeder
Size:	1800mm wide x 13600 mm Long
Machine Sr. No:	6742
TRF reference	SODS-0740/05
Ref. Drg. No.	0-4518-000
Material to be handled:	Lignite
<b>Equipment Name:</b>	Lignite Primary sizer
Model:	MMD 625 series Twin -shaft mineral sizer,625 MM shaft centers
Material to be handled:	Lignite
Feed size:	(-)1200 MM
Product size:	(-)300 MM
Machine serial Number:	S625-0128
Motor:	150 KW,3-Phase, RPM-1500, Volts :415 KV
Make:	MMD (Mining machinery Developments limited)
<b>Equipment Name:</b>	Lignite secondary sizer
Model:	MMD 154 Series twin shaft sizer 500 mm centers
Material to be handled:	Lignite
Feed size:	(-)300 MM
Product size:	(-) 80 MM
Machine serial Number:	S154-0819
Motor:	150 KW,3-Phase, RPM-1500, Volts :415 KV
Make:	MMD (Mining machinery Developments limited)
<b>Equipment name:</b>	Lignite Impactor
Model:	1220/28 Reversible Impactor
Material to be handled:	Lignite
Feed size:	(-)80MM
Product size:	(-)6MM
Capacity:	700TPH
Motor:	1100KW,3-Phase, RPM-1500, Volts :6.6 KV
Make:	M/s. TRF
<b>Equipment name:</b>	Lignite screen (Bivitec screening Machines)
Model:	KRL/ED 2400X8 R-45
Machine serial Number:	SbT 0676
Make:	Binder+Co AG Gleisdorf, Austria-8200
Material to be handled:	Lignite

<b>Equipment Name:</b>	Stacker Reclaimer for reversible yard conveyer
Model:	Rail mounted slewing boom type stacker cum bucket wheel reclaimer with tripper.
TPH capacity:	300 MT reclaiming/600 MT stacking
Make:	TRF
Material to be handled:	Lignite
<b>Equipment name:</b>	Ultraflow feeder TUF-11
Size:	2400x3000x400 deep TUF11
Machine Sr. No:	6707
TRF reference:	SODS 0740/07
Reference drg. No:	1-3952-000
Material to be handled:	Lignite
<b>Equipment name:</b>	Shuttle conveyer
Size:	1200 mm width /Reversible
TRF reference:	IODS No :0740/03
Reference drg. No:	0-2514-000
Material to be handled:	Lignite
<b>Equipment Name:</b>	Unbalance motor feeder
Size:	2000x2500
TRF reference:	SODS-0740/07
Reference drg. No:	1-3953-000
Material to be handled:	Lignite
<b>Equipment Name:</b>	Mobile tripper
Size:	1000 MM (Motorized) Lignite
TRF reference:	IODS 0740/06
Reference drg. No:	1-7920-000
Material to be handled:	Lignite
<b>Equipment name:</b>	Dry fog system
Make:	TPS manufacturing & construction co. PVT. Ltd.
<b>Equipment name:</b>	Dust suppression system
Make:	Spraying systems (India) PVT LTD. Bangalore
<b>Equipment Name:</b>	Slew bearing in stacker and reclaimer
Make:	Rothe Erde
Capacity:	Stacking 600 TPH & Reclaiming 300 TPH
Application:	Rail mounted slewing boom type stacker cum bucket wheel reclaimer

Part list No:	4002017A
Drawing No:	190.25.2794.000.41.1502
Type:	3-row roller
Weight	1779 Kg

Design specifications of the Ash Handling System have been detailed below:

<b>Equipment Name:</b>	Air Compressor
Model	EL07335, MAKE: ELGI - 25 SERIES
Fab. No	25191
Motor	275Kw,6.6KV
Capacity	41.7 M <sup>3</sup> /MIN
Rated pressure	7 KG/CM <sup>2</sup>
Make	ELGI
<b>Equipment Name:</b>	Air Dryer
Dryer capacity	6250 M3/Hr.
Inlet pressure	7.0 KG/cm2
Inlet temperature (Max)	45 Deg. C
Outlet dew point at line Pr.	(-) 20 Deg. C
Purge loss	NIL
Supply voltage	415 V, 3 Ph.,50Hz.
Operation	Automatic
Base frame size	2200 mm x 1400 mm
Hight from Base	2800 mm (Approx.)
Refrigerant	R-22
Make	Mellcon Engineers PVT Ltd, New Delhi
<b>Equipment Name:</b>	Rotary Ash Conditioner
Type	Rotary Drum type
Capacity	160 TPH
Drg. No	1-025-SD-2-019, Rev-1
Make	McNally Bharat
<b>Equipment name:</b>	Vibrating screen
Type	Single deck vibrating screen
Equipment Sr. No	2004-I-1
Separation size	(-) 2MM
capacity	12.5 TPH
Screen size	1000 MM x 3000 MM
frequency of Vibration	1350 RPM(Normal)
Amplitude of vibration	2 MM
Material to be handled	Bed ash

Feed size	(-)3 MM
Bulk density	1.2 T/M <sup>3</sup>
Screen Inclination	15 Drg.
Screen type	Circular motion
Screen Aperture (MM)	2x2
Tensioning Arrangement	Cross wise
Make	McNally Bharat
<b>Equipment name:</b>	Vibrating screen
Type	Single deck vibrating screen
Equipment Sr. No.	2004-I-3
Separation size	(-) 2MM
capacity	25 TPH
Screen size	1500 MM x 3000 MM
frequency of Vibration	1350 RPM(Normal)
Amplitude of vibration	2 MM
Material to be handled	Bed ash
Feed size	(-)3 MM
Bulk density	1.2 T/M <sup>3</sup>
Screen Inclination	15 Drg.
Screen type	Circular motion
Screen Aperture (MM)	2x2
Tensioning Arrangement	Cross wise
Make	McNally Bharat
<b>Equipment Name:</b>	Dust conditioning water Pump
Type	CPC 80/400
Size	125 x 80
Head	45 m
Capacity	70 M <sup>3</sup> /Hr
Motor Power	18.5 KW/4P
Speed	1450 RPM
Make	Sam turbo industry limited
<b>Equipment name:</b>	Fluidizing blower (ESP Blower)
Model	610 Ac
Capacity	750 M <sup>3</sup> /Hr
Diff. Pressure	4000 MMWG
RPM	1329
B.H.P	15.45
Drg. No.	K-GA-0610AH016A3, Rev-1
Make	KAY international limited

<b>Equipment name:</b>	Fluidizing blower (Silo Blower)
Model	59 AC
Capacity	400 M <sup>3</sup> /Hr
Diff. Pressure	4000 MMWG
RPM	1030
B.H.P	8.55
Drg. No.	K-GA-0059AH194A3, Rev-1
Make	KAY international limited

Design specifications of the Lime Handling System have been detailed below:

<b>Equipment Name:</b>	Lime Apron Feeder
Size:	1800mm wide x 8400 mm Long
Machine Sr. No	6743
TRF reference	SODS-0740/05
Ref. Drg. No.	0-4517-000
Material to be handled:	Lime
<b>Equipment Name:</b>	Lime sizer
Model:	MMD 625 series Twin -shaft sizer, 625 MM shaft centers
Material to be handled:	Lime
Machine serial Number:	S625-0127
Make:	MMD (Mining machinery Developments limited)
<b>Equipment name:</b>	Lime Impactor
Model:	4016/18 Reversible impactor
Material to be handled:	Lime
Feed size:	(-)300MM
Product size:	(-)25MM
Capacity:	300TPH
Make:	M/s. TRF
<b>Equipment Name:</b>	Unbalance motor feeder
Size:	1600 X2000
TRF reference:	SODS-0740/07
Reference drg. No:	1-3954-000
Material to be handled:	Lime
<b>Equipment Name:</b>	Mobile tripper
Size:	600 MM (Motorized) Lime
TRF reference:	IODS 0740/06
Reference drg. No:	1-7921-000
Material to be handled:	Lime

<b>Equipment Name:</b>	Telescopic chute
Size:	Pile height-9000mm (Max)
TRF reference:	0740/08
Reference drg. No:	0-7406-000
Material to be handled:	Lime

Design specifications of the Condenser have been detailed below:

<b>Equipment Name:</b>	<b>Condenser</b>
Type:	Single shell
Thermal design	HEI/ASME VIII
Make:	STF s.p.a Costruzione Impianti
Design pressure tube side	5 kg/cm <sup>2</sup> /g
Design pressure shell side	1 (vacuum) kg/cm <sup>2</sup> /g
Design temperature tube side	60 degree C
Design temperature shell side	90 degree C
Material handling	Sea water
Flow	16800000 Kg/h
Total length of tubes	10070 mm

Key design specifications for pumps and miscellaneous items have been detailed below:

<b>Equipment Name:</b>	<b>Booster Pumps</b>
Make:	Kirloskar Ebra Pumps Ltd.
Type of pump	Centrifugal, volute, double entry
No. of pumps required per turbo set	3
Type of journal bearings	Roller
No. of bearings	2
Type of lubrication	Oil
Type of coupling	Flexible
Casing material	BS 1504 161 G 430 or equivalent
Shaft material	BS 1504 425 C11
Impeller material	BS 1504 425 C11
<b>Equipment Name:</b>	<b>Condensate Extraction Pump</b>
Make:	Kirloskar Brother Ltd.
Type of operation	Continuous
No of working pumps	2
No of standby pumps	1
Pump classification	Barrel

Pump orientation	Vertical
Impeller classification	Closed
TDH developed at design capacity	223 mmWC
Min. NPSH required at the eye of the first stage impeller	2.6 mmWC

<b>Equipment Name:</b>	<b>Deaerator</b>
Make:	GEA Energy System (I) Ltd.
Type	Spray cum tray cum reboiling type
Storage tank weight	24 tons
Deaerator head	3.5 tons
Deaerator ID	1800 mm
Deaerator head overall length	4000 mm
Deaerator header dished end thickness	10 mm
Storage tank ID	3400 mm
Storage tank length	11500 mm

<b>Equipment Name:</b>	<b>LP Bypass System</b>
Number of valves	1
Types of valves	Angle
Type of actuator	Hydraulic
Rated flow capacity	243
Trim material	x19CrMoVNbN111 or Equal

<b>Equipment Name:</b>	<b>LP Heater System</b>		
	<b>LPH1</b>	<b>LPH2</b>	<b>LPH2</b>
Type	Shell and tube	Shell and tube	Shell and tube
Make	L&T	L&T	L&T
Size	4.212M <sup>3</sup> (SHELL) 1.080M <sup>3</sup> (TUBE)	5.850M <sup>3</sup> (SHELL) 1.663M <sup>3</sup> (TUBE)	4.15M <sup>3</sup> (SHELL) 1.40M <sup>3</sup> (TUBE)
Shell ID	870	980	905
A.V. length of U-tube including tube plate thickness	16700	18700	18400
Number of units	1	1	1
Position	Horizontal	Vertical	Vertical
Location	Indoor (inside condenser neck)	Indoor	Indoor

<b>Equipment Name:</b>	<b>HP Bypass System</b>
Number of valves	1
Types of valves	Angle
Type of actuator	Hydraulic
Rated flow capacity	280

Trim material	x19CrMoVNbN111 or Equal	
<b>Equipment Name:</b>	<b>HP Heater System</b>	
	<b>HP5</b>	<b>HP6</b>
Type	Shell and tube	Shell and tube
Make	BHEL	BHEL
Size	21.873KG/HR(SHELL) 369.612T/HR(TUBE)	21.873KG/HR(SHELL) 369.612T/HR(TUBE)
Arrangement	Vertical	Vertical
Design and construction standard	ASMEVIII-HEI	ASMEVIII-HEI
Shell side operating pressure	20.38 kg/cm2 (abs)	35.08 kg/cm2 (abs)
<b>Equipment Name:</b>	<b>CCW Pumps (A, B, C)</b>	
Manufacturer	BEACON WEIR LTD.	
Capacity	1375 m <sup>3</sup> /hr.	
<b>Equipment Name:</b>	<b>ACW Pumps (A, B, C)</b>	
Manufacturer	BEACON WEIR LTD.	
Capacity	1850 m <sup>3</sup> /hr.	
<b>Equipment Name:</b>	<b>Plate-type Heat Exchangers (A, B, C)</b>	
Manufacturer	IDMC LTD.	
<b>Equipment Name:</b>	<b>Chiller compressor (#1, 2, 3, 4)</b>	
Manufacturer	Blue Star	
Capacity	90 TR	
<b>Equipment Name:</b>	<b>Chiller pump (#1, 2, 3, 4)</b>	
Manufacturer	BEACON WEIR LTD.	
Capacity	65 m <sup>3</sup> / hr.	
<b>Equipment Name:</b>	<b>Auxiliary cooling tower</b>	
Manufacturer	COOL TECH COOLING TOWER	
Capacity	100 TR	
<b>Equipment Name:</b>	<b>Condensate pump (#1, 2)</b>	
Manufacturer	Ajay Pump	
Capacity	70 m <sup>3</sup> / hr.	
<b>Equipment Name:</b>	<b>Air Handling Unit (#1, 2, 3)</b>	
Manufacturer	Blue Star	
Capacity	39200 CMH / AHU	

<b>Equipment Name:</b>	<b>AC#1, 2 LIME CONTROL ROOM</b>
Manufacturer	Blue Star
Capacity	10 TR
<b>Equipment Name:</b>	<b>EXCITATION CONTROL ROOM U#1 , U#2, AC#1, AC#2</b>
Manufacturer	Blue Star
Capacity	10 TR
<b>Equipment Name:</b>	<b>ESP CONTROL ROOM U#1 , U#2, AC#1, AC#2</b>
Manufacturer	Blue Star
Capacity	10 TR
<b>Equipment Name:</b>	<b>MHP CONTROL ROOM AC#1, AC#2, AC#3</b>
Manufacturer	Blue Star
Capacity	10 TR
<b>Equipment Name:</b>	<b>AHS CONTROL ROOM AC#1, AC#2</b>
Manufacturer	Blue Star
Capacity	10 TR
<b>Equipment Name:</b>	<b>VATECH CONTROL ROOM AC#1, AC#2</b>
Manufacturer	Blue Star
Capacity	10 TR

Design specifications of cooling tower are as below:

<b>Equipment Name:</b>	Cooling Tower (CT)
Number of towers	2
Total cells per tower	9
Water flow rate / cell	3111 m <sup>3</sup> /hr./cell
Hot water temperature	41 Degree C
Cold water temperature	34 Degree C
Evaporation loss at design	1.225% of circulating water
Drift loss at design	<0.001% of circulating water

Key design specifications associated with the sea water treatment plant have been detailed below:

<b>Equipment Name:</b>	Sea water intake pump
Make:	KBL
Model no:	BHQ 32 M4
Drg no:	TC 152 02 006 2

Type:	Single stage, Self-water lub
<b>Equipment Name:</b>	Desal feed pump
Make	KBL
Model no:	BHR 35 -18 deg
Drg no:	TC 153 02 020 2
Type:	Two stage, Self-water lub
<b>Equipment Name:</b>	Back wash recirculation pump
Make	KBL
Model no:	BHR 28 M-30 deg
Drg no:	TC 153 02 021 2
Type:	Single stage, Self-water lub

Key design specifications associated with the generator transformer have been detailed below:

<b>Equipment Name:</b>	Generator Transformer
Make:	Alstom Energy Systems GmbH (later acquired by GE)
No. of phases:	3 (in both HV and LV)
Type:	Double Wound
Vector Group:	Ynd11
Tank and fitting mass:	42000 Kg
Mass of oil:	47000 Kg
Total mass:	196000 Kg
Sr. No.:	TNDE – 6515-B – 29674
<b>Equipment Name:</b>	Station Transformer
Make:	Areva Ltd.
No. of phases:	3
Rating:	30000 KVA
Vector Group:	Ynyn0
Core and winding weight:	29000 Kg
Mass of oil:	26500 Kg
Total mass:	75500 Kg
Sr. No.:	TNDE – T6839/671000111
<b>Equipment Name:</b>	CT
Make:	CGL
Type:	IOSK-245/460/1050
Spec:	IS 2705-92
S.O. No.:	EPDG0628/50
STR:	40KA/3Sec

Rated primary current:	2400 A
Reference Sr. No.:	18625
Core:	6 [Core 1, 2 & 5 PS CI, Core 3& 4 0.2 CL & Core 6 0.5CI]
CT Ratio:	2000-1000-500/1Amp
<b>Equipment Name:</b>	CVT
Make:	CGL
Type:	CVE: 245/1050/50
HSV:	245 KV
Capacitance:	5500+10%-5%pF
Specs:	Pedestal Mounting, Single phase, Oil immersed, Outdoor, Hermetically sealed
Capacitor oil:	60+/-10%kg
Ins. Level:	460KV/1050Kvp
Thermal output:	100 VA

Key design specifications associated with the switchyard have been detailed below:

<b>Area:</b>	Switchyard
Switchyard voltage level	220 KV
Bays	Total 8 (4 bays – Transmission lines of 1000A capacity 2 bays – 170 MVA GTs each 1 bay – 30 MVA station transformer 1 bay – Bus coupler)
Bus transfer system	2 systems of 220 KV each
<b>Equipment Name:</b>	Lighting Arrestor
Model	PBC
Creepage distance	31 mm/KV
Type	198KV 20KA rated Station Class Metal Oxide (gapless) Surge Arresters hermetically sealed in a porcelain container having pressure release arrangement at both ends in FRP cag duly molded with silicon porcelain with a line terminal connector for solidly earthed neutral system to be used on a normal system voltage of 220KV for an MCOV of 198KV (RMS) with Insulating base, Surge Monitor, Connecting Lead and Terminal Connector
<b>Equipment Name:</b>	Line breaker
Make	CGL
Type	200-SFM-40A
Reference Sr. No.	16199C
Rating	1600 Amp
Specification	Complete pole unit assembly Without (W/O) housing For, 245KV, 40KA, 1600Amp, SF6 Type GCB

## 2.2.2 Process parameters

Key ideal process parameters associated with the condenser have been detailed below:

Parameter	Units	Values	Remarks
Quantity of steam from Main Turbine	kg/hr.	260595	at MCR - Maximum continuous rating
Enthalpy of steam from Main Turbine	kcal/kg	574.3	at MCR
Temperature of steam from Main Turbine	degrees C	45.8	at MCR
Quantity of drains from feed cycle	kg/hr.	48746	at MCR
Enthalpy of drains from feed cycle	kcal/kg	52.4	at MCR
Temperature of drains from feed cycle	degrees C	52.4	at MCR
Condensate temperature at hot well	degrees C	45.34	
Total heat load	kcal/hr.	138072728.6	
Inlet temperature	degrees C	34	
Outlet temperature	degrees C	42.5	

The ideal process parameters associated with the pumps and miscellaneous items have been detailed below:

Sub-system	Parameter	Units	Values
Booster Pump	Rated speed	rpm	1480
	Design flow	m <sup>3</sup> /hr.	288
	Power input at design flow	KW	50
	Efficiency at design point	%	81
Condensate Extraction Pump	Rotating speed	rpm	1485
	Power required at design point	kW	145
	Efficiency at design point	%	78
LP Heater System	Extraction steam flow at LPH1	T/hr.	9.706
	Extraction steam flow at LPH2	T/hr.	18.324
	Extraction steam flow at LPH3	T/hr.	20.936
	Inlet temperature at LPH1	degrees C	70.3
	Inlet temperature at LPH2	degrees C	106.9
	Inlet temperature at LPH3	degrees C	148.6
	Feed water flow in tubes	kg/hr.	312.729
	Design pressure for tubes	Kg/cm <sup>2</sup> (g)	27.5
	Inlet temperature for tubes in LPH1	degrees C	47.5
	Inlet temperature for tubes in LPH2	degrees C	67.3
	Inlet temperature for tubes in LPH3	degrees C	103.9
	Outlet temperature for tubes in LPH1	degrees C	67.3
	Outlet temperature for tubes in LPH2	degrees C	103.9
Outlet temperature for tubes in LPH3	degrees C	145.6	
Deaerator	Internal design pressure at Storage tank	kg/cm <sup>2</sup> (g)	10

Sub-system	Parameter	Units	Values
	Flow rate	T/hr.	370
	Storage tank capacity at normal working level	m <sup>3</sup>	100
HP Heater System	Feed water flow	T/hr.	369.612
	Feed water inlet temperature at HPH5	degrees C	176.8
	Feed water inlet temperature at HPH6	degrees C	214.3
	Feed water outlet temperature at HPH5	degrees C	214.3
	Feed water outlet temperature at HPH6	degrees C	241.6
	Extraction steam flow at HPH5	kg/hr.	21.873
	Extraction steam flow at HPH6	kg/hr.	21.413
	Extraction steam inlet temperature at HPH5	degrees C	212.3
	Extraction steam inlet temperature at HPH6	degrees C	241.6
	CCW	Mass flow rate for performance lignite in plate heat exchanger	T/hr.
Mass flow rate for performance lignite in plate heat exchanger		T/hr.	310
Inlet temperature for performance lignite in plate heat exchanger		degrees C	55
Inlet temperature for performance lignite in plate heat exchanger		degrees C	34
Outlet temperature for performance lignite in plate heat exchanger		degrees C	40
Outlet temperature for performance lignite in plate heat exchanger		degrees C	42

Key ideal process parameters associated with the cooling tower have been detailed below:

Sub-system	Parameter	Units	Values
CT Fan	Fan speed (desired)	rpm	108.95
	Efficiency	%	82
CT Gearbox	Efficiency	%	97.5
	Nominal reduction ratio		13.54:1
CT motor	Service factor		2.48
	Rated power	KW	55
	Full load speed	rpm	1475
Cooling Tower	Full load efficiency	%	94
	Design inlet wet bulb temperature	degrees C	29.66
	Power consumed at motor inlet terminal per cell	KW	44.74

Key process parameters associated with the Sea Water Treatment Plan have been detailed below:

Component	Parameter	Units	Values
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Component	Parameter	Units	Values
Pre-Treatment Plant	Sea water pre-treatment (Normal flow)	M <sup>3</sup> /HR	3600
	Sea water pre-treatment (Peak flow)	M <sup>3</sup> /HR	4320
	Flash Mixture	M <sup>3</sup> /HR	3600
	Flocculator	M <sup>3</sup>	900
	Air Blower - Gravity Sand Filter	NM <sup>3</sup> /HR	1200
	Sea Water Intake Pump	M <sup>3</sup> /HR	1800
	TWS Spray Pump	M <sup>3</sup>	60
	CT Make Up Pump	M <sup>3</sup> /HR	1550
	Desalination Feed Pump	M <sup>3</sup> /HR	417
	EC Feed Pump	M <sup>3</sup> /HR	40
	Backwash Recirculation Pump	M <sup>3</sup> /HR	300
	Filter Backwash Pump	M <sup>3</sup> /HR	1000
	Centrifuge Feed Pump	M <sup>3</sup> /HR	20
	Centrifuge	M <sup>3</sup> /HR	20
	Lime Solution Tank Agitator	M <sup>3</sup> /HR	5.28
	PE Tank Agitator	M <sup>3</sup> /HR	5.38
	DWPE Tank Agitator	M <sup>3</sup> /HR	5.38
	Alum Dosing Pump	LPH	2160
	PE Dosing Pump	LPH	550
	DWPE Dosing Pump	LPH	653
	Sludge Thickener	M <sup>3</sup> /HR	4320
	Biocide Dosing Pump	M <sup>3</sup> /HR	50
	Polyphosphate Dosing Pump	M <sup>3</sup> /HR	50
Biocide Tank Agitator	M <sup>3</sup> /HR	0.628	
Polyphosphate Tank Agitator	M <sup>3</sup> /HR	0.628	
DM Plant	DM plant flow	M <sup>3</sup> /day	2000
	Potable Water Pump	M <sup>3</sup> /HR	30
	DM Water Supply Pump	M <sup>3</sup> /HR	40
	Chemical Conditioning Dosing Pump	LPH	150
	Acid Unloading Pump	M <sup>3</sup> /HR	10
	Alkali Unloading Pump	M <sup>3</sup> /HR	10
	Acid Dosing Pump	LPH	380
	Alkali Dosing Pump	LPH	500
	Effluent Disposal Pump	M <sup>3</sup> /HR	50
	DM Water Transfer Pump	M <sup>3</sup> /HR	42
	Potable Service Water Pump	M <sup>3</sup> /HR	20
	Potable Water Conditioning Tank Agitator	M <sup>3</sup> /HR	2
	Mixed Bed Exchanger Air Blower	NM <sup>3</sup> /HR	210
	Desalination Water Storage Tank	M <sup>3</sup>	1500
	Acid Bulk Storage Tank	M <sup>3</sup>	15
	Alkali Bulk Storage Tank	M <sup>3</sup>	15
	DM Water Storage Tank	M <sup>3</sup>	500

Component	Parameter	Units	Values
Desalination Plant	Sea water desalination plant	TPD	2 * 1200
	Antiscalant Dosing Pump	LPH	21
	Antifoam Dosing Pump	LPH	40
	SBS Dosing Pump	LPH	40
	Brine Pump	M <sup>3</sup> /HR	280
	Distillate Pump	M <sup>3</sup> /HR	50
	Condensate Pump	M <sup>3</sup> /HR	10
	Acid Cleaning Pump	M <sup>3</sup> /HR	13.5
	Motive Water Pump	M <sup>3</sup> /HR	90
	Antiscalant Tank Agitator	M <sup>3</sup>	0.628
	Anti-Foam Tank Agitator	M <sup>3</sup>	0.628
	SBS Tank Agitator	M <sup>3</sup>	0.628

Key process parameters associated with the transformer have been detailed below:

Parameter	Units	Values	Remarks
High Voltage Rated power	MVA	100	ONAN - Oil Natural Air Natural
High Voltage Rated power	MVA	135	ONAF - Oil Natural Air Forced
High Voltage Rated power	MVA	170	OFAF - Oil Forced Air Forced
Low Voltage Rated power	MVA	100	ONAN - Oil Natural Air Natural
Low Voltage Rated power	MVA	135	ONAF - Oil Natural Air Forced
Low Voltage Rated power	MVA	170	OFAF - Oil Forced Air Forced
Rated voltage at no load (HV)	kV	230	ONAF - Oil Natural Air Forced
Rated voltage at no load (LV)	kV	15.75	ONAF - Oil Natural Air Forced
Rated Line Current (HV)	A	251.3	ONAN - Oil Natural Air Natural
Rated Line Current (HV)	A	339.3	ONAF - Oil Natural Air Forced
Rated Line Current (HV)	A	427.2	OFAF - Oil Forced Air Forced
Rated Line Current (LV)	A	3670.1	ONAN - Oil Natural Air Natural
Rated Line Current (LV)	A	4954.6	ONAF - Oil Natural Air Forced
Rated Line Current (LV)	A	6239.1	OFAF - Oil Forced Air Forced
Frequency	Hz	50	
Max. Temperature Rise above 50 degrees C ambient	degrees C	40	Top Oil
Max. Temperature Rise above 50 degrees C ambient	degrees C	50	Avg. windings

### 3. Context of RFP

#### 3.1 Intent of specification

The intent of this specification is to carry out a complete Overhaul of the Balance of Plant according as the terms of reference / scope of work detailed in Part 2 of this document.

The scope of work for the Overhaul shall include provision of services and supply of spares. Services shall include refurbishment, retrofitting, inspection of equipment, replacing, repairing, Overhauling, carrying out all pre-commissioning tests and or checks, trial runs, running performance tests of various equipment and systems covered under the specification, and any other work required to ensure sustainable performance of the system. Supply shall include procurement, inspection of material at suppliers' works, packing, transportation, machining, and installation of requisite spares for Overhaul of the Balance of Plant.

The Successful Bidder shall conform in all respects to the highest standard of engineering, design, quality, and workmanship so that after completion of the Overhaul, the Plant shall be capable of operating safely, reliably, and sustainably in a manner acceptable to the owner.

### **3.2 Battery limits**

The Successful Bidder shall be responsible for maintenance and / or overhauling of all mechanical, electrical, and instrumentation equipment of the Balance of Plant across Unit-1 and Unit-2, as part of the scope of work, as detailed in Part 2 of this document. This shall include all equipment within the following circuits as part of the Balance of Plant as detailed below:

- Lignite handling system: Starting from unloading station of lignite to the inlet of the lignite bunker, including the yard equipment (e.g., stacker reclaimer), conveying system, crushers, etc.
- Lime handling system: Starting from unloading station of lime to the inlet of the lime bunker, including conveying system, crushers, etc.
- Ash handling system: Starting from the outlet of the ash rotary seal to disposal (for bottom ash) and ESP bottom hoppers to disposal (for fly ash)
- Sea water treatment system: Starting from the sea water intake into the plant, up to cooling tower make up (terminal 1), and DM water outlet, including the clariflocoulator, rapid sand gravity filter, reservoir and pump house, hypochlorite system, desalination plant, and DM plant.
- Cooling water circuit: Closed circuit from cooling towers to inlet from condenser, including the cooling water pumps
- Condensate system: Starting from outlet of LP turbine, and inlet from cooling water pumps to outlet of HP heaters including the condenser, condensate extraction pumps, hot well, deaerator, HP heaters, etc.

Other equipment in the scope of this Package include:

- Electrical system: Electrical systems across the plant within the battery limits defined above, and evacuation infrastructure starting from IPBD, including excitation transformers, generator transformer (for Unit 1), CT / CVT, UAT, station transformer, switchyard, etc.
- Instrumentation: Field instruments across the battery limits defined above, including wiring up to junction boxes

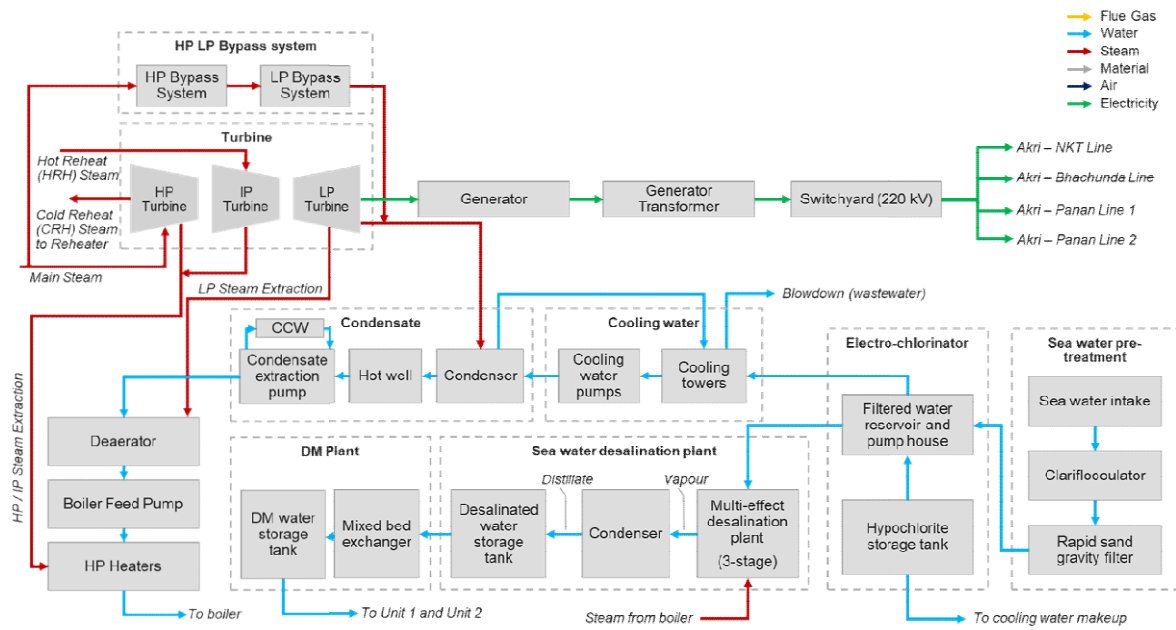


Figure 1: Process Flow Diagram: Balance of Plant

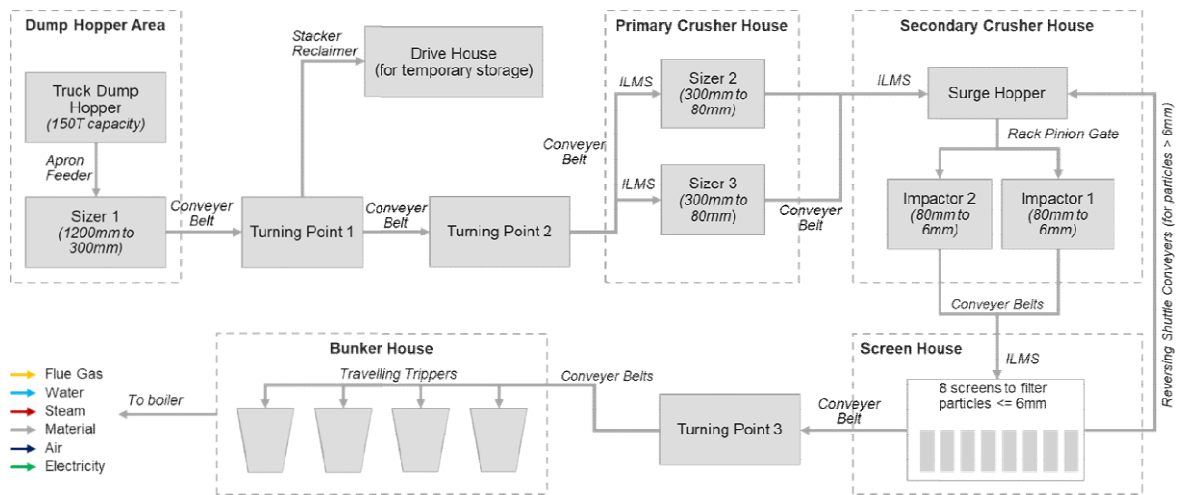


Figure 2: Process Flow Diagram - Lignite Handling System

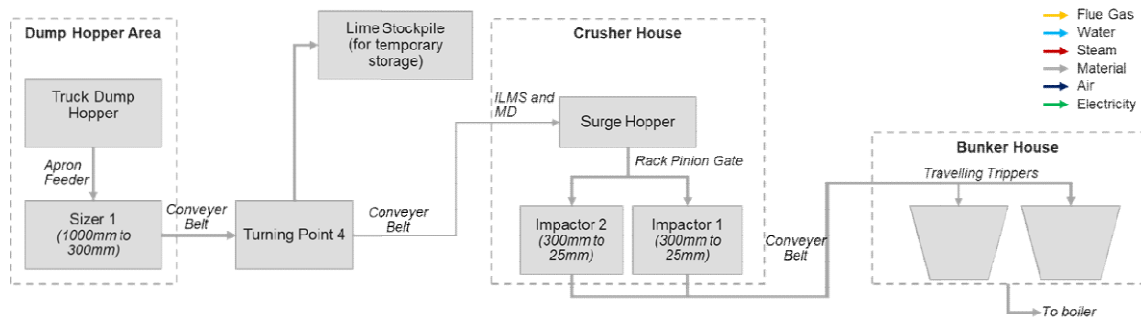


Figure 3: Process Flow Diagram - Lime Handling System

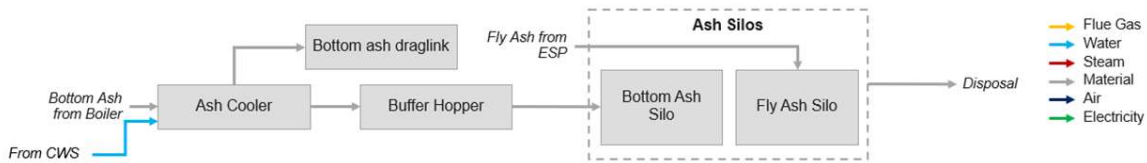


Figure 4: Process Flow Diagram - Ash Handling System

### 3.3 Plant visits

The Bidders are invited to visit the Plant and understand the equipment installed and their working conditions, prior to submission of the Bids. The objective of the Plant visits shall be to understand the scope of work, feasibility of execution, and make the Bidders fully conversant with the job, site conditions, constraints, and collect all information as required and as available before quoting against this specification.

The Bidders can schedule their visit to the Plant by providing prior intimation to the Owner (via e-mail) along with the list of visitors from the Bidding Entity to ensure ease of coordination and availability of key personnel.

The visits are optional, the Bidders can opt to visit the Plant at their own discretion. Should they opt to visit the Plant, the Bidder shall submit a Plant visit plan to the Owner indicating the timelines and the key personnel visiting, for prior consent and approval. The Owner shall facilitate the visits for the Bidders and make necessary arrangements at the Plant. The cost of the Plant visit, including transportation and accommodation, shall be borne by bidder.

### 3.4 Integration of equipment / system

Out of complete unit comprising of mechanical, electrical, C&I systems, and civil works, some components/systems are envisaged to be replaced with new ones having better design features while some of the other components are to be refurbished / upgraded or repaired/ Overhauled by the Successful Bidder under the scope of work.

It shall be the responsibility of the Successful Bidder to ensure the components / equipment / systems being supplied, refurbished / upgraded, or repaired / Overhauled are fully integrated with the existing equipment / systems so as to get safe, reliable, and sustained operations of the Plant.

In this context, GMDC is looking for a contractor for comprehensive Overhaul of the Balance of Plant across both units of the Plant and is inviting Bids from bona fide and experienced Bidders of financial standing, reputation, and providing such services across India, for the following job:

<b>Name of work:</b>	Request for Proposal (RFP) for Balance of Plant (BOP) Package for Overhaul of GMDC's 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat
----------------------	--

RFP no.:

GMDC/Power/ATPS/10/23-24

## Part 2: Terms of reference / Scope of Work

### 1. Definitions of the terms and conditions of the RFP

#### 1.1. Definitions

For the purpose of the Contract, the following words and expressions in this Section shall have the respective meanings set forth below:

**“Applicable Laws”** shall mean all laws, treaties, ordinances, rules, regulations applicable in India and amendments, re-enactments, revisions, applications, and adaptations thereto made from time to time and in force and effect, judgments, decrees, injunctions, writs and orders of any court, arbitrator or governmental agency or authority, rules, regulations, orders and interpretations of any Governmental Instrumentality, court or statutory or other body having jurisdiction over construction of the Plant, performance of the Work or supply of Goods, operation and maintenance of the Plant, including Applicable Permits, as may be in effect at the time of performance of work or supply of Goods hereunder by the Bidder, which time would include Latent Defects Period as appropriate, provided, however, that if at any time the Applicable Laws are less stringent than the standards set forth in the Contract hereto, the standard set forth in the Contract hereto shall be deemed to be the standards under Applicable Laws.

**“Applicable Permits & Clearances”** shall mean any and all Permits, Clearances, Authorizations, consents, licenses (including without limitation any import or export licenses), lease, ruling, exemption, filing, agreements, or Approvals, required to be obtained or maintained in connection with construction of the Plant, performance of Work, and the operation of the Plant respectively by the Bidder and the Owner in accordance with the Contract and their maintenance, as may be in effect at the time of Bidder’s supply of Goods hereunder; which time would include Latent Defects Period as appropriate.

**“Approval”** shall mean the written approval of the Owner and of the statutory authorities, wherever such authorities are specified by any codes or otherwise.

**“Arbitration Act”** shall mean Arbitration and Conciliation Act, 1996, or any amendment or re-enactment thereof.

**“Authorization”** shall mean approvals required under Applicable Law.

**“Bid”** shall mean the offer of the Bidder to the Owner in response to the Bid Enquiry

**“Bidder”** shall mean single corporate entity Bidding for the Contract for overhauling of Balance of Plant (BOP)

**“Bidder Permits”** shall mean all Permits, required by the Bidder from any Government Instrumentality for the performance of his obligations

**“Bidder’s Representative”** shall mean the person named as such in the Contract or other person appointed and from time to time communicated to the Owner by the Bidder in his place in accordance with the terms of the Contract.

**“Bid Security/Earnest Money Deposit (EMD)”** shall mean the security provided by the Bidder to the Owner along with the Bid.

**“Commencement Date”** shall be the date 7 (seven) days from the date of signing of the LoA for services to be provided by the Bidder

**“Contract”** shall mean the documents as set out in the form of Contract Agreement as may be amended, supplemented, or modified from time to time by agreement in Writing between the Parties.

**“Contract Period”** shall mean the period from the Commencement Date up to and including the last day of the Contract.

**“Documents”** shall mean and includes all design documents, engineering documents, Drawings, calculations, computer software (programs), computer media, samples, patterns, models, construction documents, erection documents, Operation and Maintenance Manuals, and other manuals, and the like as well as, all other data and information to be submitted by the Bidder and shall include without limitation, engineering, design and construction drawings, data sheets, specifications, plans, bills of Materials and estimates.

**“Governmental Authority”** shall mean the Government of India, the state government, any local authority constituted under an act of legislature, and any other authority exercising any power or function in pursuance of an act of legislature, or any rules and regulations made there under, and any successor thereof having legal jurisdiction over the matter or person in question.

**“Goods”** shall mean all of the equipment, machinery, apparatus, appliances, components and/or other Materials and things, which the Vendors are required to supply to the Owner under the Contract.

**“Good Industry Practice”** shall mean those practices, methods, acts, techniques and standards as may be followed or employed in the performance of the Work or supply of Goods and discharge of its obligations by the Bidder and which (i) are generally accepted internationally for use in the electric utility industry, taking into account conditions in India, in connection with power stations of the same or similar size and type as the Plant, (ii) are commonly used in prudent electric utility engineering, construction, project management and operations, and (iii) would be expected to result in performance of the Services and completion of Works in a manner consistent with Applicable Laws, Applicable permits, reliability and safety.

**“GUVNL”** shall mean Gujarat Urja Vikas Nigam Limited

**“Lumpsum Charges for BOP Package”** shall mean the comprehensive BOP Overhaul charges payable by the Owner to the Bidder in respect of execution of all the services and supply of spares as indicated in Section 3 of Part 2 in this document.

**“Notice in Writing”** or **“Written Notice”** shall mean a Notice in Writing, typed, or printed or handwritten characters, sent (unless delivered personally or otherwise proved to have been

received) by registered post or by electronic transmission to the last known private or business address or registered office of the addressee and shall be deemed to have been received when in the ordinary course of post or by electronic media it would have been delivered.

**“Overhaul”** shall refer to the planned maintenance being undertaken for the 2X125 MW Akrimota Thermal Power Station to enhance performance and reliability of the asset

**“Overhauling Activities”** shall refer to all the activities that are needed to be performed for successful Overhaul of the 2X125 MW Akrimota Thermal Power Station

**“Owner”** shall mean Gujarat Mineral Development Corporation Limited hereinafter referred to “GMDC”, in its capacity as Owner and shall include its successors and assigns, as well as authorized officers.

**“Owner’s Representative”** shall mean the person appointed by the Owner from time to time and notified as such to the Bidder to act as Owner’s Representative for the purposes of the Contract.

**“PMC”** shall mean the Project Management Consultancy appointed by Authority / GMDC for providing PMC services for turnaround of GMDC’s 2X125 MW Akrimota Thermal Power Station (ATPS)

**“Package”** shall mean a group of ATPS systems that are Packaged together for the execution of Overhaul

**“Party”** shall mean Owner or Bidder individually and “Parties” means Owner and Bidder collectively.

**“Personnel”** shall mean employees/personnel engaged by the Bidder who are based in India and are directly or indirectly engaged by the Bidder in the performance of the Bidder's obligations under this Agreement at the Plant.

**“Plant”** shall mean the 2X125 MW lignite based thermal power Plant operated by GMDC in Akrimota (Akrimota Thermal Power Station, ATPS), comprising of 2 units of 125 MW each

**“Procurement Activities”** shall mean the activities needed to be performed for Procurement of all the raw materials and services for Balance of Plant Overhaul of the 2X125 MW Akrimota Thermal Power Station

**“Successful Bidder”** shall mean the Bidder who is selected by Authority / GMDC in providing services for Balance of Plant Overhaul of GMDC’s 2X125 MW Akrimota Thermal Power Station (ATPS) and shall include such Successful Bidder’s legal representatives, successors and permitted assigns

**“Turnaround”** shall refer to the planned maintenance being undertaken for the 2X125 MW Akrimota Thermal Power Station to enhance performance and reliability of the asset

**“Willful Default”** shall mean an intentional or reckless breach or/ and omission by a Party of any of its obligations under the Contract

## **1.2. Interpretation**

Words importing Persons or Parties shall include related firms and corporations and any organization having legal capacity. Words importing the singular also include the plural and vice versa where the context requires. Words importing one gender also include other genders.

Unless inconsistent with the provisions of the Contract, the meaning of any shipping terms and the rights and obligations of the Parties there under shall be as set forth in the latest International Chambers of Commerce (ICC) official rules for interpretation of trade terms as per "INCOTERMS 2010"

## **1.3. Law, language, and measurements**

Applicable Law to this Contract shall be the Indian Law. The respective rights, privileges, duties and obligations of the Owner and the Successful Bidder under the Contract shall be governed and determined by the Laws of State and of the Republic of India.

All correspondence, information, literature, data, manuals, definitive documents, notices, waivers, and all other communication, written or otherwise, between the Parties in connection with this Contract shall be in English. The official text of this Contract shall be English.

All measurements shall be in metric system.

## **1.4. Stamp duty and similar charges**

The costs of stamp duties and similar charges imposed by law on the Contract or Agreement, or any part thereof shall be borne by the Successful Bidder.

## **1.5. Commencement of Contract**

The Successful Bidder, along with the payment of Performance Security, will enter into a Contract with the Owner on appropriate Stamp Paper (to be provided by the Successful Bidder) in token of acceptance of the terms and conditions of the contract, within 7 (seven) days of submission of its acceptance of the Letter of Award (LOA). In case of any necessity arising after executing the Contract and during the execution of the work, which requires alteration/modifications in the Contract, the same can be made in writing by either party, after mutual understanding and consent of both the parties. The Successful Bidder will have to start the work as per the Scope of Work described in the Section 3 of Part 2 of this document, within 7 (seven) days from the date of acceptance of the LOA. In case of failure to commence the work within the abovementioned period, the liquidated damages shall be levied as per the provision of Section 8.1 of Part 2 of this document

## **1.6. Successful Bidder's use of Owner's documents**

Copyright in the Owner's requirements and other Documents issued by the Owner to the Successful Bidder shall (as between the Parties) remain the property of the Owner. Ownership in all documents provided by the Successful Bidder to the Owner pursuant to the Contract including design, engineering, Drawings and Works layout (but excluding

proprietary information and Manuals provided by Vendors of equipment for use of the Owner) shall vest in the Owner. The Successful Bidder may, at its Cost, copy, use and communicate any such documents for the purposes of the Contract. They shall not, without the Owner's consent, be used, copied, or communicated to a third-party by the Successful Bidder, except as necessary for the purposes of the Contract including performance of Work or supply of Goods.

The Successful Bidder shall indemnify the Owner in case of breach of this Section by the Successful Bidder. If these Documents are received by a third-party from the Successful Bidder and the third-party makes use of these Documents to cause harm or monetary loss to the Owner or use these Documents for their personal gain / monetary gain, the Successful Bidder shall compensate the Owner for the loss suffered as well as for the value of gain derived by third-party.

### **1.7. Confidential details**

The Successful Bidder shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out his obligations hereunder. The Successful Bidder shall not publish, permit to be published, or disclose any particulars of the Contract in any trade or technical paper or elsewhere without the previous consent in writing of the Owner and at the Owner's sole discretion.

The Successful Bidder shall indemnify the Owner in case of breach of this Section. If the confidential details relating to this Contract or its contents are received by a third-party from the Successful Bidder and the third-party makes use of these details to cause harm or monetary loss to the Owner or use these Documents for their personal gain/ monetary gain, the Successful Bidder shall compensate the Owner for the loss suffered as well as for the value of gain derived by the third-party. The Successful Bidder shall not use the confidential details of the Contract for any other purpose except for the strict purpose of this Contract.

## **2. Appointment of Successful Bidder**

### **2.1. Appointment terms**

Based on the results of this Bid as per the evaluation criteria mentioned in Section 5 of Part 3 of this document, the Owner shall appoint the Successful Bidder, and the Successful Bidder shall accept the appointment to deploy skilled, qualified, and competent manpower, and necessary systems, infrastructure, equipment, spares, system, software, and tools as required for efficient execution of the Overhaul subject to the terms and conditions mentioned in the Contract.

The Owner reserves the right to increase or decrease the contractual work during the Contract period by giving prior notice in writing. Successful Bidder shall not be entitled to any compensation or indemnity on account of increase or decrease in the contractual work.

In case of requirement of execution of additional work as part of the scope of work detailed in Section 3 of Part 2 of this document during the Contract period, contractor shall be responsible to execute such additional work during the Contract period at the same rate finalized for the respective works. No escalation in the rate of the works for such additional work during the contract period shall be considered.

In case of a requirement of other works which are not covered in the scope of work detailed in Section 3 of Part 2 of this document, but the same is necessary for successful completion of the overhauling of the Balance of Plant, the Successful Bidder may be assigned that work at the lowest rate derived and mutually agreed between the Successful Bidder and the Owner.

The MD is authorized to take suitable decision and action in case of requirement to amend/alter the contract conditions/quantities of the works/ extension of the contract period/allotment of additional works/revision of the rates of the work etc., if necessary, in the interest of the Owner.

## 2.2. Duration of the Contract

The Contract shall be deemed to have come into force and effect 7 (seven) days from the date of acceptance of the Letter of Award (LOA) by the Owner to the Successful Bidder and the Successful Bidder shall execute the scope of work for provision of services and supply of material as covered in Section 3 within a period of 45 weeks from the date of acceptance of LoA. In the said duration, the Successful Bidder shall complete the following key activities in the Package as per the stipulated timelines, where T shall mean the date of acceptance of the LOA:

S. No	Activity	Duration
1	Mobilization	T + 2 weeks
2	Completion of procurement of supplies for both units	T + 28 weeks
2	Completion of pre-Overhauling activities for both units	T + 28 weeks
3	Overhauling and commissioning of equipment across both units	T + 40 weeks
4	Completion of Performance Guarantee Testing for both units	T + 45 weeks

The Contract shall be deemed to be successfully executed post completion of the aforementioned activities, as certified by competent authority from the PMC and Owner. The Successful Bidder shall strive to complete the execution within the stipulated period of 45 weeks, however, in case of a delay, the Successful Bidder shall ensure completion of its contractual obligations as early as possible, while the Owner reserves the right to levy penalties/liquidated damages as described in Section 8.1 of Part 2 of this document.

## 3. Responsibilities of the Successful Bidder

The responsibilities of the Successful Bidder as part of the Contract have been segregated into two key categories – services and supply. The terms of reference / scope of work have been detailed for each category below.

### 3.1. Scope of services

The scope of the Contract shall be providing end-to-end services for Overhaul of the Balance of Plant systems for both units of the Plant, as part of the Balance of Plant package. The Successful Bidder shall ensure execution of the scope of work is done in

accordance with best-in-class practices, standards of safety, and mutually agreed terms with the Owner.

### **3.1.1. Pre-Overhauling activities**

#### **3.1.1.1. Detailed Overhaul planning**

1. The Successful Bidder shall create a detailed consolidated 'Overhaul Execution Plan' for the Balance of Plant package in collaboration with the PMC, focusing on sequencing of activities, identification of interdependencies, and indicating clear milestones, in line with the timelines mentioned in Section 2.2 (Contract Duration) and Section 10.2 (Payment Milestones)
2. The 'Overhaul Execution Plan' shall be used as the single source of truth for monitoring schedule compliance for the Successful Bidder, i.e., deviations in actual timelines vis-à-vis planned timelines
3. The 'Overhaul Execution Plan' shall be at an equipment level, encompassing all activities including but not limited to dismantling, inspecting, cleaning, repairing, installation, commissioning, and testing
4. The Successful Bidder shall prepare appropriate Quality Assurance Plan (QAP) or Quality Inspection Plan (QIP) and Quality Control Plan (QCP) for execution of the Overhaul and shall get it reviewed by competent authority from the PMC and the Owner. The Successful Bidder shall apprise the Owner about the plans to enable frequent audits, and highlight potential concerns, if any
5. The Successful Bidder shall prepare Balance of Plant Overhaul protocols indicating the sequence of activities to be conducted along with set of readings to be measured before and after overhauling

#### **3.1.1.2. Owner readiness assessment and support**

1. The Successful Bidder shall, in collaboration with the PMC, conduct audits and physical verification of existing inventory at the Plant to identify the equipment and associated spares and material readily available to be utilized during the Overhaul.
2. Successful Bidder will assess the availability of required spares at the Plant. They will conduct a gap analysis and incorporate the additional material to be procured in the 'Procurement Register' (detailed in Section 3.2.1) to ensure optimal Procurement and consumption of material
3. The Successful Bidder shall assess the workshop equipment prior to the start of the Overhaul. The details of the equipment available in the workshop as on date has been summarized below:

S. No	Description	Make	Status
1	Precision Lathe (12 feet)	Panther	Working
2	Lathe machine (3 feet)	Esteem	Working
3	Pillar Drilling Machine	Eifco	Working

S. No	Description	Make	Status
4	Rough grinder	Eifco	Working
5	Power Hacksaw	Eifco	Working
6	Radial Drill Machine	HMT	Working

4. The Overhaul Plan created by the Successful Bidder shall mention requirement for equipment from the GMDC workshop. The Successful Bidder shall create an equipment usage plan in collaboration with PMC incorporating all interdependencies
5. The Successful Bidder shall be given access to the workshop equipment as per availability and Overhaul plan indicating requirement of workshop equipment. The Successful Bidder shall coordinate with the PMC to access the existing equipment and ensure no impact on execution timelines. If the Successful Bidder requires additional equipment to deliver the services defined in Section 3 of Part 2 of this document, the same shall be in the scope of the Successful Bidder
6. The Successful Bidder shall arrange and depute necessary operators as required for operating the workshop equipment

#### **3.1.1.3. Statutory approvals**

The Successful Bidder shall obtain, on behalf of the owner, all necessary statutory approvals from Inspection Authorities, or other government authorities, as may be required, as per Applicable Laws at its own cost. All necessary documentation prepared and / or obtained for such statutory approvals shall be submitted to the Owner for review prior to submitting for approvals to relevant authorities. Coordination and liaising with competent authority are in the scope of Successful Bidder.

#### **3.1.1.4. Workforce deployment**

1. The Successful Bidder shall deploy a 'BOP Package Leader' with strong technical expertise and experience of over 12 years, with prior experience in Overhauling, having successfully completed at least 2 EPC / ETC / R&M / Overhauling of a thermal power plant in the last 12 years, in coal or lignite-based thermal power plants in India
2. The Successful Bidder shall deploy five "Function Leaders", as per the table mentioned below, with strong technical expertise and experience of over 10 years in O&M / EPC / ETC / R&M / Overhauling of thermal power plants.
3. The 'BOP Package Leader; shall coordinate with the PMC and the Owner on all matters pertaining to the execution of the Overhaul
4. The minimum requirements for the Successful Bidder to ensure coverage of all equipment within the battery limits has been summarized below:

S. No	Member	Role	Minimum requirement	Minimum Qualification
1	BOP Package	Overall Package	1	Graduation in

S. No	Member	Role	Minimum requirement	Minimum Qualification
	Leader	coordinator		Mechanical / Electrical / Instrumentation / or equivalent Engineering (BE / B.Tech) with at least 10 years' experience
2	Mechanical Lead (MHP)	Supervisor for mechanical activities in the material handling plant (lignite, lime, and ash)	1	Graduation in Mechanical / Electrical / Instrumentation / or equivalent Engineering (BE / B.Tech) with at least 8 years' experience
3	Mechanical Lead (BOP)	Supervisor for mechanical activities in the balance of plant including water treatment plant, turbine auxiliaries, etc.	1	
4	Electrical Lead	Supervisor for electrical activities	1	
5	Instrumentation Lead	Supervisor for C&I activities	1	
6	Safety Lead	Supervisor for ensuring EHS (environment, health, and safety) activities	1	
7	Quality Head	Supervisor to ensure adherence with Quality Assurance Plan	1	Graduation in Mechanical / Electrical / Instrumentation / or equivalent Engineering (BE/B.Tech) with at least 7 years' experience

5. The Successful Bidder shall ensure that all deployed personnel are available at the Plant at all times during the execution of the Overhaul. The 'BOP Package Leader' shall be present at the owner's corporate office in Ahmedabad for progress review and other meetings that may be organized during the course of the Overhaul, as needed. The Successful Bidder, at their own cost, shall arrange for their own accommodation for representatives travelling to Ahmedabad for such meetings.
6. The Successful Bidder shall submit details of all deployed personnel for execution of the Overhaul to the PMC prior to deployment and ensure they are in line with Contractual requirements.
7. The Successful Bidder should deploy sufficient workforce for simultaneous work on multiple systems present in the BOP package, in assurance with the 'Detailed Overhaul Plan', as detailed in Section 3.1 of Part 2 of this document.

### **3.1.1.5. Infrastructure arrangement**

1. While the Owner will arrange for the accommodation and food for Successful Bidder's personnel deployed in the Plant on the basis of availability and on a chargeable basis, in case infrastructure is not available, the Successful Bidder shall be responsible for arranging the same for the entire course the Overhaul.
2. The Successful Bidder shall maintain a dedicated shed for conducting necessary works including but not limited to fabrication, repair, storage of material, etc. The Owner shall provide access to the available facilities and workshop in the Plant with prior written consent, as per availability
3. For timely and successful completion of the Overhaul, if new set of skilled operators are required for workshop equipment, the Successful Bidder shall arrange the same at its own cost

### **3.1.1.6. Structural modifications / strengthening**

The Successful Bidder shall be responsible for necessary structural modifications including supply, fabrication, and erection of any new structure to support piping, equipment, and provision of any additional platform if required for access to new equipment, or any other structural modification works required for execution of the Overhaul to aid the completion of the works defined in Section 3.1.2 of this document.

### **3.1.1.7. Hanger inspection and servicing**

1. The Successful Bidder shall inspect all installed hangers, spring supports, flexible supports, rigid supports, etc. as per the battery limits defined in Section 3.2 of Part 1, and assess their load bearing capacities, prior to commencement of Overhaul. A detailed list of hangers available at the Plant has been appended in Annexure 3
2. The Successful Bidder shall replace all damaged / unsuitable / non-functional hangers, supports, and associated components, as needed for the execution of the Overhaul

### **3.1.1.8. Scaffolding and platforms**

Successful Bidder's scope shall include supply of all scaffolding, and / or platforms, as may be required for repair / Overhaul and commissioning. These items shall be specifically brought to the Plant solely for repair / Overhaul purpose and if no more needed for regular maintenance of the equipment, can however, be taken back by the Successful Bidder after completion of the work at the Plant.

### **3.1.1.9. Cranes**

Since the Overhauling will be conducted simultaneously for multiple systems present in the BOP package, the Successful Bidder shall arrange for additional jib cranes with skilled operators, as required and if needed.

### 3.1.1.10. Air compressors

Since the Overhauling will be conducted simultaneously for multiple systems present in the BOP package, the Successful Bidder shall arrange for portable air compressors for carrying out the works during the shutdown, as needed. The Successful Bidder shall arrange suitable cables, terminations/ joints for extending power from the existing source/ socket to portable compressors/ other power machines.

### 3.1.1.11. Consumables for Overhauling

The Successful Bidder shall be responsible for ensuring availability of sufficient quantities of all consumables for the Overhauling of BOP systems in the Plant.

An indicative list of consumables to be provided by the Successful Bidder have been detailed below:

S. No	Item
1	Hex Head SS Nut Bolt
2	Paint
3	Primer
4	Thinner
5	Spray Bottle
6	Anticorrosive
7	Tape Roll
8	Insulation Tape
9	Aluminum Foil Tape
10	Cotton waste
11	TB Connector
12	M-Seal Adhesive
13	Hacksaw Blade
14	Buffing Wheel
15	Cutting Wheel
16	Grinding Wheel
17	Painting Brush
18	Steel Wire Brush
19	Emery Paper Roll
20	Emery Cloth Paper
21	Washing Powder
22	C Type Mild
23	Loctite-638, Bearing
24	Loctite-641, Bearing
25	Cable Tie

S. No	Item
26	Silicon Sealant
27	Wie Copper Flexible Cable
28	Transparent Plastic Sheet
29	Tarpaulin Duck
30	Plastic Roll
31	Waterproof Tarpaulin
32	Carbon Cleaner
33	Cable jointing kits

This list is indicative and actual consumables at the time of overhauling shall be determined by the Successful Bidder.

Further, the Successful Bidder shall also ensure safe disposal of sewage and other wastes, as necessary, to ensure safe and clean operations.

#### **3.1.1.12.Dismantling of existing equipment**

1. The Successful Bidder shall be responsible for dismantling of existing equipment prior to the initiation of the Overhaul, as needed, including but not limited to the transformer, piping, pumps and valves, conveyors, insulation, supports, and other components.
2. The Successful Bidder shall prepare a checklist for dismantling and list of readings to be taken at the time of dismantling and submit to competent authority from the PMC and the Owner for review
3. The Successful Bidder shall submit a floor plan for storing the dismantled components of the BOP Systems and submit it to the PMC for approval. The Successful Bidder shall ensure the components are appropriately stored in the area, as per the floor plan approved by the PMC, during the course of the Overhaul.

#### **3.1.1.13.Safety arrangements**

1. The Successful Bidder shall ensure the personnel deployed in the Plant adhere to the appropriate health, safety, and environment (HSE) requirements at the time of deployment. This will include medical tests required, if any, among other requirements to be aligned with the Plant HSE team
2. The Successful Bidder shall make own arrangement for proper electrical and electronic grounding of all systems, supplied by them as required by the system design. All required accessories including grounding cables are also included in Successful Bidder's scope
3. Safe power supply and illumination for confined places shall be arranged by the Successful Bidder. Any illumination work necessary to fulfill the scope of

services defined in this RfP shall be carried out by the Successful Bidder prior to the start of other work

4. A single point electrical supply of 415V, 32/63 Amp 3 phase and single point electrical supply of 230V, 16 Amp single phase power supply point from nearest available healthy source shall be supplied to the Successful Bidder free of cost. The Successful Bidder shall be responsible for the provision of cables for extending power to its apparatus
5. The Successful Bidder shall be solely responsible for ensuring the safety of the adjacent equipment / foundations and of the existing supporting structures. The Overhauling work by the Successful Bidder shall be carried out in such a manner that no damage is caused to existing equipment / foundations / structure

#### **3.1.1.14.Permits**

1. The Successful Bidder shall obtain and maintain in effect all applicable Contractor permits required in connection with the Successful Bidder's performance of its obligations hereunder, including but not limited to licenses to permit the Successful Bidder to do business in the jurisdictions where the work is to be performed, design, engineering, procurement, fabrication, construction, erection, testing and commissioning, start-up testing, tests before taking-over, export, import, and other applicable permits required to move, transport, and deliver material / equipment to and fro from the Plant
2. Successful Bidder shall obtain all necessary Contractor and Construction permits. If the Successful Bidder at any time becomes aware, whether as a result of notice from Owner or otherwise, of any applicable permit not obtained by him, the Successful Bidder shall promptly give notice thereof to Owner and the Successful Bidder shall be responsible for obtaining such applicable Permits
3. The Successful Bidder shall provide support to the owner in obtaining necessary Owner's permits, including but not limited to the following activities:
  - i. Overall co-ordination of permitting requirements
  - ii. Attendance at meetings with Owner and third parties designated by Owner
  - iii. Preparation of permit applications or, as applicable, application to transfer permits to the Owner
  - iv. Assistance in preparation of responses to inquiries by governmental instrumentalities/ agencies
  - v. Assistance in presentations at hearing of governmental instrumentalities / agencies
  - vi. Provision of all available information and documents required by Owner in connection with obtaining any Owner Permits; and
  - vii. Such other services as Owner may request from time to time required for Owner permits

### 3.1.2. Overhauling activities

The Successful Bidder shall prepare a comprehensive list of activities to be undertaken during the Overhaul, as part of the 'Overhaul Execution Plan', detailed in Section 3.1.1.1 of Part 2 of this document.

#### 3.1.2.1. Measurement of parameters

The Successful Bidder shall prepare a list of all parameters to be measured prior to initiation of the Overhaul and post completion of the Overhaul. The Successful Bidder shall validate the list with competent authority from the Owner and the PMC and obtain approvals prior to initiation of the Overhaul. For measurement of the parameters, the Successful Bidder shall use the existing instrumentation installed at the Plant and highlight to the PMC and the Owner in case of any issues.

The Successful Bidder shall be responsible for measurement of all essential parameters, prior to overhauling of the BOP Systems, while dismantling as per Section 3.1.1.12. The Successful Bidder shall maintain a log of all the readings to be furnished to the competent authority from the PMC and the Owner

The Successful Bidder shall ensure that the readings observed post inspection, maintenance, and assembly of the BOP Systems are at par or better than the readings measure prior to dismantling. In case of deviations, the Successful Bidder shall furnish appropriate documental evidence justifying the deviations. The detailed performance guarantee requirements have been incorporated in Section 6.

#### 3.1.2.2. Dismantling and cleaning

The Successful Bidder shall be responsible for dismantling of components of the BOP Systems, storage of dismantled components in the areas earmarked by the PMC, and cleaning of the equipment with appropriate tools and safety precautions, prior to inspection of the components.

#### 3.1.2.3. Overhaul plan (Mechanical)

The Successful Bidder shall be responsible for performing comprehensive Overhaul of all the Mechanical systems in the BOP Package. The list of activities to be carried out, across all key components, have been detailed below as Plan 1 to 15.

##### **Plan 1: Lignite handling system**

The key activities to be executed by the Successful Bidder for repair / overhaul of the Lignite Handling System shall include, but not be limited to, the following. The indicative list of spares to be procured for Lignite Handling System have been detailed in Annexure 2, Mechanical, Plan 1.

Component	Activity	Unit
Apron Feeder	– Servicing including supply and replacement of feed roller assembly (guide roller)	Common

Component	Activity	Unit
	- Servicing including supply and replacement of hold back for gear box	Common
	- Servicing including supply and replacement of apron pan bolts	Common
	- Servicing including supply and replacement of apron feeder drive shaft bearing	Common
	- Servicing including supply and replacement of apron feeder drive shaft sleeve	Common
<b>Lignite sizers</b>	- Supply and replacement of breaker shaft assembly for Sizer-01	Common
	- Supply and replacement of pump assembly for Sizer-01,02,03	Common
	- Supply and replacement of Fixed and floating bearing Assy. for sizer 2 and 3	Common
<b>Impactors</b>	- Supply and replacement of 116 nos. of impactor beater heads for impactor 2, and supply of 116 nos. of impactor beater heads as spare	Common
	- Supply and replacement of 116 nos. pins for beater head for impactor 2, and supply of 116 nos. of pins as spare	Common
	- Supply and replacement of flat belt for both impactors	Common
	- Supply and replacement of drive pulley bearing and drive pulley bearing sleeves for both impactors	Common
	- Supply and replacement of impactor rotor bearing and impactor rotor bearing adaptor sleeve for impactor 2	Common
	- Supply and replacement of impactor wall grinding plate and impactor wall grinding gib for both impactors	Common
	- Supply and replacement of beater arm for impactor 2	Common
	- Supply and replacement of tension bush for impactor 2	Common
	- Supply and replacement of rotor pins for impactor 2	Common
	- Supply and replacement of disc rotor assembly for impactor 1	Common
	- Supply and replacement of disc rotor assembly for impactor 2	Common
<b>Screen</b>	- Supply and replacement of BVT Sieve mats for all 8 screens	Common
	- Supply and replacement of clamping ledge for all 8 screens	Common
	- Supply and replacement of edge strip bivitec for all 8 screens	Common
	- Supply and replacement of clamping piece for all 8 screens	Common
	- Supply and replacement of cardan shaft for Screen 3, 4, 7, 8	Common
	- Supply and replacement of rubber block for all 8 screens	Common

Component	Activity	Unit
	– Supply and replacement of joint pipe for all 8 screens	Common
	– Supply and replacement of gummi feeder for all 8 screens	Common
	– Supply and replacement of nuts and bolts for all 8 screens	Common
	– Supply and replacement of side wall for cover as per Annexure 2, Mechanical, Plan 1	Common
	– Supply and replacement of con-rod for Screen 1, 2, 5, 6	Common
	– Supply and replacement of drive shaft of plumber block as per Annexure 2, Mechanical, Plan 1	Common
	– Supply and replacement of V-belt for Screen 3, 4, 7, 8	Common
	– Supply and replacement of bearing 22216 EK for Screen 3, 4, 7, 8	Common
	– Supply and replacement of sleeve H-316 for Screen 3, 4, 7, 8	Common
<b>Lignite Conveyors</b>	– Supply and replacement of troughing trainer assembly	Common
	– Supply and replacement of return trainer assembly	Common
	– Supply and replacement of frame assembly with impact pads	Common
	– Supply and replacement of primary and secondary belt scrapper	Common
	– Supply and replacement of complete brake assembly	Common
	– Supply and replacement of carrying idler and return idler	Common
	– Supply and replacement of frame assembly with impact idlers	Common
<b>Lignite RSC</b>	– Supply and replacement of conveyor pulley with plain rubber lagging and diamond rubber lagging	Common
	– Supply and replacement of sealing belt	Common
	– Supply and replacement of troughing trainer assembly	Common
<b>Lignite Ultra flow feeder</b>	– Supply and replacement of return trainer assembly	Common
	– Supply and replacement of bearing and oil seal in UFF-01	Common
<b>ILMS</b>	– Supply and replacement of belt, pulleys and bearings	Common
<b>Lignite Pump</b>	– Supply and replacement of DW pump 1B without motor and vertical sump pump without motor	Common
<b>Lignite Handling System</b>	– Supply, painting and replacement of MS angles, checkered plates, MS plain plates, SS plates, square hollow steel section, rectangular hollow steel section, staircase steps and channels wherever needed between stacker reclaimer and bunker inlet	Common
<b>Bucket wheel</b>	– Supply and installation of bucket wheel assembly	Common

Component	Activity	Unit
<b>Hydraulic power pack</b>	– Supply and replacement of pipings of hydraulic power pack	Common
	– Supply and replacement of boom cylinder, bucket chute cylinder, center chute, and cabin level cylinder servicing	Common
<b>Grease lubrication system</b>	– Supply and replacement of grease lubrication system	Common
<b>Dust suppression system</b>	– Supply and replacement of dust suppression system	Common
<b>Dry fog system</b>	– Replacement dry fog system with supply of spares	Common

### **Plan 2: Lime handling system**

The key activities to be executed by the Successful Bidder for repair / overhaul of the Lime handling system shall include, but not be limited to, the following. The indicative list of spares to be procured for the Lime handling system have been detailed in Annexure 2, Mechanical, Plan 2.

Component	Activity	Unit
<b>Apron feeder</b>	– Supply and replacement of apron pan	Common
	– Supply and replacement of chain assembly	Common
	– Supply and replacement of HT bolt	Common
	– Supply and replacement of feed guide roller assembly	Common
	– Supply and replacement of rubber pads	Common
<b>Lime Sizer</b>	– Supply and replacement of lube pump assembly (with pipings) and dipstick (for spur gearbox)	Common
<b>Lime DC</b>	– Supply and replacement of scrapper	Common
	– Supply and replacement of roller chain	Common
<b>Conveyor belts</b>	– Supply and replacement of conveyor belts LM-1, 2, LM-1A, 1B, 2A, 2B	Common
	– Supply and replacement of return training assembly for conveyor belts LM-1, 2, LM-1A, 1B	Common
	– Supply and replacement of return idler for conveyor belts LM-1, 2, LM-1A, 1B, 2A, 2B	Common
	– Supply and replacement of bracket for return idlers for conveyor belts LM-1, 2, LM-1A, 1B, LM-2A, 2B	Common
	– Supply and replacement of troughing trainer idler frame assembly with idlers for conveyor belts LM-1, 2, LM-1A, 1B, 2A, 2B	Common
	– Supply and replacement of troughing idler for conveyor belts LM-1, 2, LM-1A, 1B, 2A, 2B	Common

Component	Activity	Unit
	– Supply and replacement of impact idler for conveyor belts LM-2, 2A, 2B	Common
	– Supply and replacement of conveyor pulley for conveyor belts LM-1, 2, LM-1A, 1B, LM-2A, 2B	Common
	– Supply and replacement of bearing block assembly, bearing and sleeve for conveyor belts LM-1, 2, LM-1A, 1B, LM-2A, 2B	Common
	– Supply and replacement of impact pad frame set for conveyor belts LM-1, LM-1A, 1B	Common
	– Supply and replacement of impact pad for conveyor belts LM-1, LM-1A, 1B	Common
	– Supply and replacement of return trainer assembly with rollers for conveyor belts LM-2A, 2B	Common
	– Supply and replacement of idler for bunker seating belt	Common
	– Supply and replacement of plain rubber pulley lagging sheet for conveyor belts LM-1, 2, LM-1A, 1B, LM- 2A, 2B	Common
	– Supply and replacement of diamond rubber pulley lagging sheet for conveyor belts LM-1, 2, LM-1A, 1B, LM- 2A, 2B	Common
	– Supply and replacement of breather plug for conveyor belts LM-1, 2, LM-1A, 1B, LM- 2A, 2B	Common
	– Supply and replacement of oil view glass for conveyor belts LM-1, 2, LM-1A, 1B, LM- 2A, 2B	Common
	– Supply and replacement of skirt pads for coffin box with front and back plates for conveyor belts LM-1, 2, LM-1A, 1B, LM- 2A, 2B	Common
<b>Lime ILMS-1&amp;2</b>	– Supply and replacement of bearings	Common
	– Supply and replacement of nonmagnetic pulley	Common
	– Supply and replacement of rubber belt	Common
	– Supply and replacement of V belt pulley	Common
	– Supply and replacement of gear box for gear motor	Common
<b>LM Impactor - 1&amp;2</b>	– Supply and replacement of roller chain	Common
	– Supply and replacement of hydraulic connection (piping, hose, valve and connector)	Common
<b>Dust Extraction System</b>	– Supply and installation of dust extraction system	Common
<b>Lime Tripper 1&amp;2</b>	– Supply and replacement of roller chain	Common
<b>Lime Agitator</b>	– Supply and replacement of Lime agitator – A&B	Common
<b>MHP Hoist</b>	– Servicing with required spares	Common

### **Plan 3: Ash handling system**

The key activities to be executed by the Successful Bidder for repair / overhaul of the Ash Handling System shall include, but not be limited to, the following. The indicative list of spares to be procured for the Ash Handling System have been detailed in Annexure 2, Mechanical, Plan 3.

<b>Component</b>	<b>Activity</b>	<b>Unit</b>
<b>Air compressor - 7</b>	- Supply and replacement of main oil filter	Common
	- Supply and replacement of bearing oil filter	Common
	- Supply and replacement of air suction filter	Common
	- Supply and replacement of separator filter	Common
	- Supply and replacement of HLP-68 oil	Common
	- Supply and replacement of minimum pressure valve assembly	Common
	- Supply and replacement of blowdown valve assembly	Common
	- Supply and replacement of actuator assembly	Common
	- Supply and replacement of air end servicing	Common
	- Supply and replacement of air cooler	Common
	- Supply and replacement of air discharge valve	Common
	- Supply and replacement of air butterfly valve	Common
	- Supply and replacement of waterline NRV	Common
	- Supply and replacement of rubber elbow	Common
	- Supply and replacement of flexible hose	Common
	- Supply and replacement of return line sight glass	Common
	- Supply and replacement of coupling element	Common
- Supply and replacement of cooler discharge NRV	Common	
<b>Air dryer</b>	- Supply and replacement of compressor	Common
<b>Rotary Ash Conditioner</b>	- Supply and replacement spray bar assembly	Common
<b>Vibrating screen – 1&amp;2 and 3&amp;4</b>	- Supply and replacement screen mat	Common
	- Supply and replacement V-belt	Common
<b>Bypass belts</b>	- Supply and replacement ISMC-150 and ISA-65 for structure	Common
	- Supply and replacement carrying idler	Common
	- Supply and replacement of return idler	Common
<b>TAPH transporter</b>	- Supply and replacement of expansion bellow	Common
<b>1<sup>st</sup> and 2<sup>nd</sup> field vent valve</b>	- Supply and replacement of 80 NB SDD valve	Common

Component	Activity	Unit
<b>Ash transporter (200 ltr)</b>	– Supply and replacement of 200 ltr top discharge transporter with valves	Common
<b>Ash ESP</b>	– Supply and replacement of 200 NB chain valve assembly for ESP 1&2	Common
	– Supply and replacement of 150 NB MS pipe for discharge lines for ESP – 1&2 Line – 1&2	Common
	– Supply and replacement of ERW MS 80 NB pipe for ESP – 1&2 Line – 1&2 vent line	Common
	– Supply and replacement of 65 NB MS pipe, 100 NB MS pipes for discharge lines for ESP – 1&2 Line – 3&4	Common
	– Supply and replacement of 150 NB KGV gate assembly for ESP – 1&2 Line – 1&2	Common
	– Supply and replacement of Gate 150 NB KGV for ESP – 1 Line – 3&4	Common
	– Supply and replacement of 150 NB KGV body, gland and deflector cone for ESP – 1 Line – 1&2	Common
	– Supply and replacement of 100 NB KGV gate assembly for ESP – 1&2 Line – 3&4	Common
<b>Fly Ash Silo</b>	– Supply and replacement of MS checkered plate for Fly Ash Silo – 1, 2, 3	Common
	– Supply and replacement of fluidizing felt for Fly Ash Silo – 1, 2, 3	Common
	– Supply and replacement of filter bag for Fly Ash Silo – 1	Common
	– Supply and replacement of cage for Fly Ash Silo – 1	Common
	– Supply and replacement of pneumatic cut off valve for Fly Ash Silo – 1	Common
<b>Bed Ash Silo</b>	– Supply and replacement of roller chain 1 inch	Common
	– Supply and replacement of filter bag	Common
<b>Bottom Ash Transporters System</b>	– Supply and replacement of bag filter house	Common
	– Supply and replacement of fluidizing panel	Common
	– Supply and replacement of buffer hopper body	Common
	– Supply and replacement of ash inlet valve- SDD 200 NB	Common
	– Supply and replacement of vent valve- SDD 65 NB	Common
	– Supply and replacement of bottom discharge ash transporter (1100 Ltr)	Common
– Supply and replacement of air knife valve	Common	

Component	Activity	Unit
	– Supply and replacement of 80 NB ash discharge valve	Common
	– Supply and replacement of 50 NB Air Inlet Valve (Pneumatic Ball Valve)	Common
	– Supply and replacement of 40 NB Air Knife Valve (Pneumatic Ball Valve)	Common
	– Supply and replacement of 40 NB and 50 NB bronze NRV	Common
	– Supply and replacement of MS ERW 50 NB pipe (Airline)	Common
	– Supply and replacement of MS ERW 40 NB pipe (Airline)	Common
	– Supply and replacement of MS ERW 80 NB pipe (Discharge line)	Common
	– Supply and replacement of 80 NB basalt bend	Common
	– Supply and replacement of 80 NB basalt pipe	Common
	– Supply and replacement of ERW 65 NB MS pipe	Common
	– Supply and replacement of 90° 50 NB and 40 NB bend	Common
	– Supply and replacement of 90° 50 NB and 40 NB tee	Common
	<b>Intermediate bed ash silo</b>	– Supply and replacement of vent house filter bag and filter bag cage
– Supply and replacement of vent fan		Common
– Supply and replacement of V-belt		Common
<b>Ash transporter</b>	– Supply and replacement of SDD 80 NB vent valve	Common
	– Supply and replacement of SDD 125 NB Ash discharge valve	Common
	– Supply and replacement of 80 NB MS pipe for vent line	Common
	– Supply and replacement of 125 NB MS pipe for discharge line	Common
	– Supply and replacement of 150 NB MS pipe for discharge line	Common
	– Supply and replacement of 125 NB basalt bend	Common
	– Supply and replacement of 150 NB basalt bend	Common
	– Supply and replacement of 65 NB MS pipe for discharge line	Common
	– Supply and replacement of 65 NB basalt bend	Common
	– Supply and replacement of 65 NB spool piece	Common
	– Supply and replacement of SDD 200 NB ash inlet valve	Common

Component	Activity	Unit
	– Supply and replacement of 200 ltr bottom discharge transporter with valves	Common
<b>Sea water line silo area</b>	– Supply and replacement of 150 NB pipe	Common

#### **Plan 4: Pumps**

The key activities to be executed by the Successful Bidder for repair / overhaul of the pumps shall include, but not be limited to, the following. The indicative list of spares to be procured for the pumps have been detailed in Annexure 2, Mechanical, Plan 4.

Component	Activity	Unit
<b>Main BFP #2A</b>	– Supply and replacement of discharge MOV for Main BFP #2A as per the specifications in Annexure 2, Mechanical, Plan 4	Unit 2
<b>Sea water intake pump</b>	– Servicing of pump along with supply and replacement of impeller, bell mouth, impeller guide piece, impeller shaft, head shaft, and transmission shaft as per the specifications in Annexure 2, Mechanical, Plan 4 for sea water intake pump B	Common
	– Servicing of pump along with supply and replacement of ratchet cover, journal bearing, cooling coil, thrust bearing housing, ratchet pin, ratchet housing, bowl, bearing holder for sea water intake pump B	Common
	– Servicing of pump along with supply and replacement of Thordon bearings and bearing spider as per the specifications in Annexure 2, Mechanical, Plan 4 for sea water intake pump B	Common
	– Servicing of pump along with supply and replacement of plasma coated sleeves as per the specifications in Annexure 2, Mechanical, Plan 4 for sea water intake pump B	Common
	– Servicing of pump along with supply and replacement column pipes as per the specifications in Annexure 2, Mechanical, Plan 4 for sea water intake pump B	Common
	– Servicing of pump along with supply and replacement of impeller, bell mouth, impeller guide piece, impeller shaft, head shaft, and transmission shaft as per the specifications in Annexure 2, Mechanical, Plan 4 for sea water intake pump C	Common
	– Servicing of pump along with supply and replacement of Thordon bearings and bearing spider as per the specifications in Annexure 2, Mechanical, Plan 4 for sea water intake pump C	Common
	– Servicing of pump along with supply and replacement of plasma coated sleeves as per the specifications in Annexure 2, Mechanical, Plan 4 for sea water intake	Common

Component	Activity	Unit
	pump C	
	– Servicing of pump along with supply and replacement of column pipes as per the specifications in Annexure 2, Mechanical, Plan 4 for sea water intake pump C	Common
	– Servicing of pump along with supply and replacement of ratchet cover, journal bearing, cooling coil, thrust bearing housing, ratchet pin, ratchet housing, bowl, bearing holder for sea water intake pump C	Common
<b>CW / CCW pumps</b>	– Overhauling of CW Pump A and C with consumables (thordon bearing, split ring, lower and upper sleeve, throttling CVP1200)	Common
	– Supply and replacement of CW Pump discharge	Common
	– Box-up post inspection, rectification, and installation of new components	Common
	– Hydro testing	Common
<b>Condensate pumps</b>	– Check internal / wear ring parts for erosion, if required repair and replace	Unit 1 and 2
	– Check for corrosion internally and externally	Unit 1 and 2
	– Check packings	Unit 1 and 2
	– Check bearing	Unit 1 and 2
	– Check impeller for cavitation	Unit 1 and 2
<b>Good win pump</b>	– Dismantling and handover of existing pump to owner	Common
	– Supply, erection and commissioning of new pump as per the specifications in Annexure 2, Mechanical, Plan 4 for Goodwin pump	Common
<b>Jockey Pump</b>	– Servicing of JP 101 and 102 pump along with spares	Common
<b>Hydrant Pump</b>	– Servicing of HP 301 and 302 along with spares	Common
<b>Spray Pump</b>	– Servicing of 2 pumps along with spares and consumables	Common
<b>TWS backwash pump</b>	– Supply, installation, erection and commissioning of 2 pumps with motors and foundation	Common
<b>General services activities</b> <i>(Across all pumps)</i>	<ul style="list-style-type: none"> <li>– Dismantling the pumps for servicing</li> <li>– Cleaning and checking clearances, repair worn out parts such as bearings, wear rings, impeller, shaft sleeves, etc., as applicable</li> <li>– Checking condition of bearings, replacing / color match journals / thrust bearings as applicable</li> <li>– Reassembling the pump containing specified clearances</li> <li>– Checking coupling condition bolts, and bushings</li> <li>– Checking and repair / replace damaged parts</li> <li>– Aligning and coupling with drive</li> <li>– Taking trial runs of all pumps</li> </ul>	Common

### **Plan 5: Turbine Auxiliaries**

The key activities to be executed by the Successful Bidder for repair / overhaul of Turbine Auxiliaries shall include, but not be limited to, the following. The indicative list of spares to be procured for Turbine Auxiliaries have been detailed in Annexure 2, Mechanical, Plan 5.

<b>Component</b>	<b>Activity</b>	<b>Unit</b>
<b>MOT #1 &amp; 2 and COT, DOT centrifuge</b>	– Servicing with spares and consumables for MOT 1 and MOT 2 centrifuge as per the specifications in Annexure 2, Mechanical, Plan 5	Common
	– Supply and replacement of COT/DOT centrifuge (centrifuge to be of Indian make)	Common
	– Draining and cleaning MOT – Inspection of tank internals and damage to strainer mesh – Replacement, if required	Common
	– Cleaning all view glass / gauge glass and ensuring their leak proof functioning	Common
	– Dismantling and servicing all vapour extraction fans, as necessary	Common
	– Cleaning complete L.O piping up to bearings from L.O systems – Attending to all leaky joints	Common
	– Cleaning complete governing oil piping system, attending to all leaky joints	Common
	<b>HP / LP heaters</b>	– Opening of top cover and flange and removing of top cover
– Inspection and removal of tube nest clean tube / shell		Unit 1 and 2
– Inspection and changing gaskets and sealing rings, etc.		Unit 1 and 2
– Hydro test, plugging leaky tubes and box up		Unit 1 and 2
– Servicing system line valves and safety valves		Unit 1 and 2
<b>Deaerator</b>	– Supply and replacement of spray nozzles for deaerators 1 & 2 as per the specifications in Annexure 2, Mechanical, Plan 5	Unit 1 and 2
	– Draining and opening manholes	Unit 1 and 2
	– Cleaning deaerator and fed storage tanks with wire brush	Unit 1 and 2
	– Inspecting deaerator, trays, steam spray nozzle, etc. and replacement of defective parts	Unit 1 and 2
	– Cleaning gauge glass – Changing packing / 'O' ring as required	Unit 1 and 2
	– Replacement of gasket, and box-up, after final inspection	Unit 1 and 2
<b>STG structure</b>	– Supply and replacement of STG structure, platform	Unit 1 and 2

Component	Activity	Unit
<b>and platform</b>	<ul style="list-style-type: none"> <li>and railing as per the specifications in Annexure 2, Mechanical, Plan 5</li> <li>– Painting of the STG structure, platform, and railing</li> </ul>	
<b>Extraction steam piping system</b>	– Visual inspection of housing inner surface for cracks	Unit 1 and 2
	– Checking inner surface of housing for cracks, if likely, also check outer surface	Unit 1 and 2
	– Checking seats for proper contact, damages and cracks	Unit 1 and 2
	– Surface crack test for seats	Unit 1 and 2
	– Visual inspection of internal valve parts such as discs, levers for cracks, deformation and erosion	Unit 1 and 2
	– Checking spindles for deformation and erosion	Unit 1 and 2
	– Checking clearance for guide bushes and conducting a visual inspection for grooves	Unit 1 and 2
	– Checking for unobstructed flow in drains	Unit 1 and 2
	– Opening and cleaning sludge containers	Unit 1 and 2
	– Checking condition of valve seat and spindles for drain valves	Unit 1 and 2
<b>Evacuation system</b>	– Check steam jet air ejectors jets for erosion, inspect the nozzles and if required, replace	Unit 1 and 2
	– Visual inspection of the complete steam jet air ejectors for corrosion and erosion	Unit 1 and 2
	– Check tube bundles on the water and steam side of the condenser for corrosion and erosion for steam jet air ejectors	Unit 1 and 2
	– Check tightness of condenser for steam jet air ejectors	Unit 1 and 2
	– Check interlocks and control of steam jet air ejectors	Unit 1 and 2
<b>Fittings</b> - Manual slide valve - Motor-operated slide valve (suction slide valve) - Check valve - Air side piping	<ul style="list-style-type: none"> <li>– Check free movement of complete stroke</li> <li>– Check functioning of limit switch</li> <li>– Check valves</li> <li>– Check tightness of fittings</li> </ul>	Unit 1 and 2
<b>Feed heating system</b>	– Check protection equipment (High and low level, feedheater bypass control) for feedheater	Unit 1 and 2
	– Check characteristics of the control and the associated valves for feedheater	Unit 1 and 2
	– Disassemble valves, check seats, replace glands for feedheater	Unit 1 and 2

Component	Activity	Unit
	– Replace waterbox seals for HP, LP feedheater	Unit 1 and 2
	– Test tightness by flooding the steam side of the feedheater	Unit 1 and 2
	– Inspect tubes on water side for cleanliness, erosion and corrosion for HP/LP feedheater	Unit 1 and 2
	– Check welds for cracks for HP/LP feedheater	Unit 1 and 2
	– Empty and clean feedwater tank (deaerator) and flash tanks	Unit 1 and 2
	– Check condensate inlet into deaerator for erosion and corrosion for feedwater tank and flash tanks	Unit 1 and 2

### **Plan 6: Steam Extraction System**

The key activities to be executed by the Successful Bidder for repair / overhaul of Steam Extraction System shall include, but not be limited to, the following. The indicative list of spares to be procured for Steam Extraction System have been detailed in Annexure 2, Mechanical, Plan 6.

Component	Activity	Unit
<b>Main steam drain</b>	– Supply and replacement of IBR valve (with existing or equivalent make valve) for Main Steam Drain MOV-102 and 112 as per the specifications in Annexure 2, Mechanical, Plan 6	Unit 1 and 2
<b>HRH and CRH</b>	– Supply and replacement of valve for HRH and CRH drain MOV (with existing or equivalent make valve) as per the specifications in Annexure 2, Mechanical, Plan 6	Unit 1 and 2
<b>General service activities</b> <i>(Across gland steam cooler, main ejector, and starting ejector)</i>	<ul style="list-style-type: none"> <li>– Checking nozzles and diffusers for erosion, clogging, etc.</li> <li>– Checking for correct alignment of nozzles, diffusers, etc.</li> <li>– Opening manholes and inspect tubes</li> <li>– Cleaning tubes / shell</li> <li>– Changing gaskets / seal rings</li> <li>– Hydro testing and plugging leaky tubes and box up</li> <li>– Checking for air leaks throughout the system</li> </ul>	Unit 1 and 2

### **Plan 7: Condensate System**

The key activities to be executed by the Successful Bidder for repair / overhaul of the Condensate System shall include, but not be limited to, the following. The indicative list of spares to be procured for the Condensate System have been detailed in Annexure 2, Mechanical, Plan 7.

Component	Activity	Unit
<b>Condenser</b>	– Inspect steam side	Unit 1 and 2

Component	Activity	Unit
	- Visual inspection of the welds at the connections of extraction, bypass pipes etc for cracks	Unit 1 and 2
	- Check bottom of pipes for friction marks (vibration damages)	Unit 1 and 2
	- Check pipes for erosion and corrosion	Unit 1 and 2
	- Check tightness	Unit 1 and 2
	- Dismantle selected pipes and examine them in the laboratory	Unit 1 and 2
	- Inspect water side of condenser	Unit 1 and 2
	- Check pipes for blockage	Unit 1 and 2
	- Check pipes for erosion and corrosion	Unit 1 and 2
	- Check water boxes for deposits	Unit 1 and 2
	- Measure erosion of condenser tubes by special method	Unit 1 and 2
	- Check condition of pipe rolling plate	Unit 1 and 2
	- Check water box coating	Unit 1 and 2
	- Check condition and fastening of anodes	Unit 1 and 2
	- Supply and replacement of condenser tubes as per the specifications in Annexure 2, Mechanical, Plan 7. Complete retubing shall be carried out by the Successful Bidder	Unit 1 and 2
	- Supply and replacement of rubber bellow and hanger support at Condenser CW inlet and outlet	Unit 1 and 2
	- Inspection of bends and patching and painting of piping including internal corrocoating at Condenser CW inlet and outlet	Unit 1 and 2
- Supply and replacement of 1500 NB Butterfly Valve for Condenser 1 and 2	Unit 1 and 2	
<b>CW interconnection</b>	- Replacement of six 1500 NB butterfly valves	Unit 1 and 2
	- Reconditioning, painting and reinstallation of four 1500 NB butterfly valves	Unit 1 and 2
	- Supply and replacement of rubber bellow for CW interconnection pit	Common
	- Inspection, repair / replace / rectify protective coating for cooling water pipe inlet out outlet including 1500 NB isolation valves up to condenser with rubber expansion joint and hanger support	Common
<b>Fittings</b>	- Check free movement of complete stroke (including spring supports)	Unit 1 and 2
	- Check functioning of limit switch	Unit 1 and 2
<b>Hotwell discharge</b>	- Check the control system and the corresponding valves	Common

Component	Activity	Unit
(Condensate, seal steam)	– If necessary, dismantle and adjust valves	Common

### **Plan 8: CCW System**

The key activities to be executed by the Successful Bidder for repair / overhaul of the CCW System shall include, but not be limited to, the following. The indicative list of spares to be procured for the CCW System have been detailed in Annexure 2, Mechanical, Plan 8.

Component	Activity	Unit
Main PHE – A, B, C	– Supply and replacement of eccentric reducer at PHE	Common

### **Plan 9: Compressors**

The key activities to be executed by the Successful Bidder for repair / overhaul of the Compressors shall include, but not be limited to, the following. The indicative list of spares to be procured for the Compressors have been detailed in Annexure 2, Mechanical, Plan 9.

Component	Activity	Unit
SAC	– Supply, replacement and commissioning of instrument air compressors as per the specifications in Annexure 2, Mechanical, Plan 9 for SAC – A, B, E	Common
IAC	– Supply, replacement and commissioning of instrument air compressors as per the specifications in Annexure 2, Mechanical, Plan 9 for IAC – A, C	Common
Fire Air Compressor	– Servicing of fire air compressor along with spares and consumables	Common
Pipe	– Supply, replacement and commissioning of MS pipes as per the specifications in Annexure 2, Mechanical, Plan 9	Common

### **Plan 10: CW system**

The key activities to be executed by the Successful Bidder for repair / overhaul of the CW System shall include, but not be limited to, the following. The indicative list of spares to be procured for the CW System have been detailed in Annexure 2, Mechanical, Plan 10.

Component	Activity	Unit
CT fan	– Supply and replacement of gearbox assembly, FRP blades, and driving shaft assembly as per the specifications in Annexure 2, Mechanical, Plan 10 for Unit 2 CT Fan 1, 2, 9 and Unit 1 CT fan 1, 2, 5	Unit 1 and 2

Component	Activity	Unit
<b>Butterfly valve</b>	– Replacement of twelve 750NB butterfly valves with gearbox	Unit 1 and 2
	– Reconditioning of six 750NB butterfly valves	Unit 1 and 2
<b>CT fan cell</b>	– Supply and replacement of fills material and drift eliminator for cells as per the specifications in Annexure 2, Mechanical, Plan 10	Unit 1 and 2
<b>Spray nozzles</b>	– Replacement of spray nozzles	Unit 1 and 2
<b>CT riser</b>	– Supply and replacement of riser header piping and riser header bend as per the specifications in Annexure 2, Mechanical, Plan 10	Unit 1 and 2
<b>CT blowdown line</b>	– Replacement of 800 mtrs of blowdown line with corrocoating	Unit 1
<b>CT I beam &amp; railing</b>	– Inspection, repairing, coating and painting of I beam and pipes for railing as per specifications in Annexure 2, Mechanical, Plan 10	Unit 1 and 2
	– Replacement of staircase with FRP	Unit 1 and 2
<b>CW isolation gate</b>	– Inspection and repairing with required spares and consumables	Common
<b>Internal distribution pipe</b>	– Replacement of piping for 9 cells (2250 mtrs)	Unit 1 and 2
<b>CW Treatment facility</b>	– Establishing a new anti-scalant cooling water dosing system with required pumps and chemicals. Supply of chemicals shall be provided for 1 year	Unit 1 and 2

### **Plan 11: Desalination System**

The key activities to be executed by the Successful Bidder for repair / overhaul of the Desalination System shall include, but not be limited to, the following. The indicative list of spares to be procured for the Desalination System have been detailed in Annexure 2, Mechanical, Plan 11.

Place	Activity	Unit
<b>MED Plant</b>	– Supply and replacement of pipes, elbows, bends, tee, dummy caps, flanges, spray headers along with SS welding to new elbows and existing flanges as per the specifications in Annexure 2, Mechanical, Plan 11	Common
<b>MED Structure</b>	– Supply and replacement of MED structure, platform and railing as per the specifications in Annexure 2, Mechanical, Plan 11	Common
	– Painting of the MED structure, platform, and railing	Common

### **Plan 12: Sea Water Treatment Plant**

The key activities to be executed by the Successful Bidder for repair / overhaul of the Sea Water Treatment Plant shall include, but not be limited to, the following. The indicative list of spares to be procured for the Sea Water Treatment Plant have been detailed in Annexure 2, Mechanical, Plan 12.

Place	Activity	Unit
<b>Gravity sand filter</b>	– Supply and replacement of pipeline, reducers, pipes and elbows with SS 316 welding as per the specifications in Annexure 2, Mechanical, Plan 12	Common
<b>Flash mixture</b>	– Procurement, erection, commissioning of complete assembly of flash mixture with motor and foundation frame, including grounding	Common
<b>Sea water line</b>	– Inspection, patching and internal corrocoating for 20% of internal surface area for 1500NB and 2200NB sea water line	Unit 1 and 2
<b>Storage and measuring tanks</b>	– Supply and replacement of main acid, main alkali storage tank	Common
	– Supply and replacement of acid and alkali measuring tank	Common
	– Measurement and replacement of CVPC piping with support	Common
<b>Thickener mechanism</b>	– Overhauling with spares and consumables (bearing, oil seal, fasteners)	Common
<b>Flocculator</b>	– Supply and replacement of gear set consisting of pinion and bevel gear, and gear box as per the specifications in Annexure 2, Mechanical, Plan 12	Common
<b>Pre-treatment plant</b>	– Supply and replacement of GI gratings, hand railings, ISMC, MS Flat as per the specifications in Annexure 2, Mechanical, Plan 12 for PTP structure, platform and railing	Common
	– Measurement and replacement of PTP dosing piping and support	Common
	– Painting of the PTP structure, platform, and railing	Common
	– Measurement and replacement of CPVC piping and fitting for PTP and DM plant	Common
	– Supply and replacement of isolation gate for PTP stream	Common
<b>Travelling water screen – A,B,C</b>	– Overhauling of water screen with spares and consumables	Common
<b>GSF Service and Backwash Valve</b>	– Overhauling and replacement of seals for gearbox	Common
<b>Electrochlorination Plant</b>	– Supply and replacement of cells	Common
<b>Intake channel</b>	– Servicing and repairing of isolation gate with required spares and consumables	Common

### **Plan 13: Crane and Hoist**

The key activities to be executed by the Successful Bidder for repair / overhaul of the Crane and Hoist shall include, but not be limited to, the following. The indicative list of spares to be procured for the Crane and Hoist have been detailed in Annexure 2, Mechanical, Plan 13.

Place	Activity	Unit
<b>Sea water intake pump</b>	– Overhauling of crane including long travel and cross travel for 5 TR gantry crane at sea water intake pump	Common
<b>Main turbine</b>	– Overhauling of crane including long travel and cross travel for 70 TR & 20 TR crane at main turbine	Unit 1 and 2
<b>CW pump house</b>	– Overhauling of crane including long travel and cross travel for 25 TR gantry crane at CW pump house	Common

### **Plan 14: RO Plant**

The key activities to be executed by the Successful Bidder for repair / overhaul of the RO Plant shall include, but not be limited to, the following. The indicative list of spares to be procured for the RO Plant have been detailed in Annexure 2, Mechanical, Plan 14.

Place	Activity	Unit
<b>Polyelectrolyte dosing station</b>	– Supply and replacement of tank, pumps, motor, and air blower – B as per the specification in Annexure 2, Mechanical, Plan 14	Common
<b>Nutrient dosing station</b>	– Supply and replacement of tank, agitator, and agitator motors as per the specification in Annexure 2, Mechanical, Plan 14	Common
<b>Hypo dosing system</b>	– Supply and replacement of dosing tank, pumps, and agitator as per the specification in Annexure 2, Mechanical, Plan 14	Common
<b>Bisulphite dosing system</b>	– Supply and replacement of dosing tank, pumps, and agitator as per the specification in Annexure 2, Mechanical, Plan 14	Common
<b>Acid dosing station</b>	– Supply and replacement of dosing tanks and pumps as per the specification in Annexure 2, Mechanical, Plan 14	Common
<b>Antiscalent dosing station</b>	– Supply and replacement of dosing tanks, pumps, and agitator as per the specification in Annexure 2, Mechanical, Plan 14	Common
	– Overhauling of existing pumps	Common

Place	Activity	Unit
<b>Filter backwash pump</b>	– Supply and replacement of Pump – A and HP Feed Pump – B and Energy Recovery Turbine-B for filter backwash pump as per the specification in Annexure 2, Mechanical, Plan 14	Common
<b>RO cleaning unit</b>	– Supply and replacement of tanks, pumps, and agitator as per the specification in Annexure 2, Mechanical, Plan 14	Common
<b>Filter Feed Pump</b>	– Supply and replacement of Pump – A Motor	Common
<b>Filter Tanks</b>	– Supply and replacement of filter tanks after filtration from pressure sand filters and activated carbon filters as per the specifications in Annexure 2, Mechanical, Plan 14	Common
<b>Sludge recycling (system) pumps</b>	– Supply and replacement of sludge recycle system pumps	Common
<b>Secondary clarifier system</b>	– Supply and replacement of gearbox	Common
<b>Filter backwash blower</b>	– Supply and replacement of Air blower A and B	Common
<b>Caustic dosing tank</b>	– Supply and replacement of caustic dosing tank	Common
<b>Dosing pump</b>	– Supply and replacement of dosing pump	Common
<b>Draw back tank</b>	– Supply and replacement of drawback tank of 3000 liters size	Common
<b>RO plant membrane</b>	– Supply and replacement of RO plant membrane, with additional spares	Common

### **Plan 15: Valves**

The key activities to be executed by the Successful Bidder for repair / overhaul of Valves shall include, but not be limited to, the following. The indicative list of spares to be procured for Valves have been detailed in Annexure 2, Mechanical, Plan 15

Place	Activity	Unit
<b>Kinematic Air Release Valve (CW system)</b>	– Supply and replacement of complete assembly of kinematic air release valve as per the specification in Annexure 2, Mechanical, Plan 15	Unit 1 and 2

### **Plan 16: Air Conditioning and Air Handling**

The key activities to be executed by the Successful Bidder for repair / overhaul of Air Conditioning and Air Handling Systems shall include, but not be limited to, the

following. The indicative list of spares to be procured for Air Conditioning and Air Handling Systems have been detailed in Annexure 2, Mechanical, Plan 16

Place	Activity	Unit
<b>Air conditioning system</b>	– Revival of the air conditional system in the main building	Common
	– Overhauling of air conditioning system and AC for control room with required spares	Common

### 3.1.2.4. Overhaul Plan (Electrical)

The Successful Bidder shall be responsible for performing comprehensive Overhaul of all the Electrical systems in the Plant. The list of activities to be carried out, across all key components, have been detailed below as Plan 1 to 16.

#### **Plan 1: CT/CVT**

The key activities to be executed by the Successful Bidder for repair / overhaul of CT/CVT shall include, but not be limited to, the following. The indicative list of spares to be procured for CT/CVT have been detailed in Annexure 2, Electrical, Plan 1

Place	Activity	Unit
<b>Switchyard</b>	– Supply and replacement of switchyard, CT, and CVT	Common

#### **Plan 2: Switchyard**

The key activities to be executed by the Successful Bidder for repair / overhaul of Switchyard shall include, but not be limited to, the following. The indicative list of spares to be procured for the Switchyard have been detailed in Annexure 2, Electrical, Plan 2

Place	Activity	Unit
<b>Line and GT ABT energy meter</b>	– Dismantling and depositing existing equipment in store	Common
	– Supply, installation, testing and commissioning of ABT meters	Common
<b>220kV insulators</b>	– Supply and application of RTV coating on all porcelain insulator surface of breakers, CT, PT, CVT, PI, LA, GT bushings etc. of all 8 bays	Common
<b>Isolators</b>	– Supply and replacement of 3 phase isolating rods sets and isolator sets with porcelain insulators as per Annexure 2, Electrical, Plan 2	Common
<b>220kV breaker pole</b>	– Supply, replacement, testing and commissioning of 220kV line breaker pole	Common
<b>220kV wave trap</b>	– Supply, replacement, testing and commissioning of 220kV wave trap	Common

Place	Activity	Unit
<b>220kV SRI</b>	– Supply and replacement of 220kV bays SR insulators as per the specifications in Annexure 2, Electrical, Plan 2	Common
<b>220kV support insulators</b>	– Supply and replacement of 220kV bays support insulators	Common
<b>220kV bays connectors</b>	– Supply and replacement of 220kV bays connectors for all bays as per the specifications in Annexure 2, Electrical, Plan 2	Common
<b>220kV breaker AR</b>	– Supply and replacement of 220kV breaker AR switches as per the specifications in Annexure 2, Electrical, Plan 2	Common
<b>220kV breaker gas density switch</b>	– Supply and replacement of 220kV breaker gas density switches as per the specifications in Annexure 2, Electrical, Plan 2	Common
<b>220kV protection relays</b>	– Supply and replacement of 220kV protection relays	Common
<b>220kV switchyard RTU</b>	– Supply, replacement, testing and commissioning of fiber channel switch, power model unit and GPS time syncho server	Common
<b>GT and UAT</b>	– Supply and replacement of GT & UAT buchholz relay	Common
<b>PLCC System</b>	– Supply and replacement of new panel	Common
	– Testing of all electrical equipment (Tan delta test)	Common

### **Plan 3: Cables**

The key activities to be executed by the Successful Bidder for repair / overhaul of Cables shall include, but not be limited to, the following. The indicative list of spares to be procured for the Cables have been detailed in Annexure 2, Electrical, Plan 3

Place	Activity	Unit
<b>220kV switchyard lines</b>	– Supply and replacement of 220kV switchyard lines PLCC cable	Common
<b>HT/LT cables</b>	– Supply and replacement (if required) of 11kV HT cables and 1.1kV LT cables	Common

### **Plan 4: Battery Bank**

The key activities to be executed by the Successful Bidder for repair / overhaul of Battery Bank shall include, but not be limited to, the following. The indicative list of spares to be procured for the Battery Bank have been detailed in Annexure 2, Electrical, Plan 4

Place	Activity	Unit
<b>Various locations</b>	– Supply and replacement of battery bank, UPS-1, 2, Main DC-1, 2, battery model	Unit 1 and 2
<b>Switchyard</b>	– Supply and replacement of 410AH battery bank for	Common

Place	Activity	Unit
	Switchyard	

### **Plan 5: Turbine Generator**

The key activities to be executed by the Successful Bidder for repair / overhaul of TG electrical shall include, but not be limited to, the following. The indicative list of spares to be procured for the TG have been detailed in Annexure 2, Electrical, Plan 5

Place	Activity	Unit
<b>Auto bus transfer system</b>	– Turnkey supply, installation, testing and commissioning of 6.6 kV Board Auto Bus transfer system	Unit 1 & Unit 2
<b>Generator</b>	– Supply and replacement of generator transducers	Unit 1 & Unit 2
	– Supply and replacement of generator bellows and filters and generator duct bellows	Unit 1 and 2
<b>Relay</b>	– Supply and replacement of relays	Unit 1 and 2
<b>Excitation system</b>	– Supply and replacement of excitation cards	Unit 1 and 2
	– Supply and replacement of excitation x'mer protection relays	Unit 1
<b>TG Cathodic Protection System</b>	– Supply and replacement of cathodic protection system	Common
<b>Battery Room</b>	– Supply and replacement of exhaust fan	Common
<b>Plant toilet area</b>	– Supply and replacement of exhaust fan	Common
<b>GCB</b>	– Supply and replacement of GCB MIMIC diagram PCB card	Unit 1 and 2
	– Inspection, correction, including supply and replacement, if required of generator Circuit breaking System including GCB SF6 top up, gas density switch, 15.75KV level GCB, Isolator and .earth switches, their local and remote operation system. ABB make GCB MIMIC diagram PCB cards shall be supplied and replaced. Overhauling of GCB, Testing of GCB including contact Resistance, Timming, Pressure measurement and calibration, etc	Unit 1 and 2
<b>GRP</b>	– Supply and replacement of voltage balance relay, AC voltage transducer, frequency transducer and AC current transducer	Common
	– Testing, defect attending, including supply and replacement of defective / non-functional accessories, including relays, etc.	Common
	– Inspection and calibration of meters (tariff, etc.)	Common
<b>CT/PT and their panels</b>	– Inspection, preventive maintenance, including supply and replacement of defective / non-functional accessories, if required	Unit 1 and 2
<b>Bus duct system</b>	– Inspection, cleaning, supply and replacement of bus	Unit 1 and 2

Place	Activity	Unit
	duct insulators, as needed	
	– Inspection, Supply and replacement of all bus duct rubber bellows	Unit 1 and 2
	– Inspection and tightness of conducting pipes and flexible connection	Unit 1 and 2
<b>Pressurization system</b>	– Revival, inspection, correction, including supply and replacement, if required of generator bus duct pressurization system (including compressor, dryer, valves, piping, and monitoring system)	Unit 1 and 2
<b>TG Lube Oil System</b>	– Inspection, correction, including supply and replacement if required, of TG lub, barring and jacking oil system including DC EOP, JOP and AC JOP, AOP, Oil extraction fan, Centrifuge pump, Hydraulic oil pump, etc and related electrical system	Unit 1 and 2
<b>Hot air generation system</b>	– Revival, inspection, correction, including supply and replacement, if required of Hot air generation system for generator.	Unit 1 and 2
<b>Neutral Grounding System</b>	– Inspection, correction, including supply and replacement, if required of generator neutral grounding system including Neutral Grounding Transformer (NGT), Neutral Grounding Resistor (NGR). Neutral bus duct and Conducting piping system, rubber bellow shall be inspected and corrected for normal functioning if required	Unit 1 and 2

### **Plan 6: Lighting**

The key activities to be executed by the Successful Bidder for repair / overhaul of lighting shall include, but not be limited to, the following. The indicative list of spares to be procured for the lighting have been detailed in Annexure 2, Electrical, Plan 6

Place	Activity	Unit
<b>Plant Area (Boiler, TG, Switchyard, BOP, MHP-AHP)</b>	– Design, supply, installation and commissioning of LED fixtures and lighting panels	Common
	– Supply, installation and commissioning of power cables	Common
	– Design, supply, installation and commissioning of GI conduit, L clamp and GI pole	Common
	– Design, supply, installation and commissioning of 12 mtr high mast with civil works and incoming power cable	Common
<b>Plant Area (BOP)</b>	– Design, supply, installation and commissioning of 100 W LED lights	Common
	– Design, supply, installation and commissioning of lighting panels	Common
<b>Plant Area (TG)</b>	– Design, supply, installation and commissioning of 100 W LED lights	Common
	– Design, supply, installation and commissioning of lighting panels	Common

Place	Activity	Unit
<b>Plant Area (MHP)</b>	– Design, supply, installation and commissioning of 100 W LED lights	Common
	– Design, supply, installation and commissioning of lighting panels	Common
<b>Plant Boundary</b>	– Design, supply, installation and commissioning of flood light poles	Common
	– Design, supply, installation and commissioning of lighting panels	Common
	– Design, supply, installation and commissioning of armored power cable	Common
	– Design, supply, installation and commissioning of 12 mtr high mast	Common

### **Plan 7: Actuators**

The key activities to be executed by the Successful Bidder for repair / overhaul of actuators shall include, but not be limited to, the following. The indicative list of spares to be procured for the actuators have been detailed in Annexure 2, Electrical, Plan 7

Place	Activity	Unit
<b>CW Pump</b>	– Supply, replacement, testing and commissioning of TBG assembly for Auma make SA25 actuator	Common
<b>Auma make Actuator spares</b>	– Supply, replacement, testing and commissioning for Auma make actuators spares across the plant	Unit 1 and 2
<b>Rotork make actuator</b>	– Supply, replacement, testing and commissioning for Rotork make actuators spares across the plant	Unit 1 and 2

### **Plan 8: Motors**

The key activities to be executed by the Successful Bidder for repair / overhaul of motors shall include, but not be limited to, the following. The indicative list of spares to be procured for the motors have been detailed in Annexure 2, Electrical, Plan 8

Place	Activity	Unit
<b>CT fan</b>	– Supply, replacement, testing and commissioning of CT fan motors	Unit 1 and 2
<b>Centrifuge feed pump</b>	– Supply, replacement, testing and commissioning of centrifuge feed pump motor	Common
<b>PE Dosing</b>	– Supply, replacement, testing and commissioning of chemical house PE dosing motor and PE dosing agitator motor	Common
<b>Antifoam dosing</b>	– Supply, replacement, testing and commissioning of antifoam dosing motor	Common
<b>Antiscalent dosing</b>	– Supply, replacement, testing and commissioning of antiscalent dosing motor	Common

Place	Activity	Unit
<b>Acid cleaning motor</b>	– Supply, replacement, testing and commissioning of acid cleaning motor	Common
<b>Distillate pump</b>	– Supply, replacement, testing and commissioning of distillate pump motor	Common
<b>Motive water pump</b>	– Supply, replacement, testing and commissioning of motive water pump motor	Common
<b>BFP OVEF</b>	– Supply, replacement, testing and commissioning of OVEF motor	Unit 1
<b>Lignite UBF</b>	– Supply, replacement, testing and commissioning of lignite UBF motors	Common
<b>Stackers and reclaimers</b>	– Supply, replacement, testing and commissioning of vibro feeder motor for stacker and reclaimer	Common
<b>HT Motor</b>	– Supply and replacement of bearings across HT motors as per the specifications in Annexure 2, Electrical, Plan 8	Common
	– Servicing and cleaning of motors	Common
	– Disconnecting cables and earthing strip. Decoupling motor and removing coupling half	Common
	– Loosening foundation bolts and shift motor to work shed if necessary	Common
	– Removing rotor from stator, and cleaning and inspecting rotor stator for wedge tightness cracks and varnish coat	Common
	– Rectifying defects and spray insulating varnish	Common
	– Inspection of bearings and replacement if needed	Common
	– Assembling rotor/stator. Checking bearing/oils and replacing if damaged. Checking blue matching and adjusting clearances.	Common
	– Adjusting air gap and magnetic center	Common
	– Mounting air coolers. Connecting electrical cables, earthing and instrumentation	Common
	– Measuring IR valve and taking no load trial run	Common
<b>CW Pump</b>	– Overhauling including bearing replacement of HT motors of CW motors (A, B, C, E) with spares	Common
<b>Lignite impactor</b>	– Supply and replacement of lignite impactor motors	Common

### **Plan 9: Exhaust Fans**

The key activities to be executed by the Successful Bidder for repair / overhaul of exhaust fans shall include, but not be limited to, the following. The indicative list of spares to be procured for the exhaust fans have been detailed in Annexure 2, Electrical, Plan 9

Place	Activity	Unit
<b>TG roof</b>	– Supply and replacement of TG roof exhaust fan	Common
<b>SWTP</b>	– Supply and replacement of axial exhaust fans	Common

Place	Activity	Unit
Switchyard	– Supply and replacement of axial exhaust fans	Common
Diesel Generator	– Supply and replacement of axial exhaust fans	Common
MHP	– Supply and replacement of 3.7 kW axial exhaust fans	Common
	– Supply and replacement of 0.55 kW axial exhaust fans	Common

### **Plan 10: DG**

The key activities to be executed by the Successful Bidder for repair / overhaul of DG shall include, but not be limited to, the following. The indicative list of spares to be procured for the DG have been detailed in Annexure 2, Electrical, Plan 10

Place	Activity	Unit
DG	– Supply, replacement, testing and commissioning of DG set and panel spares as per the specifications in Annexure 2, Electrical, Plan 10	Common
	– Supply, replacement, testing and commissioning of DG kV battery charger	Common
	– Complete servicing of DG 1 and 2 with spares	Common

### **Plan 11: SWTP**

The key activities to be executed by the Successful Bidder for repair / overhaul of SWTP shall include, but not be limited to, the following. The indicative list of spares to be procured for the SWTP have been detailed in Annexure 2, Electrical, Plan 11

Place	Activity	Unit
SWTP	– Supply and replacement of GSF MOVs in the PTP area	Common
	– Supply and replacement of SWTP MCC micromaster 420 VFD	Common

### **Plan 12: GT/UAT/ST**

The key activities to be executed by the Successful Bidder for repair / overhaul of GT/UT/UAT shall include, but not be limited to, the following. The indicative list of spares to be procured for GT/UT/UAT have been detailed in Annexure 2, Electrical, Plan 12.

***Kindly note, the GT for Unit-2 shall be excluded from the scope of the Successful Bidder.***

Activities for Overhaul of GT#1, UAT#1 and #2, ST:

Place	Activity	Unit
GT#1/UAT#1 and #2/ST	– Draining of oil from the transformer into storage tank. Old oil to be property of owner.	Unit 1 and 2

Place	Activity	Unit
	– Supply of storage tank (4 tanks * 30 kilo litres) on rental basis	Unit 1 and 2
	– Supply of oil filtration machine	Unit 1 and 2
	– Opening of inspection covers.	Unit 1 and 2
	– Thorough inspection of the transformer from inspection covers as far as accessible.	Unit 1 and 2
	– If the defect is located and can be rectified at site with use of minor insulation materials, rectification to be carried out.	Unit 1 and 2
	– Supply and replacement of gasket across all transformers	Unit 1 and 2
	– Supply and replacement of WTI and OTI meters across all transformers	Unit 1 and 2
	– Supply and replacement of cooling fans with motors	Unit 1 and 2
	– Repairing of station transformer with manual and auto RECP scheme	Unit 1 and 2
	– Repair of SPBD for GT and IPBD for UAT	Unit 1 and 2
	– Oil leakage arresting	Unit 1 and 2
	– Nitrogen filling and testing for 24 hours	Unit 1 and 2
	– Boxing of the transformer to be done.	Unit 1 and 2
	– Dry out of transformer to be carried out followed by vacuum pulling and oil filling.	Unit 1 and 2
	– Supply and replacement of oil and oil filtration and handing over the transformer for commissioning.	Unit 1 and 2
<b>Excitation Transformer</b>	– Inspection, preventive maintenance, including supply and replacement of defective / non-functional accessories, if required – Inspect excitation protection relay and replace if needed	Unit 1 and 2

### **Plan 13: CW and CCW System**

The key activities to be executed by the Successful Bidder for repair / overhaul of CW/CCW system shall include, but not be limited to, the following. The indicative list of spares to be procured for the CW/CCW system have been detailed in Annexure 2, Electrical, Plan 13

Place	Activity	Unit
<b>CT Tower</b>	– Supply, replacement, testing and commissioning, including preparation of new earth pit	Unit 1 and 2
	– Supply and replacement of CT fan MCC feeder	Common
<b>CW Movs</b>	– Supply and replacement of CW Discharge Mov	Common

### **Plan 14: MHP**

The key activities to be executed by the Successful Bidder for repair / overhaul of MHP shall include, but not be limited to, the following. The indicative list of spares to be procured for the MHP have been detailed in Annexure 2, Electrical, Plan 14

Place	Activity	Unit
<b>MHP MD</b>	– Supply and replacement of metal detector	Common
<b>MHP Panel Protection Relay</b>	– Supply and replacement of HT panel protective relay as per the specifications in Annexure 2, Electrical, Plan 14	Common
<b>Chute vibrator panel</b>	– Supply and replacement of chute vibrator panel as per the specifications in Annexure 2, Electrical, Plan 14	Common

### **Plan 15: Cranes and Hoists**

The key activities to be executed by the Successful Bidder for repair / overhaul of cranes and hoists shall include, but not be limited to, the following. The indicative list of spares to be procured for the same have been detailed in Annexure 2, Electrical, Plan 15

Place	Activity	Unit
<b>CCW</b>	<ul style="list-style-type: none"> <li>– Complete servicing with spares of the 5-ton capacity CCW crane</li> <li>– Complete servicing with spares of the 3-ton capacity CCW crane</li> </ul>	Common
<b>Workshop</b>	<ul style="list-style-type: none"> <li>– Complete servicing with spares of the 10-ton capacity workshop crane</li> <li>– Complete servicing with spares of the 5-ton capacity workshop crane</li> </ul>	Common
<b>Compressor house</b>	<ul style="list-style-type: none"> <li>– Complete servicing with spares of the 5-ton capacity compressor house crane</li> </ul>	Common
<b>MHP</b>	<ul style="list-style-type: none"> <li>– Complete servicing with spares of the 7.5-ton capacity hoist at lignite dump hopper</li> <li>– Complete servicing with spares of the 2-ton capacity crane at TP-01</li> <li>– Complete servicing with spares of the 2-ton capacity crane at TP-02</li> <li>– Complete servicing with spares of the 15-ton capacity hoist crane at PCH ILMS floor</li> <li>– Complete servicing with spares of the 15-ton capacity hoist crane at SCH ILMS floor</li> <li>– Complete servicing with spares of the 2-ton capacity hoist crane at SCH CR1 head</li> <li>– Complete servicing with spares of the 15-ton capacity SCH Impactor rotor hoist crane</li> <li>– Complete servicing with spares of the 7.5-ton capacity SCH Impactor rotor hoist crane</li> <li>– Complete servicing with spares of the 2-ton capacity hoist crane at belt feeder 9</li> <li>– Complete servicing with spares of the 2-ton capacity hoist crane at belt feeder 10</li> <li>– Complete servicing with spares of the 2-ton capacity hoist crane at screen floor</li> </ul>	Common

Place	Activity	Unit
	<ul style="list-style-type: none"> <li>– Complete servicing with spares of the 10-ton capacity hoist crane at screen top</li> <li>– Complete servicing with spares of the 15-ton capacity hoist crane at screen house ILMS floor</li> <li>– Complete servicing with spares of the 2-ton capacity hoist crane at TP-03 4A-4B floor</li> <li>– Complete servicing with spares of the 3-ton capacity hoist crane at bunker floor</li> <li>– Complete servicing with spares of the 2-ton capacity hoist crane at SR1 drive house</li> <li>– Complete servicing with spares of the 15-ton capacity hoist crane at lime dump hopper apron feeder floor</li> <li>– Complete servicing with spares of the 2-ton capacity hoist crane at TP-04 LM-01 drive floor</li> <li>– Complete servicing with spares of the 2-ton capacity hoist crane at LM-02 drive house</li> <li>– Complete servicing with spares of the 5-ton capacity hoist crane at lime crusher house UBF floor</li> <li>– Complete servicing with spares of the 10-ton capacity hoist crane at lime crusher house IMP floor</li> <li>– Complete servicing with spares of the 10-ton capacity hoist crane at lime crusher house ILMS floor</li> <li>– Complete servicing with spares of the 3-ton capacity hoist crane at lime bunker house</li> </ul>	

### **Plan 16: Miscellaneous Electric**

The key activities to be executed by the Successful Bidder for repair / overhaul of miscellaneous electric items shall include, but not be limited to, the following. The indicative list of spares to be procured for the same have been detailed in Annexure 2, Electrical, Plan 15

Place	Activity	Unit
<b>11 kV VCB</b>	– Supply and replacement (including civil works) of 11kV pole, pole D.O switch, breaker, connecting power and control cable and relays	Common
<b>Fire Pump House</b>	– Supply and replacement of LT breaker as per the specifications in Annexure 2, Plan 15, Electrical	Common
	– Supply and replacement of MCC HP and bus coupler breaker	Common
<b>CW/Intake/ Fire pump house</b>	– Supply and replacement of crane hoist	Common
<b>HT Breakers</b>	– Supply and replacement of HT breaker parts as per the specifications in Annexure 2, Electrical, Plan 15	Unit 1 and 2
<b>LT MCC SFU</b>	– Supply and replacement of LT board/LT MCC SFU as per the specifications in Annexure 2, Electrical, Plan 15	Common
<b>Numerical relays</b>	– Testing and calibration of 7SJ 61, 7SJ 62, 7SJ 64 relays	Common
<b>Colony</b>	– Supply and installation of FRP roof for all panels and repairing of enclosures	Common

### 3.1.2.5. Overhaul Plan (Control and Instrumentation)

The Successful Bidder shall be responsible for performing comprehensive Overhaul of all the Control and Instrumentation systems in the BOP Package. The list of activities to be carried out, across all key components, have been detailed below as Plan 1 to 7.

#### **Plan 1: Boiler and Turbine Auxiliaries**

The key activities to be executed by the Successful Bidder for repair / overhaul of the Boiler and Turbine Auxiliaries shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the Boiler and Turbine Auxiliaries have been detailed in Annexure 2, C&I, Plan 1. The Successful Bidder shall supply and install all the hardware within battery limits for all the field instruments mentioned in this plan.

Component	Activity	Unit
<b>Boiler and turbine auxiliaries</b>	– Supply and replacement of pressure gauges for Boiler, Turbine, and BOP discharge pumps as per the specifications in Annexure 2, C&I, Plan 1	Unit 1 and 2
	– Supply and replacement of temperature gauges for Boiler, Turbine, and BOP systems as per the specifications in Annexure 2, C&I, Plan 1	Unit 1 and 2
	– Supply and replacement of level transmitters for LP heater 2 & 3 as per the specification in Annexure 2, C&I, Plan 1	Unit 1 and 2
	– Supply and replacement of turbine extraction flow transmitter	Unit 1 and 2
<b>Boiler feed pump</b>	– Supply and replacement of scoop speed controllers as per the specifications in Annexure 2, C&I, Plan 1	Unit 2
	– Supply and replacement of reheater O/L pressure transmitter and BFP group crossover flow transmitter as per the specifications in Annexure 2, C&I, Plan 1	Unit 2
<b>Condensate extraction pumps</b>	– Supply and replacement of filter DP pressure switch, discharge pressure switch, and vibration switches as per the specifications in Annexure 2, C&I, Plan 1	Unit 2
<b>Turbine steam extraction deaerator</b>	– Erection, commissioning and installation dissolved oxygen analyzer and extraction NRV seal kit for HPH 5&6 and LPH 2 as per the specifications in Annexure 2, C&I, Plan 1	Unit 1 and 2
<b>Turbine steam extraction CRH</b>	– Erection, commissioning and installation of flow transmitter and extraction NRV seal kit as per the specifications in Annexure 2, C&I, Plan 1	Unit 1 and 2
<b>Turbine steam extraction block</b>	– Supply and replacement of limit switch for block valve and flow meter valve as per the specification in Annexure 2, C&I, Plan 1	Unit 1 and 2
<b>Turbine</b>	– Supply and replacement of LVDT in the turbine steam inlet	Unit 2

Component	Activity	Unit
steam inlet	valve as per the specification in Annexure 2, C&I, Plan 1	
Turbo Supervisory	– Supply and install probes for HP/IP/LP casing expansion and HP/IP/LP differential expansion as per the specifications in Annexure 2, C&I, Plan 1	
MOT	– Supply and replacement of flow switch for the MOT centrifuge as per the specification in Annexure 2, C&I, Plan 1	Unit 1 and 2
	– Supply and replacement of pressure and temperature transmitters for MOT pump as per the specification in Annexure 2, C&I, Plan 1	Unit 1 and 2
Condenser	– Supply and replacement of level transmitters as per the specification in Annexure 2, C&I, Plan 1	Unit 2
HPH 5&6	– Supply and replacement of feedback and level transmitters as per the specification in Annexure 2, C&I, Plan 1	Unit 2
Hotwell	– Supply and replacement of conductivity meters for the hot well as per the specification in Annexure 2, C&I, Plan 1	Unit 2
Impulse line	– Supply and replacement of impulse line as per the specification in Annexure 2, C&I, Plan 1	Unit 1 and 2
Hogger/ejector	– Erection, commissioning and installation of flow meter	Unit 1 and 2
HRH and CRH steam flow transmitter	– Erection, commissioning and installation of HRH and CRH steam flow transmitters as per the specification in Annexure 2, C&I, Plan 1	Unit 1 and 2

### **Plan 2: Compressor**

The key activities to be executed by the Successful Bidder for repair / overhaul of the Compressor shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the Compressor have been detailed in Annexure 2, C&I, Plan 2. The Successful Bidder shall supply and install all the hardware within battery limits for all the field instruments mentioned in this plan

Component	Activity	Unit
All Compressors	– Erection, commissioning and installation of vibration switches as per the specifications in Annexure 2, C&I Plan 2	Common

### **Plan 3: CW Pump House**

The key activities to be executed by the Successful Bidder for repair / overhaul of the CW Pump House shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the CW Pump House have been detailed in Annexure 2, C&I, Plan 3. The Successful Bidder shall supply and install all the hardware within battery limits for all the field instruments mentioned in this plan

Component	Activity	Unit
<b>CW pump house</b>	– Supply and replacement of flow transmitters, RRM sensors, sump level switches and, wet bulb temperature transmitter for cooling tower (hygrometer as per the specifications in Annexure 2, C&I, Plan 3	Common
<b>CW forbay</b>	– Supply and replacement of level transmitter as per the specifications in Annexure 2, C&I, Plan 3	Common

#### **Plan 4: Material Handling System**

The key activities to be executed by the Successful Bidder for repair / overhaul of the Material Handling System shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the Material Handling System have been detailed in Annexure 2, C&I, Plan 4. The Successful Bidder shall supply and install all the hardware within battery limits for all the field instruments mentioned in this plan

Component	Activity	Unit
<b>Lignite conveyor</b>	– Supply and replacement of pull cord switches and belt sway switches and belt weigher as per the specifications in Annexure 2, C&I, Plan 4	Common
<b>Lignite bunker</b>	– Supply and replacement of lignite bunker level sensors as per the specifications in Annexure 2, C&I, Plan 4	Unit 1 and 2
<b>Lignite and lime impactor</b>	– Supply and replacement of vibration switches as per the specifications in Annexure 2, C&I, Plan 4	Common
<b>Lignite and lime sizer</b>	– Supply and replacement of vibration switches as per the specifications in Annexure 2, C&I, Plan 4	Common

#### **Plan 5: Ash Handling System**

The key activities to be executed by the Successful Bidder for repair / overhaul of the Ash Handling System shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the Ash Handling System have been detailed in Annexure 2, C&I, Plan 5. The Successful Bidder shall supply and install all the hardware within battery limits for all the field instruments mentioned in this plan

Component	Activity	Unit
<b>Fly ash silo</b>	– Supply and replacement of fluidizing SOV, fluidizing system sequential timer, and KGV valve as per the specifications in Annexure 2, C&I, Plan 5	Common
<b>Ash transporter</b>	– Supply and replacement of discharge pressure gauge as per the specifications in Annexure 2, C&I, Plan 5	Common
<b>Air dryer</b>	– Supply and replacement of air dryer sensor as per the specifications in Annexure 2, C&I, Plan 5	Common

### **Plan 6: Sea Water Treatment Plant**

The key activities to be executed by the Successful Bidder for repair / overhaul of the Sea Water Treatment Plant shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the Sea Water Treatment Plant have been detailed in Annexure 2, C&I, Plan 6. The Successful Bidder shall supply and install all the hardware within battery limits for all the field instruments mentioned in this plan

Component	Activity	Unit
<b>MED plant</b>	– Supply and replacement of cooling water control valves, condensate control valve, PRDS steam pressure control valve positioners, and brine level control valve positioners as per the specifications in Annexure 2, C&I, Plan 6	Common
	– Supply and replacement of flow transmitters, feedwater flow transmitters, steam flow transmitters, and steam inlet pressure transmitters as per the specifications in Annexure 2, C&I, Plan 6 – Provide common earthing for all the electromagnetic flow transmitters	Common
	– Supply and replacement of condensate conductivity meters, temperature and pressure gauges, and stop valve cylinders as per the specifications in Annexure 2, C&I, Plan 6	Common
<b>Pre-treatment plant</b>	– Supply and replacement of services valves, backwash valves, airline valves, SOV for all valves, and DP transmitters as per the specifications in Annexure 2, C&I, Plan 6	Common
<b>Reject water</b>	– Supply and replacement of PH sensor, RTD sensor, TSS sensor, and reject pump vibration switches as per the specifications in Annexure 2, C&I, Plan 6	Unit 1 and 2
<b>Intake pump</b>	– Supply and replacement of motor vibration switches as per the specifications in Annexure 2, C&I, Plan 6	Common

### **Plan 7: ACW / CCW Systems**

The key activities to be executed by the Successful Bidder for repair / overhaul of the ACW / CCW Systems shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the ACW / CCW Systems have been detailed in Annexure 2, C&I, Plan 7. The Successful Bidder shall supply and install all the hardware within battery limits for all the field instruments mentioned in this plan

Component	Activity	Unit
<b>ACW and CCW Pump</b>	– Supply and replacement of discharge pressure transmitters for ACW and CCW pump as per the specifications in Annexure 2, C&I, Plan 7	Common
	– Supply and replacement of ACW and CCW pump	Common

Component	Activity	Unit
	vibration switches and ACW and CCW motor vibration switches as per the specifications in Annexure 2, C&I, Plan 7	
	– Supply and replacement of ACW and CCW pump DE/NDE bearing RTDs as per the specifications in Annexure 2, C&I, Plan	Common
PHE	– Supply and replacement of CCW and ACE inlet and outlet pressure transmitters and CCW I/L and O/L conductivity meters as per the specifications in Annexure 2, C&I, Plan 7	Common
	– Supply and replacement of PHE sea water inlet and outlet pressure transmitter	Common
CCW suction line	– Supply and replacement of CCW suction line pressure transmitter as per the specifications in Annexure 2, C&I, Plan	Common

### **Plan 8: Miscellaneous Systems**

The key activities to be executed by the Successful Bidder for repair / overhaul of the Miscellaneous Systems shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the Miscellaneous Systems have been detailed in Annexure 2, C&I, Plan 8. The Successful Bidder shall supply and install all the hardware within battery limits for all the field instruments mentioned in this plan.

Component	Activity	Unit
EPABX system	– Supply and installation of a 200-line EPABX system in the plant area with intercom and cable connections	Common
	– Supply and installation of a 300-line EPABX system in the colony area with intercom and cable connections	Common

### **3.1.2.6. Overhaul Plan (Supporting functions)**

The Successful Bidder shall be responsible for performing comprehensive Overhaul of all the supporting functions in the BOP Package. The list of activities to be carried out, across all key components, have been detailed below as Plan 1 to 3.

#### **Plan 1: Fire and safety**

The key activities to be executed by the Successful Bidder for repair / overhaul of the fire and safety systems shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the fire and safety systems have been detailed in Annexure 2, Supporting Functions, Plan 1. Data sheets for the fire & safety equipment have been attached as Annexure 4

Component	Activity	Unit
<b>Fire Hydrant</b>	– Installation of fire hydrant line in MHP area, store and security gate	Common
<b>Fire hose and hose box</b>	– Installation of fire hose and hose box in Boiler, TB, TJ building, switchyard, MHP, FOPH	Common
	– Installation of fire hose and hose box in remaining areas	Common
<b>Emulsifier</b>	– Installation of fire emulsifier (spray) in transformer yard, MOT, conveyor	Common
<b>Foam Flooding</b>	– Augmentation of FOPH area foam system	Common
<b>FDAS</b>	– Revival of fire detection and alarm system	Common
<b>Fire Extinguisher</b>	– Installation of ABC, BC, CO2 and foam fire extinguishers	Common
<b>Meter</b>	– Installation of LEL meter	Common
<b>PTW System</b>	– Installation of PTW system software and hardware for lock out tag out	Common
<b>CO2 flooding</b>	– Augmentation of CO2 flooding in generator area	Common

### **Plan 2: Chemical Laboratory**

The key activities to be executed by the Successful Bidder for repair / overhaul of the chemical laboratory shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the chemical laboratory have been detailed in Annexure 2, Supporting Functions, Plan 2.

Component	Activity	Unit
<b>Spectrophotometer</b>	– Installation of double beam spectrophotometer	Common
<b>Colorimeter</b>	– Installation of colorimeter	Common
<b>Particle Count Analyzer</b>	– Installation of PMAS particle count analyzer	Common
<b>Digital bomb calorimeter</b>	– Installation of digital bomb calorimeter	Common
<b>Furnace</b>	– Installation of furnace with temperature range of 0 to 1000 degrees	Common
<b>3D Trasar automation</b>	– Installation of 3D TRASAR automation equipment	Common

### **Plan 3: Monitoring system**

The key activities to be executed by the Successful Bidder for repair / overhaul of monitoring systems shall include, but not be limited to, the following items in the table. The indicative list of spares to be procured for the monitoring system have been detailed in Annexure 2, Supporting Functions, Plan 3.

Component	Activity	Unit
<b>Effluent monitoring system</b>	– Installation of EQMS Online Effluent Monitoring System as per CPCB Guidelines (STP&ETP) for treated water parameter monitoring	Common
<b>Ambient air monitoring system</b>	– Installation of online ambient air monitoring system measuring parameters including SO <sub>2</sub> , NO <sub>2</sub> , CO, CO <sub>2</sub> , PM <sub>2.5</sub> /PM <sub>10</sub>	Common
<b>Chimney SPM online monitoring system</b>	– Installation of chimney SO <sub>x</sub> ,NO <sub>x</sub> , SPM online monitoring system as per CPCB guidelines	Common

### 3.1.2.7. Commissioning activities

The Successful Bidder shall be responsible for commissioning of the equipment across both units of the Plant and ensuring observation for 72 hours after operationalization at full load with design parameters and continuous operation of machine, with observation of performance parameters and supervisory parameters.

## 3.2. Scope for supply of material

The Successful Bidder shall procure all material / equipment / spares as per the quantities and specifications detailed in Annexure 2 (Mechanical, Electrical, C&I, Supporting functions) for overhauling of both units of the Plant simultaneously.

### 3.2.1. Procurement planning

1. The Successful Bidder shall create a 'Procurement Register' for the BOP Package in collaboration with the PMC, including all the detailed item-wise Bills of Quantity (BoQs) with associated costs and technical specifications to ensure adherence to desired quality and exercise cost control within Contractual limits. The Successful Bidder shall be responsible to purchase and procure all the items in the Procurement Register
2. The Successful Bidder shall prepare a 'Procurement Plan' for the BOP Package for the purpose of monitoring all Procurement activities and ensuring timely delivery of all material across all Packages, in line with the timelines mentioned in Section 2.2 (Contract Duration) and Section 10.2 (Payment Milestones)
3. The Successful Bidder shall coordinate with the PMC in maintaining a digital data sheet (in excel format) of the 'Procurement Plan', with the desired timelines and costs vis-à-vis the actual timelines followed and costs incurred to track compliance. The Successful Bidder and PMC shall grant all requisite access to the data sheet to the Owner, and share necessary summaries for reporting purpose, if requested

### 3.2.2. Physical verification

The Successful Bidder shall, in coordination with the PMC, conduct physical verification of existing inventory at the Plant to identify the equipment and associated spares and

material readily available to be utilized during the Overhaul. Further, the Successful Bidder shall integrate the existing inventory with the 'Procurement Register' to ensure optimal Procurement and consumption of material.

### **3.2.3. Material management**

The Successful Bidder shall deploy appropriate material management systems (e.g., ERP solutions) to track movement of material and adherence to schedules and quality. Further, the Successful Bidder shall integrate the system with the digital data sheet described in Section 3.2.1 of Part 2 of this document.

### **3.2.4. Quality management**

The Successful Bidder shall ensure the procurement of material is as per the technical and design specifications provided in Annexure 1 and adhere to highest standard of engineering and workmanship, to ensure after completion of the Overhaul, the Plant shall be capable of performing in a safe, reliable, sustainable, and in a manner acceptable to the owner.

### **3.2.5. Packing and transportation**

1. The Successful Bidder shall be responsible for packing and transportation of all material to be repaired / refurbished from the Plant to the Successful Bidder's / supplier's facilities and back to the Plant. The Successful Bidder shall also be responsible for loading, unloading, preservation, and storage of the material during transit
2. The Successful Bidder shall arrange for appropriate transit insurance and clearances from relevant authorities for all material to be transported from the Plant to the Successful Bidder's / supplier's facilities and back
3. The Successful Bidder shall be solely responsible to replace the material that may be damaged or lost in transit and shall bear the cost for all such material. Further, the Successful Bidder shall provide notice in writing to the owner, copying the PMC and the Owner with the details of the issue, as needed

### **3.2.6. Factory (FATs) and site acceptance tests (SATs)**

1. The Successful Bidder shall arrange for factory acceptance tests to be conducted for all the material / equipment at the Successful Bidder's/ supplier's facilities, prior to shipping, in the presence of the owner, the PMC, and other representatives deployed by the owner, if needed
2. The Successful Bidder shall arrange for appropriate certificate through Government approved NABL labs for material of construction (MOC) used for the material/equipment procured. Further, the Successful Bidder shall ensure the certificates are in line with OEM guidelines and acceptable specifications.
3. The Successful Bidder shall provide a notice of at least 3 weeks prior to arranging for factory acceptance tests at the Successful Bidder's/ supplier's facilities and provide the procedure for conducting the test for the owner's approval

4. The factory acceptance tests shall include, but shall not be limited to, the following key activities:
  - i. Visual inspection: Inspection of the material / equipment for any physical defects, damage, or other issues
  - ii. Functional testing: Testing the material / equipment to ensure that it performs the intended functions and meets the specified performance criteria, as applicable
  - iii. Safety testing: Testing the safety features of the material / equipment to ensure that they function as intended and meet any applicable safety standards or regulations, as applicable
  - iv. Documentation review: Reviewing the documentation related to the material / equipment, such as user manuals, technical specifications, and test reports
5. The Successful Bidder shall ship the material / equipment to the Plant only upon successful completion of the factory acceptance tests and sign-off by the owner and owner's representatives
6. Upon delivery and installation of material / equipment at the Plant, the Successful Bidder shall arrange for a site acceptance test in the presence of the owner, the PMC, and other representatives deployed by the owner, if needed
7. The Successful Bidder shall provide a notice of at least 3 weeks prior to arranging for site acceptance tests at the Plant and provide the procedure for conducting the test for the owner's approval
8. The site acceptance tests shall include, but shall not be limited to, the following key activities:
  - i. Verification of installation: Verifying that the equipment or system has been installed correctly, according to the manufacturer's instructions and any applicable standards or regulations
  - ii. Functional testing: Testing the material / equipment to ensure that it performs the intended functions and meets the specified performance criteria
  - iii. Integration testing: Testing the integration of the material / equipment with other systems or components that it will be working with, prior to commissioning
  - iv. Operational testing: Testing the material / equipment under various operating conditions to ensure that it can perform reliably and consistently
  - v. Documentation review: Reviewing the documentation related to the material / equipment, such as user manuals, technical specifications, and test reports

### **3.2.7. Storage of material in Plant**

The Successful Bidder shall be responsible for storage of all procured material / equipment at the Plant within the Successful Bidder's shed. The Successful Bidder shall be solely responsible for security of the material / equipment at the Plant. In case of theft / burglary / loss of material, the Successful Bidder shall bear the cost of

replenishing the material and ensure timely delivery to minimize impact on the execution of the Overhaul.

### **3.3. Standards for performance of obligations**

The Successful Bidder represents and warrants that it has the requisite skills, experience, expertise, and capacity to fulfill its obligations and responsibilities under the Contract. The Successful Bidder shall perform all of its services hereunder in accordance and compliance with:

1. Accepted prudent industry practices
2. Incident reporting with corrective and preventive measures
3. Implementation of lessons learnt from incidents on similar facilities
4. All Applicable Laws
5. All applicable clearances to be obtained and maintained including but not limited to all relevant health and safety legislations, environment permits and licenses

The Successful Bidder shall have round-the-clock qualified, trained, and experienced, with valid necessary certifications, crew of adequate strength who are alert and vigilant for carrying out all the normal and emergency operations, start-up, and shutdown of equipment across both units. Startup and shutdown of the plant will be done by ATPS engineers under supervision of the Successful Bidder.

### **3.4. Standards for Sub-contracting**

For the purpose of performing its obligations under the Contract, the Successful Bidder may appoint Sub-Contractors with prior written intimation to the Owner as deemed fit. Appointment of such Sub-Contractors by the Successful Bidder shall at no time mean that the Successful Bidder is relieved of its primary duty and liability to perform its obligations as set out in the Contract. The Contractor shall be responsible for:

1. Obtaining any and all necessary authorizations required for use of all Plant infrastructure / facilities in connection with the performance of its obligations hereunder
2. Ensuring adherence to standard operating procedures and safety standards by the Sub-Contractor and be liable in the event of any issue affecting the performance of the asset

## **4. Responsibilities and rights of the Owner**

### **4.1. Responsibilities of the Owner**

The Owner shall be responsible for the following key activities pertaining to the execution of the Overhaul of the Plant

#### **4.1.1. Access to Plant infrastructure**

The Owner will arrange for the Successful Bidder's accommodation and food and beverage requirements at the Plant for the key Personnel deployed on ground to oversee the execution of the Overhaul, on chargeable basis and on the basis of availability of accommodation. In case infrastructure is not available, the Successful

Bidder shall be responsible for arranging the same. The Successful Bidder shall ensure that the Personnel are available at the Plant for the entire course of Overhaul and shall take requisite consent from the Owner with prior intimation through a Written Notice in case of any changes in availability of Personnel.

#### **4.1.2. Access to documents and data**

The Owner shall provide the Successful Bidder with access to available drawings, documents, design manuals, and operational information required for the successful execution of the Overhaul. In case any technical drawing, document is unavailable with the owner, then the same shall be developed by the Successful Bidder at its own cost.

#### **4.1.3. Shutdown and startup activities**

The shutdown (prior to commencement of the Overhaul), and startup of the plant (post successful completion of the performance guarantee tests) shall be done by the Owner, in the presence and supervision of the Successful Bidder.

### **4.2. Rights of the Owner**

The Owner, throughout the tenure of the Contract, reserves the following rights relating to preparation and execution of the Overhaul of the Plant, not specifically granted to the Successful Bidder.

#### **4.2.1. General policies and procedures**

The Owner reserves the rights for review and determination of general policies and procedures not previously delegated to the Successful Bidder as part of the scope of work.

#### **4.2.2. Audits**

The Owner may, from time to time, designate any responsible person on its behalf to conduct audits, pertaining to the Owner's capacity defined in the Contract, of financial (billing and invoicing), technical, safety, and to visit and inspect the Plant to discuss such affairs, which relate to the services provided by the Successful Bidder, with its authorized representatives.

#### **4.2.3. Access to data**

The Owner reserves the rights to access all records, documents, and data relating to the services provided by the Successful Bidder during the preparation and the execution of the Overhaul, including for making copies thereof or extracts.

The Owner shall have the right, at all times, on reasonable notice and at the premises of the Successful Bidder to examine drawings / design documents which have been prepared by the Successful Bidder

### **5. Rate Settlement Mechanism**

During the execution of the Overhaul, if the Successful Bidder identifies additional items to be procured, deviations in quantities, and / or associated services to be performed, over and

above the items given in the BoQ in Annexure 2 to restore the health of the equipment and ensure performance, such items and services shall be notified to the competent authorities of the PMC and the Owner prior to initiation of procurement or execution of the services.

A 'Rate Settlement Committee' shall be established with competent authorities from the PMC and the Owner. The BOP Package Leader shall present the need for the additional items and / or services to the 'Rate Settlement Committee', with a rationale for the quantities of items to be procured and rates for the items and / or services discovered in the market.

The quoted rates for all material / equipment / spares detailed in the BoQ in Annexure 2 shall remain the same irrespective of any variation in individual quantities.

The committee shall reserve the right to negotiate the rates and authorize the Successful Bidder to initiate procurement of the identified items and / or execution of the services.

## **6. Performance Guarantee Testing (PGT) and acceptance procedures**

### **6.1. Performance Guarantee Testing (PGT)**

1. The Successful Bidder shall submit for PMC and Owner's approval, the detailed Performance Test procedure containing the following:
  - i. Object of the test
  - ii. Various guaranteed parameters and tests as per contract
  - iii. Method of conductance of test and test code
  - iv. Duration of test, frequency of readings and number of test runs
  - v. Method of calculation
  - vi. Correction curves
  - vii. Instrument list consisting of range, accuracy, least count, and location of instruments
  - viii. Scheme showing measurement points
  - ix. Sample calculation
  - x. Acceptance criteria
  - xi. Any other information required for conducting the test
2. The Performance /Acceptance tests shall be carried out by the Successful Bidder as per the procedures approved by competent authority of the PMC and the Owner in accordance with the procedures as per the ASME PTC 4.1 (for Boiler) and as per IS-11255, Part 1 and 3, 1985, reaffirmed 2003/2008 (for ESP)
3. The Successful Bidder shall make the equipment ready for carrying out the performance guarantee tests post completion of the Overhaul
4. The tests shall be binding on the Successful Bidder to determine compliance of the equipment with the performance guarantees. No separate performance tests need be done on equipment which is already tested at shop
5. All instruments required for performance testing shall be of the type and accuracy required by the code and prior to the test, the Successful Bidder shall get these instruments calibrated in an independent test institute. All test instrumentation required for performance tests shall be supplied by the Successful Bidder and shall be retained by him upon satisfactory completion of all such tests at site. All costs associated with

the supply, calibration, installation, and removal of the test instrumentation shall be borne by the Successful Bidder. All calibration procedures and standards shall be subjected to the approval of the owner. The protecting tubes, pressure connections and other test connections required for conducting guarantee test shall conform to the relevant codes

6. Tools and tackles, thermo wells (both screwed and welded) instruments/ devices including flow devices, matching flanges, impulse piping, and valves etc., and any special equipment, required for the successful completion of the tests, shall be provided by the Successful Bidder.
7. After the conductance of Performance test, the Successful Bidder shall submit the test evaluation report of Performance test results to owner promptly but not later than two weeks from the date of conductance of Performance test. However, preliminary test reports shall be submitted to the owner after completing each test run

## 6.2. Desired outcome parameters

The Successful Bidder shall adhere to the desired outcome parameters defined below in order to ensure successful completion of the Overhaul and obtain an 'Operation Acceptance Certificate' by the PMC.

Component	Desired outcomes	Threshold (for each unit)
Condenser	Condenser pressure for turbine rated output conditions with maximum circulating water inlet temperature at 34 Celsius and 0% make up and tube cleanliness factor 0.85	0.102 (kg/cm <sup>2</sup> )
Condenser	Temperature rise of cooling water in condenser at rated load and at VWO condition	6 degree Celsius at rated load
LP Heater	Feedwater pressure drop across each heater at rated output with 3% make up	LP1 - 0.8 kg/cm <sup>2</sup> LP2 - 0.6 kg/cm <sup>2</sup> LP3 - 0.6 kg/cm <sup>2</sup> LP4 - 0.7 kg/cm <sup>2</sup> LP5 - 0.5 kg/cm <sup>2</sup>
Hotwell	Condensate temperature at hotwell outlet at 34 Celsius cooling water inlet temperature	45.3 degree Celsius
Cooling Water	Cooling water temperature	34 degree Celsius

## 6.3. Notice of tests

The Successful Bidder shall issue 21 (twenty-one) days' notice to the Owner of the date after which he will be ready to commence the tests and the Successful Bidder shall commence the tests promptly thereafter.

#### **6.4. Retesting**

If the unit fails to pass the test (which in the case of performance tests means not achieving the acceptable limits), the Owner reserves the right to ask the Successful Bidder to repeat such tests on the same terms and conditions. The retest shall be conducted by the Successful Bidder within 14 (fourteen) days of notification from the Owner.

#### **6.5. Delayed tests**

If the tests could be carried out but are being unduly delayed by the Successful Bidder, the Owner may by notice inform the Successful Bidder to conduct the tests within 14 (fourteen) days after the receipt of such notice. The Successful Bidder shall conduct the tests on such days within that period as the Successful Bidder may fix and of which he shall issue notice to the Owner.

If the Successful Bidder fails to conduct the tests within such notice the Owner may himself proceed with the tests. All tests so conducted by the Owner shall be at the risk and cost of the Successful Bidder and the cost thereof shall be deducted from the contract price or charged to the Successful Bidder. The tests shall then be deemed to have been conducted by the Successful Bidder and the test results shall be binding on the Successful Bidder.

#### **6.6. Independent inspector**

The Owner reserves his right to appoint an independent inspector, at its own cost, as its representative to discuss the test program, to approve the instrumentation, to witness the tests and to analyze the test results.

It is Successful Bidder's responsibility to co-ordinate for suitably carrying out the performance tests. The duration of the test shall be in accordance with the agreed test codes at the loads after necessary stabilizing period to obtain steady state conditions. All other tests to prove the guarantees as indicated in the Successful Bidder's offer shall also be conducted.

The equipment parameters during the performance test shall be adjusted as far as practicable to the guaranteed performance test conditions. The tests shall be conducted to prove guaranteed parameters as defined in the contract.

The performance test results shall be reported as computed from the performance test observations with corrections for site conditions, variations in load, etc., and test conditions. Such correction curves shall be submitted along with the bid. No additional allowances for errors in measurement are permissible. The measurement uncertainty on the performance test guarantee values, as reported on the basis of above tests shall not exceed the uncertainty limits specified.

#### **6.7. Reporting of test results**

Immediately after the conclusion of the performance test, The Successful Bidder shall submit a test report (Six copies of each test) to the Owner stating whether the unit has passed or failed such test, accompanied by sufficient test data and calculations to

demonstrate the level of performance attained with respect to each of the tested parameters.

The report(s) shall include as a minimum, the following:

- i. Description of the test procedures
- ii. Standards that were used
- iii. Instrumentation details and calibration
- iv. Full schematic diagrams with indication of instrument test location and identification tag of same
- v. Test logs and summary of test readings used for efficiency calculations
- vi. Full set of correction curves, if applicable
- vii. Computation of test results
- viii. Computations to prove measurement uncertainty is within acceptable limits
- ix. Plant performance parameters
- x. Templates for calculations (validated by the PMC)
- xi. Data reduction
- xii. Chronology of events
- xiii. List of exceptions to procedure
- xiv. Operator log sheets
- xv. Detailed calculations at guaranteed loads
- xvi. Conclusions of performance tests: test passed or not

#### **6.8. Acceptance of test report**

Within 14 (fourteen) days of receipt such test report(s), the Owner shall submit a notice to the Successful Bidder stating either:

- i. That Owner concurs with the information provided in the Successful Bidder's test report(s), or
- ii. That Owner disputes some or all of the information provided in the Successful Bidder's test report(s), the areas being disputed, and the levels of performance being disputed.

If Owner concurs with the information in the Successful Bidder's test report(s), the Owner shall, within 14 (fourteen) days of receipt of the test report, provide a written notice to the Successful Bidder accepting the results of the tests.

If Owner disputes any or all of the results contained in the Successful Bidder's test report(s), representatives of the Successful Bidder, Owner and the Engineer shall meet within 14 (fourteen) days of the receipt of the Owner notice at a mutually acceptable location to review and discuss the dispute.

#### **6.9. Disagreements as a result of tests**

If the Owner and the Successful Bidder disagree on the interpretation of the test results, each shall give a statement of his views to other within reasonable time after such disagreement arises. The statement shall be accompanied by all relevant evidence. The Owner and the Successful Bidder shall mutually discuss and agree regarding the results of the test.

## 7. Reporting requirements and deliverables

The Successful Bidder shall prepare and submit a comprehensive 'Overhaul Completion Report' incorporating the key activities undertaken, results of the Performance Guarantee test, and list of material supplied to the Owner as part of the Overhaul, within 2 weeks of completion of the Overhaul, to mark the completion of the Overhaul.

Further, the Successful Bidder shall prepare and submit fortnightly progress reports with the PMC, and the Owner. Each progress report shall include:

1. Photographs and detailed descriptions of progress including each stage of design, procurement, manufacture, delivery at Site, construction, erection, testing and commissioning
2. A detailed description of the milestones achieved, and the Work/ Services performed prior to the date of the fortnightly progress report and the extent to which payments therefore have been received against the milestones
3. A description of the current status (the name of manufacturer, manufacture location, percentage progress, and the actual or expected dates of commencement of manufacture, Successful Bidder's inspections, tests, and delivery) of supplies and Equipment and of Successful Bidder's and all Major Sub-Contractors activities and engineering, manufacturing and construction progress as compared with the Project Schedule.
4. Copies of quality assurance reports including test results (i) from the manufacturing and fabrication facilities of all Sub-Contractors and (ii) with respect to all construction activity at the Facility Site
5. Safety statistics required under Applicable Laws, including details of any hazardous incidents and activities relating to environmental aspects and public relations.
6. Comparisons of actual and planned progress, with details of any aspects which may jeopardize the completion in accordance with the Contract, including Overhaul Execution Plan and the mitigation measures / action plan being (or to be) adopted to overcome such aspects. It shall include a clear identification and evaluation of problems and deficiencies in the Services (including but not limited to an evaluation of any factors which are anticipated to have a material effect on the Project Schedule).
7. Any other information as considered necessary by Owner / Owner's Representative.

## 8. Contract performance measurement

### 8.1. Key Performance Indicators (KPIs)

The Successful Bidder shall adhere to the following KPIs and targets during the Overhaul. In case of shortfall, liquidated damages shall be applicable and in case of superior performance, incentives shall be applicable as per the following sections:

#### 8.1.1. Time-based KPIs

Phase	KPI	Liquidated damages	Incentive
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Phase	KPI	Liquidated damages	Incentive
<b>Procurement of material / equipment</b>	Schedule compliance with 'Procurement Plan' for Balance of Plant package prepared by the Successful Bidder as per Section 3.2.1 of Part 2 of this document	0.5% of price for supply of material / equipment delayed for every week of delay in completion of 'Procurement Plan'  <i>(i.e., if 5 items are delayed, penalty of 0.5% shall be applicable on cumulative price for supply of the 5 items)</i>	NA
<b>Execution of Overhaul</b>	Schedule compliance with 'Overhaul Execution Plan' for Balance of Plant package prepared by the Successful Bidder as per Section 3.1.1.1 of Part 2 of this document	0.5% of lumpsum price for Overhaul execution for every week of delay in completion of 'Overhaul Execution Plan'	0.5% of lumpsum price for supply of material / equipment and lumpsum price for Overhaul execution for every week of delivering ahead of schedule in completion of 'Overhaul Execution Plan'

*Note—Any delay more than 3 days shall be accounted as a week of delay while calculating the liquidated damages.*

## 8.2. Overall ceiling on Liquidated Damages and incentives

1. All liabilities due from the Successful Bidder arising out of the shortfall of performance levels mentioned under Section 8.1, as per the liquidated damages defined in Section 8.1, during the course of the Overhaul, shall be restricted to a maximum of 10% of the lump sum price for supply of material and Overhaul execution defined in Section 10.1 of Part 2 of this document
2. All incentives due to the Successful Bidder as per the incentives defined in Section 8.1, during the course of the Overhaul, shall be restricted to a maximum of 5% of the lump sum price for supply of material and Overhaul execution defined in Section 10.1 of Part 2 of this document

## 9. Defect liability

1. The Successful Bidder warrants that the BOP Systems or any part thereof shall be free from defects in the design, engineering, materials, and workmanship of the equipment supplied and of the work executed
2. The Defect Liability Period shall be 18 (eighteen) months from the date of Completion of the Overhaul (or any part thereof) or 12 (twelve) months from the date of Operational Acceptance of the equipment (or any part thereof), whichever first occurs, as certified by the PMC/owner /any agency on behalf of owner

3. If during the Defect Liability Period any defect should be found in the design, engineering, materials, and workmanship of the equipment supplied or of the work executed by the Successful Bidder, the Successful Bidder shall promptly, in consultation and agreement with the Owner regarding appropriate remedying of the defects, and at its cost, repair, replace or otherwise make good (as the Successful Bidder shall, at its discretion, determine) such defect as well as any damage to the equipment caused by such defect
4. The Owner shall give the Successful Bidder a notice stating the nature of any such defect together with all available evidence thereof, promptly following the discovery thereof. The Owner shall afford all reasonable opportunity for the Successful Bidder to inspect any such defect.
5. The Owner shall afford the Successful Bidder all necessary access to the Plant to enable the Successful Bidder to perform its obligations under this clause
6. The Successful Bidder may, with the consent of the Owner, remove from the Plant, any equipment or any part of the equipment that are defective if the nature of the defect, and/or any damage to the Plant caused by the defect, is such that repairs cannot be expeditiously carried out at the Plant
7. If the repair, replacement or making good is of such a character that it may affect the efficiency of the equipment or any part thereof, the Owner may give to the Successful Bidder a notice requiring that tests of the defective part of the equipment shall be made by the Successful Bidder immediately upon completion of such remedial work, whereupon the Successful Bidder shall carry out such tests.
8. If such part fails the tests, the Successful Bidder shall carry out further repair, replacement or making good (as the case may be) until that part of the equipment passes such tests. The tests in character shall in any case be not less than what has already been agreed by the Owner and the Successful Bidder for the equipment
9. If the Successful Bidder fails to commence the work necessary to remedy such defect or any damage to the equipment caused by such defect within a reasonable time (which shall in no event be considered to be less than fifteen (15) days), the Owner may, following written notice to the Successful Bidder, proceed to do such work, and the reasonable costs incurred by the Owner in connection therewith shall be deducted by the Owner from any payment due to the Successful Bidder or claimed under the Performance Security
10. If the equipment or any part thereof cannot be used by reason of such defect and/or making good of such defect, the Defect Liability Period shall be extended by a period equal to the period during which the equipment or such part cannot be used by the Owner because of any of the aforesaid reasons. Upon correction of the defects in the equipment or any part thereof by repair/ replacement, such repair/ replacement shall have the Defect Liability Period extended by a period of twelve (12) month from the time such replacement/repair of the equipment or any part thereof
11. If a defect in equipment or any part thereof supplied by the Successful Bidder occurs a total of once during the original Defect Liability Period, the extension of the original Defect Liability Period for the repaired or replaced part(s) or equipment shall not extend beyond a total of twenty-four (24) months from the beginning of the original Defect Liability Period

12. However, if there are recurring (more than once) failures in an equipment or any part thereof supplied by the Successful Bidder within twenty-four (24) months from the beginning of the original Defect Liability Period, the warranty shall be limited to a period of five (5) years from the end of the Defect Liability Period
13. At the end of the Defect Liability Period, the Successful Bidder liability ceases except for latent defects. The Successful Bidder's liability for latent defects warranty shall be limited to a period of five (5) years from the end of Defect Liability Period. For the purpose of this clause, the latent defects shall be the defects inherently lying within the material or arising out of design deficiency which do not manifest themselves during the Defect Liability Period
14. In case, there is any dispute between Owner and Successful Bidder regarding latent defects, a third party as mutually agreed upon by the Owner and the Successful Bidder shall be engaged by the Owner for settling the dispute
15. The third party, so engaged by the Owner, shall be paid fee plus reasonable expenditures incurred in the execution of its duties as mentioned above. These costs shall be recoverable from the Successful Bidder and the Successful Bidder shall bear and / or reimburse such costs to the Owner if the latent defect has been proved. If the dispute regarding latent defects cannot be settled as above, then the dispute shall be settled as per Section 13.6 (Arbitration) as deemed fit

## **10. Payment terms**

### **10.1. Lumpsum Charges for Balance of Plant Package**

The Successful Bidder shall quote the lumpsum charge for supply of material and lumpsum charge for Overhaul execution (services) for the duration of the execution of the Overhaul, as per the Price Bid format specified in Annexure 14 of this document.

#### **10.1.1. Lumpsum charges for supply of material**

The Successful Bidder shall quote the unit rate for all items detailed in the BoQ given in Annexure 2. The lumpsum charges for supply of material shall be calculated as the sum of the unit rates times the quantities detailed in the BoQ for all items.

#### **10.1.2. Lumpsum charges for Overhaul execution**

The Successful Bidder shall quote the service charges separately as per the indicative format in Annexure 14.

### **10.2. Payment milestones**

The Owner hereby covenants to pay the Successful Bidder for performance of the Contractual terms as payment terms specified hereunder –

T – date of acceptance of LOA

<b>Category</b>	<b>Activity</b>	<b>% of total contract value</b>	<b>Timelines</b>
<b>Supply of</b>	Advance payment for procurement	10%	T + 2 weeks

Category	Activity	% of total contract value	Timelines
<b>material</b>	of spares, after submission of Performance Security and submission of item-wise price list		
	Placement of POs for procurement of spares	25% (pro-rated <sup>1</sup> )	T + 10 weeks
	Delivery of material on site with physical verification, certification, and sign-off by the PMC	40% (pro-rated <sup>1</sup> )	T + 28 weeks; 6 weeks of contingency considered; LD applicable beyond T+34 weeks
	Completion of Guarantee Tests for both units and issue of Operation Acceptance Certificate by the PMC	10%	T + 44 weeks; 6 weeks of contingency considered; LD applicable beyond T+50 weeks
	Submission of final 'Overhaul Completion Report' approved by Authority	10%	T + 46 weeks; 6 weeks of contingency considered; LD applicable beyond T+52 weeks
	Completion of defect liability (warranty period)	5%	18 (eighteen) months from the date of Completion of the Overhaul or 12 (twelve) months from the date of Operational Acceptance of the equipment, whichever first occurs
<b>Overhaul execution</b>	Mobilization fee	10%	T + 2 weeks
	Monthly payments against progressive installation of equipment on site	15% (per month)	Monthly payments in equal installments for 3 months during Overhaul execution
	Completion of the Overhaul activities for Balance of Plant Systems and issue of Completion Certificate by the PMC	15%	T + 40 weeks; 6 weeks of contingency considered; LD applicable beyond T+46 weeks
	Completion of Guarantee Tests for both units and issue of Operation Acceptance Certificate by the PMC	15%	T + 44 weeks; 6 weeks of contingency considered; LD applicable beyond T+50 weeks
	Submission of final 'Overhaul Completion Report' approved by Authority	10%	T + 46 weeks; 6 weeks of contingency considered; LD applicable beyond T+52 weeks
	Completion of defect liability (warranty period)	5%	18 (eighteen) months from the date of Completion of the Overhaul or 12 (twelve) months from the date of Operational Acceptance of the equipment, whichever first occurs

<sup>1</sup> Bidders to provide detailed item wise price for the required spares detailed in Annexure 2 of this document within 14 days from date of acceptance of LoA. The payment on delivery of material on site shall be prorated as per the items delivered against the required spares, upon certification by the PMC.

1. The Successful Bidder shall submit invoices upon achieving milestones stated in sub clause hereinabove. Authority shall make payment within 30 days of submission of invoices upon verifying the milestone for which invoice is submitted subject to deduction of any damages pursuant to Contract conditions.
2. Applicable GST, over and above approved Lumpsum Charges for Balance of Plant Package, at the time of invoicing shall be reimbursed by the Owner upon submission of proof thereof. The risk of applicability of any taxes, duties, and levies except GST, shall rest with the Successful Bidder
3. The Owner shall be entitled to deduct tax at source as may be applicable. The TDS certificate(s) shall be submitted as per the due date specified in the Income Tax Act

## **11. Insurance**

### **11.1. Insurance of Equipment**

Successful Bidder shall, at their sole cost, in the joint names of Owner, Successful Bidder, and the Sub-Contractors, take insurance cover for full replacement value for the following:

1. "Material Damage Insurance" (Storage-cum-Erection Insurance) on an "All Risk" basis (including terrorists act, SRCC) of loss or of damage arising during period of Insurance coverage to any part of the Contract works, material and supplies Successful Bidder any transit and off-site storage, and anywhere in India for ex-works Indian factory and foreign supplies, materials, etc.
2. Such insurance shall be administered and managed by the Successful Bidder and shall be affected from the Commencement date of Contract and thereafter shall operate from the time the relevant property leaves the premises of the manufacturers in the country of origin, and shall continue during the ordinary course of transit and during storage on or off the Plant site, if any, and during erection and commissioning until the date on which Owner takes over the care, custody, and control of the Plant/Equipment, to the exclusion of the Successful Bidder

### **11.2. Rented Equipment**

1. All construction equipment shall be brought to and kept at the Site at the sole cost, risk and expense of the Successful Bidder. Owner shall not be liable for any loss or damage thereto. The Successful Bidder, at his sole discretion, may maintain adequate, appropriate and prudent insurance with respect to such construction equipment. The Successful Bidder shall obtain adequate insurance to cover all construction equipment rented or leased from third parties and also for the construction equipment of Sub-Contractor.
2. Any insurance policy carried by the Successful Bidder, any Sub-Contractor or any third party on or in respect of any construction equipment shall provide for waiver of the underwriter's right to subrogation against Owner, their assignees, subsidiaries, parent companies, affiliates, employees, insurers, and underwriters.

### **11.3. Statutory Insurance Benefits**

The Successful Bidder shall maintain with respect to the Work to be done under the Contract, in each applicable jurisdiction, all statutory benefits and other insurance required by law including without limitation unemployment insurance.

### **11.4. Third Party Insurance**

1. Successful Bidder shall, in the joint names of Owner, Successful Bidder and the Sub-Contractor's prior to the commencement of any work in the Plant pursuant to this Agreement, insure in an amount not being less than project cost thereof against any liability for damage or death or personal injury occurring in the Plant, obstruction, loss of amenity, trespass, nuisance or advertising liability pursuant to the Contract. Such insurance shall be endorsed or amended as to be considered primary, and any other insurance maintained by Owner shall be in addition and not contributory to this insurance.
2. Indemnity amount indicated above shall be the minimum coverage that the Successful Bidder takes under the policy. Notwithstanding the above coverage, the Successful Bidder at their discretion will take policy for an appropriate coverage not less than the indemnification amount prescribed as above, so as to meet all the liabilities that may arise on account of third-party risks from the commencement of contract till the Owner takes over the care, custody, and control of the Plant, to the exclusion of Successful Bidder.

### **11.5. Insurance against Accident, etc. to Workmen; Other Insurance**

The Successful Bidder shall, at its sole expense, insure and shall maintain insurance as required by Indian and all other applicable laws for all actions, suits, claims, demands, costs, charges, and expenses arising in connection with the death of or injury to any person employed by the Successful Bidder or its Sub-Contractor for the purpose of the performance of the Work.

### **11.6. Disclosure**

Each Party shall, upon request, promptly furnish the other Party any information which is reasonably available and is related to the fulfillment of the contractual obligations as is necessary to enable the other Party to comply with its disclosure obligations under the insurance which it has taken out, the terms of which have been disclosed to the other Party in writing.

At the Owner's request, the Successful Bidder shall provide evidence of insurance covers, or a certificate of all insurances maintained.

### **11.7. Remedy on Failure to Insure**

If the Successful Bidder fail to effect and keep in force the insurance for which it is responsible under the Contract, Owner may effect and keep in force any such insurance, and pay such premiums as may be necessary for that purpose, and from time to time, after receipt of a reimbursement request therefore accompanied by relevant supporting

documentation, deduct the amount so paid by Owner from any amounts due or which may become due to the Successful Bidder under the Contract or otherwise from the Owner.

### **11.8. Limitation of Liability**

Notwithstanding any other provisions, except in cases of criminal negligence or willful misconduct,

1. Whether expressed or implied, in no event, whether as a result of breach of contract, warranty, indemnity, tort (including negligence) strict liability or otherwise, shall either Party be liable to the other for loss of contract, loss of profit or revenue, loss of use, loss of data or information, loss of power, cost of replacement power, increased cost of operation and cost of capital or for any indirect, special, collateral, or consequential damages
2. The aggregate liability of the Successful Bidder to the Owner, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Value, provided that this limitation shall not apply to any obligation of the Successful Bidder to indemnify the Owner with respect to patent infringement.

### **11.9. Claims for losses / damages**

1. Successful Bidder/Sub-Contractor shall make all claims with the underwriter/s and undertake all formalities/step required for settlement of claims
2. Successful Bidder/Sub-Contractor shall hold harmless the Owner for non-settlement/short settlement/part settlement or repudiation of claims by the underwriter/s
3. Successful Bidder shall be obliged to replace / repair the Equipment/components/parts/spares etc., without waiting for loss settlement by the underwriter/s

## **12. Non fulfilment of terms and conditions and Termination of Contract**

1. If at any time during the currency of this contract, if any breach occurs due to the reasons attributed to the Successful Bidder, the Owner shall be at liberty to terminate this contract with a cure period of 30 (thirty) days without assigning any reasons, whatsoever, for such termination and any losses and/or damages occurring due to such termination shall be borne by the Successful Bidder.
2. If the Successful Bidder fails to carry out the work as per terms and conditions of the contract to the satisfaction of the Owner, the Owner shall be entitled to forfeit the Performance Security paid by the Successful Bidder as per Section 7.3 of Part 3 of this document. This, however, shall not absolve the Successful Bidder from its obligation to fulfill the contract. In such event, the Owner shall have a right to complete and / or to get the work completed at the cost & risk of the Successful Bidder and the Successful Bidder shall be responsible to pay such cost incurred by the Owner to complete the work and / or to get the work completed
3. Likewise, if the Successful Bidder does not fulfill the terms and conditions of the Contract and does not carry out the work up to the entire satisfaction of the Owner, the Owner has the right to forthwith terminate the Contract at its sole discretion with a cure period of 30 (thirty) days, without assigning any reason. Under such events, the Owner shall be entitled to forfeit the Performance Security paid by the Successful Bidder as per

Section 7.3 of Part 3 of this document, and the Owner shall have a right to complete the work and / or to get the work completed at the risk and cost of the Successful Bidder

4. For any reasons, if it is required, the Owner reserves rights to cancel, terminate, amend and / or alter the Contract and / or bifurcate and / or increase and / or reduce the Contract work at any time by providing a cure period of 30 days to the Successful Bidder and without incurring any responsibility

### **13. Contract terms and conditions**

#### **13.1. Statutory Obligations**

1. That the Successful Bidder shall obtain license under the Bombay Shops and Establishment Act, and it shall pay wages and benefits in accordance with the applicable laws and shall not pay less than as notified by the Government Authorities from time to time and shall maintain the employment records as required under applicable laws
2. That the Successful Bidder shall get his own License under Contract Labor (Regulation and Abolition) Act. It shall be binding to get the same renewed from time to time and shall maintain all the records as per the act
3. That the Successful Bidder shall be responsible to enroll his employees, deduct, add and deposit in the relevant accounts the contributions as required under the Employees State Insurance Act, 1952 and the Employees Provident Funds and Miscellaneous Provisions Act 1952 and any other enactment's covered under the various applicable labor laws as well as maintain all books of records for the staff and employees deputed by it for this contract such as required under any laws applicable. The Successful Bidder shall also furnish a copy of such statements as documentary proof to the Owner
4. That if the Successful Bidder is not covered under the Employees State Insurance Act, 1952 then it shall be the duty of the Successful Bidder to take appropriate insurance cover under the Workmen Compensation Act and take Group Personal Accident Policy for all the employees deputed at the project site
5. The Successful Bidder has to issue to the employee's Identity card with their photos and shall also maintain relevant register
6. That the Successful Bidder shall give leave/holiday to its workforce as per the provisions of labor laws applicable
7. Every person deployed by the Successful Bidder in a Plant must wear safety gadgets to be provided by the Successful Bidder
8. Any statutory clearance, permission required for the work, its completion, commissioning shall be in the Successful Bidder's scope
9. The Successful Bidder will be required to obtain License from the office of the Labor Commissioner for the required strength of labor, before commencement of work at site and the same shall be maintained updated and valid throughout the currency of the contract
10. If any amount becomes payable by the Owner as a result of any claim or application in terms of the provisions or non-compliance of provision of the any Acts, and the Rules and Regulations, By-laws or the Orders made there under,

applicable from time to time, such amounts shall be recoverable from the Successful Bidder for which the Owner will not be responsible for any compensation

11. That the Successful Bidder would obey with all applicable laws and maintain all such necessary records as necessitated under such enactments
12. The Successful Bidder shall also indemnify the Owner against any claims, compensations, damages, loss, liquidated damages etc. for breach and / or non-fulfillment of the prevailing Rules and Regulations and other statutory provisions in force from time to time and applicable to the work during the currency of contract
13. The Successful Bidder shall comply with other statutory provisions of Law. The Successful Bidder shall comply with all applicable laws, ordinances, approved standards, rules and regulations, and shall procure all necessary municipal and governmental permits, licenses and inspection and shall pay all fees and charges in connection with the items covered by the contract. The Successful Bidder shall serve the Owner harmless as a result of any in factions thereof. Successful Bidder will be solely liable for all non-compliances. The following are some of the major Government of India Acts and Regulations to be complied with by the Successful Bidder. The List is illustrative and not exhaustive.
  - a. The Factories Act of 1948 (63 to 1948) and Amendments and Rules (Amended up to date)
  - b. The Electricity Act, 2003 and rules made there under
  - c. The Indian Boiler Regulation Act, 1950 and rules made there under
  - d. The Minimum Wages Act, 1948
  - e. The Employees Compensation Act 1923 and Amendment Act 2010
  - f. The Payment of Wages Act 1936 and Amendment Act 2012
  - g. Payment of Bonus Act 1965 and Amended up to date
  - h. Contract Labor Regulations& Abolition Act 1970
  - i. Interstate Migrant Workmen (Regulations) Act 1979

### **13.2. Bankruptcy**

1. If the Successful Bidder commits an act of Bankruptcy or goes into liquidation except for construction purposes, or if its business is carried on by a receiver, such receiver, liquidator or any person in whom the contract may become vested shall forthwith give notice thereof in writing to the Owner and in reasonable time during which he shall take all reasonable steps to prevent stoppage of performance of the contract, have the option of carrying out the contract subject to his or their providing such guarantees as may be required by the Owner but not exceeding the value of the work for the time being remaining unexecuted
2. In the event of stoppage of performance under the contract, the period of option under this clause shall be decided by the Owner considering the situation, provided that the above option is not exercised, the Owner may terminate the contract by serving notice in writing to the Successful Bidder. The power and provision so reserved to the Owner on taking of the work out of the Successful Bidder's hands shall apply as far as they may be when the contract is so terminated

### **13.3. Notice**

Written notice shall be deemed to have been duly served if delivered to the individual or to Successful Bidder or to the Signing Authority of the Owner from whom it is intended, or if delivered at or sent by mail or post, to the last business address known to him who gives the notice.

### **13.4. Canvassing not Permitted**

1. Successful Bidder should not canvass their offer personally or otherwise by approaching the Chairman or the Member of the Owner. If any Successful Bidder wants to make any representation regarding his offer, he should write to the General Manager (Power), if he desires, but personal and oral representations are not permitted
2. In spite of the above clear instructions, any Successful Bidder is found to canvass his offer or against his competitor's offer through personal approach to the competent authority or the officials of the Owner, their offer will be rejected without assigning any reason and the firm even is blacklisted

### **13.5. Indemnification**

The Successful Bidder shall fully indemnify, save harmless and defend Owner, Owner's shareholders, the Owner, and the directors, agents and employees of the Owner (the "Owner Indemnified Parties") from and against any and all claims, including reasonable legal costs, (collectively the "Damages") by third Parties in respect of death or bodily injury or in respect to loss or damage to any property (other than the Plant or part there of not yet taken over) which arises out of or in consequence of the Services whilst the Successful Bidder has responsibility for the care of the works to the extent resulting from Successful Bidder's or their agents or employees intentional act, negligence, or strict liability or omission in the performance of the Services hereunder; provided that the foregoing obligation shall not apply to the extent the Owner Indemnified Parties are contributory negligent or strictly liable or to the extent such damages are caused by the intentional acts or omissions of the Owner Indemnified Parties. The Successful Bidder shall provide Undertaking of Indemnity, in the form of Annexure 13 of this document.

### **13.6. Arbitration**

All questions, disputes, differences whatsoever which may at any time arises between the parties to this RFP and subsequent contract in connection with the RFP and subsequent contract or any matter arising out of or in relation thereto, shall be referred to Sole Arbitrator as per the provisions of Arbitration and Conciliation Act, 1996 and subsequent amendment thereto and the venue of arbitration proceedings shall be at Ahmedabad only. The Language of the Arbitration shall be in English only.

### **13.7. Governing Law**

This RFP and subsequent Contract shall be construed and interpreted in accordance with and governed by the laws of India.

### **13.8. Jurisdiction**

The matter related to any dispute or difference arising out of this RFP and subsequent contract shall be subject to the exclusive jurisdiction of Court at Ahmedabad only.

### **13.9. Completion of Work**

1. Upon the Successful Bidder fulfilling the entirety of its obligations under the Contract to the satisfaction of the Owner and subject to terms and conditions of the Contract, it shall become eligible to apply for a Completion Certificate. The General Manger of the Owner shall formally issue the Completion Certificate, after verifying from the completion documents and satisfying himself that the Works under the Contract have been completed in accordance with all the provisions of this Contract. The Successful Bidder, after obtaining the Completion Certificate shall become eligible to present the final bill for the Works executed by it under the Contract
2. Upon completion of Works under the Contract and before the application for the Completion Certificate, the Successful Bidder shall clear the project of the Owner of all rubbish, dirt, structures, scrap, oily rags etc. Failure to clear the project may constrain the Owner to clear the said site at the risk and cost of the Successful Bidder
3. The Successful Bidder shall provide the Owner with any and all documents/records/proofs that may be demanded before issuance of Completion Certificate

### **13.10. Accident and Responsibilities of Successful Bidder**

1. The entire responsibility on account of any accidents, damage or personal injury which may occurred to any of the Successful Bidder's vehicles/ equipment or his/its employees, or any outside party shall be exclusively that of the Successful Bidder and no claim whatsoever shall be entertain by the Owner on this account. The Successful Bidder shall keep the Owner indemnified from all the consequence
2. In the event of any breakdown or accident during the course of any operation, the Successful Bidder shall notify the facts to the Project Authority, or any other officer immediately present there of such incidence and shall simultaneously make adequate remedial arrangements on his/its own cost and risk and as per the instruction of the Project Authority
3. The Successful Bidder shall pay all claims, damages and compensation with cost arising out of or resulting there from to the third party(s) and in case the Owner would be required to face any proceedings all to pay any amount on the aforesaid account, it shall be deemed to have been discharge on behalf of the Successful Bidder, the same amount shall be recovered half-an hour rest interval in between. The Successful Bidder shall ensure that the attendance of all the supplied manpower shall be taken through biometric attendance machine

### **13.11. Foreclosure**

1. In case of any necessity arising due to local working conditions or any unforeseen reason not in the control of the Owner or of the Successful Bidder, Committee comprising of representative of the Owner, Successful Bidder and Outside Expert from Technical and Financial background shall be constituted and Committee will look into the reasons/causes and analyze the conditions as to whether the work awarded is feasible to continue with the existing terms and conditions of the contract or any other available option or to Fore Close the contract in the interest of both the Owner and the Successful Bidder
2. If after study of the prevailing conditions of the contract under execution, committee recommends to Foreclose the contract keeping in view the financial implication to both the Owner and Successful Bidder, guideline/Modality of the Fore Closure of the contract shall be decided by the committee considering the work executed and unexecuted, period of the contract completed and balance period of the contract, value of the work executed and value of the work unexecuted etc.

### **13.12. Force majeure**

1. Force majeure is herein defined as any cause which is beyond the control of the Successful Bidder or the Owner as the case may be which they could not foresee or with a reasonable amount of diligence could not have foreseen and which substantially affect the performance of the contract, such as:
2. Natural phenomena such as flood, draughts Cyclone, earthquake and epidemics, declaration of war
3. Acts of any government, including but not limited to war, declared or undeclared priorities, quantities, embargoes, providing either party shall within fifteen (15) days from the occurrence of such a cause notify the other in writing of such cases
4. The Successful Bidder will advise, in the event of his having resort to this clause by a registered letter duly certified by the statutory authorities, the beginning and end of the cause of delay, within fifteen days of the occurrence and cessation of such Force Majeure condition. In the event of delay lasting over two months, if arising out of Force Majeure, the contract may be terminated at the discretion of the Owner
5. For delay arising out of Force Majeure, the Successful Bidder will not claim extension in completion date for a period exceeding the period of delay attributable to the causes of Force Majeure and neither company nor the Successful Bidder shall be liable to pay extra costs (like increase in rates, remobilization, advance, idle charges for labor and machinery etc.) provided it is mutually established that the Force Majeure conditions did actually exist
6. If any of the Force Majeure conditions exists in the place of operation of the Successful Bidder even at the time of submission of bid, he will categorically specify them in his bid and state whether they have been taken into consideration in their quotations
7. The Successful Bidder or the Owner shall not be liable for delays in performing his obligations resulting from any Force Majeure cause as referred to and/ or

defined above. The date of completion will, subject to hereinafter provided, be extended by a reasonable time

## **Part 3: Instruction to Bidders**

### **1. Introduction**

#### **1.1. Bidding process overview**

GMDC has adopted a single stage two packet envelope Bidding system separately for Technical Bid and Price Bid with evaluation as per Quality cum Cost Based System (QCBS) method as detailed out in Section 5.4 of Part 3 of this document.

Technical Bid and Price Bid shall be submitted online through <https://gmdc.nprocure.com>.

The Bids for which the Price Bid is submitted in hard copy / physical form shall be rejected as non-responsive.

Complete Bid shall be submitted on or before the time and date fixed for submission of technical and price Bids as detailed in Section 1.6 of Part 3 of this document. Bids delivered after the due dates will be rejected.

The Bidders need to offer their Bids which conform to the scope of work and terms and conditions detailed in Part 2 of this document.

As a first step, evaluation of Technical Bid will be conducted as per Section 6.2 of Part 3 of this document. Post the evaluation of Technical Bids, the Price Bids of only those Bidders meeting the pre-qualification and technical criteria detailed in Sections 5.1 and 5.2 of Part 3 of this document shall be opened.

Subsequently, a Price Bid evaluation of technically qualified Bidders will be carried out as per Section 6.3 of Part 3 of this document. The Bids will finally be ranked from the highest to lowest according to their combined technical and price scores (described as 'Composite Score') derived based on the Quality cum Cost Based Score (QCBS) specified Section 5.4 of Part 3 of this document. The Bidder obtaining the highest composite score shall be considered as the 'Preferred Bidder'.

#### **1.2. Due diligence**

Before Bidding, the Bidder shall undertake and shall be deemed before Bidding to have undertaken a thorough study of the proposed work, the job(s) involved, the Plant conditions, the labor, power, water, material and equipment availability, transport and communication facilities and temporary offices and accommodation quarters, and all other factors, constraints, and facilities necessary for the formulation of the Bid, supply of materials and the performance of the work.

The Bidder shall inspect and examine the Plant and its surroundings and shall satisfy themselves before submitting their Bid as to the nature of the ground present, physical conditions and all roads, approaches and lands which may be used temporarily otherwise in connection with the works, means of access to the Plant accommodation they may require

and in general shall themselves obtain all necessary information as to risks, contingencies & other circumstances which may influence or affect their Bid.

The intending Bidders shall be deemed to have visited the Plant and familiarized themselves thoroughly with the working conditions at the Plant before submitting the Bid. Non-familiarity with the Plant conditions will not be considered a reason either for extra claims or for not carrying out the work in strict conformity with the specifications.

It will be imperative on each Bidder to acquaint himself of all local laws, conditions and factors which may have any effect on the execution of works and supplies under the Bid document. In their own interest, Bidder is requested to familiarize themselves with (but not limited to) the Indian Income Tax Act 1961, Indian Companies Act 2013, Customs Act 1962, Factory Act, Contract Labor Act 1970, Arbitration Act 1996, EPF Act 1952, Employees State Insurance Act (ESI) 1948 & other related applicable Acts and Laws & Regulations of India, with their latest amendments, as prevalent in India. Owner shall not entertain any request for clarification from the Bidder regarding such local conditions.

It must be understood and agreed that such factors have properly been investigated and considered while submitting the Bid. No claim for financial and other adjustments to the Contract price, on account of lack of clarity or proper understanding of such factors, shall be entertained.

### **1.3. Acknowledgement by Bidder**

By submitting the Bid, the Bidder acknowledges that:

1. It has made a complete and careful examination of the scope of work and terms and conditions mentioned in Part 2 of this document
2. It has made available all the relevant information requested by GMDC
3. It accepts the risks of inadequacy, or error due to improper due diligence on its part as described in Section 1.2 of Part 3 of this document
4. It does not have any conflict of interest
5. It is bound by the undertakings provided by it under and in terms hereof

GMDC shall not be liable for any omission, mistake, or error in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to the RFP or the Bidding Process, including any error or mistake therein or in any information or data given by GMDC.

### **1.4. Cost of Bidding**

The Bidders shall be responsible for all of the costs associated with the preparation of their Bids and their participation in the Bid Process. GMDC will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding Process.

### **1.5. RFP Fee**

Bidder shall have to submit non-refundable RFP Document Fee of INR 17,700 (i.e., RFP fee of INR 15,000 plus 18% GST). The RFP Document Fee shall be submitted in the form of a

Demand Draft in favor of “**Gujarat Mineral Development Corporation Limited**” and **payable at Ahmedabad** along with the Bid as per marking and sealing section. This Demand Draft for RFP document shall be non-refundable. Bids that are not accompanied by the RFP Fee in acceptable amount and form shall be considered non-responsive and shall be consequently rejected.

***Relaxation in terms of submission of RfP fee shall be given to the bidder who is holding valid Certificate issued under the MSME Act, 2006 on the date of submission of Tender.***

## **1.6. Schedule of Bidding**

The key activities and timelines for the Bidding process have been detailed below. While GMDC shall endeavor to adhere to the timelines, it is subject to approvals and other external contingencies.

<b>Category</b>	<b>Activity</b>	<b>Schedule</b>
<b>RFP release</b>	Issuance of Bid package to Bidders	RFP shall be available from 30 <sup>th</sup> September 2023 from the website <a href="http://www.gmdcltd.com">http://www.gmdcltd.com</a> and <a href="https://gmdc.nprocure.com">https://gmdc.nprocure.com</a>
<b>Bid queries</b>	Deadline for receiving queries from Bidder	Bidders may send their queries by 13 <sup>th</sup> October 2023 up to 1700 hrs. on the following e-mail ID: <a href="mailto:jndave@gmdcltd.co.in">jndave@gmdcltd.co.in</a> , <a href="mailto:power@gmdcltd.co.in">power@gmdcltd.co.in</a>
	Pre-Bid meeting	The pre-Bid meeting shall be held at 1100 hrs. on 18 <sup>th</sup> October 2023 at the following address:  Gujarat Mineral Development Corporation Ltd Khanij Bhavan, 132-Ring Road, Gujarat University Ground, Vastrapur, Ahmedabad- 380052
<b>Bid submission and evaluation</b>	Online submission of Price Bid	Bidders shall submit their Price Bids online on <a href="https://gmdc.nprocure.com">https://gmdc.nprocure.com</a> on or before 30 <sup>th</sup> October 2023
	Submission of Technical Bid (hard copy), RFP Fee and EMD in person	Bidders shall submit their Technical Bids strictly after the submission of the Price Bid but on or before 1 <sup>st</sup> November 2023 up to 1800 hrs. at the following address:  Gujarat Mineral Development Corporation Ltd Khanij Bhavan, 132-Ring Road, Gujarat University Ground, Vastrapur, Ahmedabad- 380052  The Technical Bid, RFP fee, and EMD shall be made by Speed Post / RPAD / Hand / Courier
	Technical presentations by Bidders	To be informed to the Bidder in advance
<b>Vendor selection</b>	Evaluation of Technical and Price Bids and selection of Vendor	To be informed to the Bidder after the Bid submission date

## **2. Bid requirements**

### **2.1. Bid validity**

Bids shall remain valid for a period of not less than 180 (one hundred and eighty) days from the Bid submission date (described as 'Bid Validity Period'). The Bid shall be considered non-responsive if such Bid is valid for a period less than the Bid Validity Period.

In exceptional circumstances, prior to expiry of the original Bid Validity Period, relevant authorities from GMDC may request the Bidders to extend the period of validity for a specified additional period. The request and the responses thereto shall be made in writing. A Bidder may refuse the request without forfeiting its Bid Security / EMD. A Bidder agreeing to the request will not be required or permitted to modify his Bid but will be required to extend the validity of his Bid Security/EMD for the period of the extension, and in compliance with Section 2.5 of Part 3 of this document in all respects.

### **2.2. Number of Bids by Bidder**

No Bidder shall submit more than one Bid pursuant to this RFP. If a Bidder submits or participates in more than one Bid, such Bids by the Bidder shall be disqualified.

### **2.3. Governing law and jurisdiction**

The Bidding process shall be governed by and construed in accordance with the Indian laws and the courts at Ahmedabad, Gujarat shall have exclusive jurisdiction over all disputes arising under, pursuant to, and / or in connection to the Bidding process.

### **2.4. GMDC's right to accept and reject any Bids or all Bids**

Notwithstanding anything contained in this RFP, GMDC reserves the rights to accept or reject any Bid and to annul the Bidding process / Bid evaluation process and reject all Bids at any time without any liability or any obligations for such acceptance, rejection, or annulment, without assigning any reasons thereof.

It shall be deemed that by submitting the Bids, the Bidder agrees and releases GMDC, its employees, agents and advisers, irrevocably, unconditionally, fully and finally from any and all liability for claims, losses, damages, costs, expenses or liabilities in any way related to or arising from the exercise of any rights and / or performance of any obligations hereunder, pursuant hereto and / or in connection to the Bidding process and waives, to the fullest extent permitted by Applicable Laws, any and all rights and/or claims it may have in this respect, whether actual or contingent, whether present or in future.

Without prejudice to the generality of the above terms, GMDC reserves the right to reject any Bid if:

1. The Bid does not meet the technical eligibility and qualification criteria specified in this RFP
2. A material misrepresentation is made or discovered at any time, or if the Bidder is found to be indulging in fraudulent and corrupt practices

3. The Bidder does not provide, within the time specified by GMDC, the supplemental information sought by GMDC for evaluation of the Bid
4. The Bidder submits a conditional Bid

If such disqualification / rejection occurs after the Bids have been opened and the Preferred Bidder as per award criteria gets disqualified / rejected, then GMDC reserves the right to consider the next best Bidder or take any other measure as may be deemed fit in the sole discretion of GMDC, including annulment of the process.

## **2.5. Earnest Money Deposit (EMD) / Bid Security**

The Bidder shall furnish a separate Bid Security (described as 'Earnest Money Deposit') as part of its Bid as per the given format. The Bid Security / EMD shall be sealed in separate sealed envelope along with the RFP fee, as described in Section 4.4 of Part 3 of this document. An amount of INR **2.8 Cr** shall be approved as EMD from the banks approved by Government of Gujarat except cooperative banks, in favor of "Gujarat Mineral Development Corporation Ltd." The list of approved banks has been listed in Annexure 17.

The EMD shall be in any of the below mentioned format:

1. Account payee Demand Draft / Banker's Cheque
2. An irrevocable Bank Guarantee, as per Annexure 15, payable at Ahmedabad and valid for a period of 210 (two hundred and ten) days from the Bid submission date in the prescribed format. The validity of the bank guarantee may be extended as per mutual agreement between GMDC and the Bidder, as per Section 2.1 of Part 3 of this document

Any Bid not accompanied with valid Earnest Money Deposit and RFP fee in the acceptable amount, form, and validity period will be summarily rejected by GMDC as being non-responsive and Bids of such Bidder shall not be evaluated further. The Bidder shall also submit a blank cheque along with the bid submission, providing the Bidder's bank details to GMDC.

GMDC shall not be liable to pay any interest on the Bid Security/EMD deposit and the same shall be interest free.

The EMD shall be furnished in Indian Rupees only.

The Bid Security of unsuccessful Bidders will be returned by GMDC, as promptly as possible on acceptance of the Bid of the Preferred Bidder or if and when GMDC cancels the Bidding process. Where Bid Security has been paid by Demand Draft/ Banker's Cheque deposit, the refund thereof shall be in the form of an account payee demand draft in favor of the unsuccessful Bidder(s). Bidders may, by specific instructions in writing to GMDC, give the name and address of the person in whose favor the said demand draft shall be drawn by GMDC for refund, failing which it shall be drawn in the name of the Bidder and shall be mailed to the address given on the Bid.

The Preferred Bidder's EMD will be returned, without any interest, upon the Preferred Bidder signing the Agreement and furnishing the Performance Security in accordance with the provision thereof or if and when GMDC cancels the Bidding.

GMDC shall be entitled to forfeit and appropriate the Bid Security as damages inter alia in any of the events specified below. The Bidder, by submitting its Bid, shall be deemed to have acknowledged and confirmed that GMDC will suffer loss and damage on account of withdrawal of its Bid or for any other default by the Bidder during the period of Bid validity as specified in this RFP. No relaxation of any kind on Bid Security shall be given to any Bidder.

1. If a Bidder engages in corrupt, fraudulent, coercive, undesirable, or restrictive practices as specified in Section 8 of Part 3 of this document
2. If a Bidder withdraws its Bid during the Bid validity period as specified in this RFP and as extended by mutual consent of the respective Bidder(s) and GMDC
3. In the case of a Successful Bidder if it fails within the specified time limit:
  - a. to sign and return the duplicate copy of LOA
  - b. to sign the Agreement within the time period specified by GMDC
  - c. to furnish the Performance Security within the period prescribed therefore in the RFP, or commits any breach prior to furnishing the Performance Security

***Relaxation in terms of submission of EMD shall be given to the bidder who is holding valid Certificate issued under the MSME Act, 2006 on the date of submission of Tender.***

### **3. Pre-Bid activities**

#### **3.1. Content of the RFP**

This RFP comprises of the content listed below and may additionally include any addenda issued in accordance with Section 3.4 of Part 3 of this document.

Part 1: Introduction

Part 2: Terms of reference / Scope of work

Part 3: Instructions to Bidders

Part 4: Annexures

#### **3.2. Clarification to RFP document**

Bidders requiring any clarification on the RFP may notify GMDC in writing through email at the address provided in Section 1.6 of Part 3 of this document.

Bidders must send in their queries on or before the date mentioned in Section 1.6 of Part 3 of this document in order to enable GMDC to have adequate notice of the said queries so that the same can be addressed at the Pre-Bid Meeting or shortly later.

GMDC shall endeavor to respond to the queries within a short span of time prior to the Bid submission date.

GMDC is not bound to take cognizance of any queries raised after the date specified in Section 1.6 of Part 3 of this document.

GMDC shall endeavor to respond to the questions raised or clarifications sought by the Bidders. However, GMDC reserves the right not to respond to any question or provide any

clarification, at its sole discretion, and nothing in this section shall be taken or read as compelling or requiring GMDC to respond to any question or to provide any clarification.

GMDC may also on its own motion, if deemed necessary, issue interpretations and clarifications and amendment to RFP. All clarifications and interpretations issued by GMDC shall be deemed to be part of the Bidding documents. Verbal clarifications and information shall not in any way or manner be binding on GMDC.

### **3.3. Pre-Bid meeting**

A pre-Bid meeting would be held at time and an address specified in Section 1.6 of Part 3 of this document. Bidders are advised to attend the meeting and will do so at their own expense.

During the course of pre-Bid meeting, the Bidders will be free to seek clarifications and make suggestions for consideration of GMDC. GMDC shall endeavor to provide clarifications and such further information as it may, in its sole discretion, considered appropriate for facilitating a fair, transparent and competitive Bidding process.

Responses to Bidders' clarification would be shared by uploading such responses online on GMDC's website (i.e. <http://www.gmdcltd.com> and <https://gmdc.nprocure.com>), if required, in the form of an addendum and or corrigendum.

Non-attendance at the pre-Bid meeting shall not be a cause for disqualification of a Bidder. However, terms and conditions of the addendum(s) shall be legally binding on all the Bidders irrespective of their attendance at the pre-Bid meeting.

### **3.4. Amendment of Bidding documents**

At any time prior to the Bid submission date, GMDC may, for any reason, whether at its own initiative or in response to clarifications requested by a Bidder, modify the RFP by the issuance of an addenda/corrigendum.

Any addendum/corrigendum issued hereunder will be in writing and shall be uploaded on GMDC's website <http://www.gmdcltd.com> and <https://gmdc.nprocure.com>.

In order to afford the Bidders a reasonable time for taking an addendum into account, or for any other reason, GMDC may, in its sole discretion, extend the Bid submission date.

## **4. Preparation and submission of Bids**

### **4.1. Language of Bid**

The Bids and all related correspondence and documents in relation to the Bidding process shall be in English language. All supporting documents and printed literature furnished by the Bidders with the Bid may be in any other language provided that they are accompanied by translations in the English language, duly authenticated and certified by the Bidder.

The Bidders shall ensure that any number mentioned in the Bid shall be followed by words in relation to such numerical format of the number, and in the event, there is a conflict in the numerical and the word format of the number, the number provided in words shall prevail.

## 4.2. Bid currency

All prices quoted in the Bid shall be quoted in Indian National Rupee(s) (INR).

## 4.3. Format and signing of Bid

The Bidder shall provide all the information sought under this RFP. GMDC will evaluate only those Bids that are received in the required formats and complete in all respects.

The Bid must be properly signed by the authorized signatory as detailed below:

1. Proprietor, in case the Bidder is a proprietary firm, or
2. Duly authorized person holding a Power of Attorney, in case Bidder is either a Limited Company or a Limited Liability Partnership firm

In case of the Bidder being Company incorporated under Indian Companies Act 1956/2013, the Power of Attorney shall be supported by a Board Resolution in favor of the person vesting power to the person signing the Bid.

## 4.4. Sealing and marking of Bids

### 4.4.1 EMD and RFP fee

The original instruments of the Bid Security of the required value and in the approved format as specified in Section 2.5, along with the RFP fee as specified in Section 1.5 shall be sealed in an envelope on which the following shall be superscribed:

**“RFP No. GMDC/Power/ATPS/10/23-24 for Balance of Plant Package for Overhaul of GMDC’s 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat”.**

### 4.4.2 Technical Bid

The technical Bid shall be submitted in hard copy and shall include the following documents:

S. No	Reference	Document details
1	Annexure 5	Letter of Bid submission signed by authorized signatory of Bidder
2	Annexure 6	Bidder’s experience and credentials <ul style="list-style-type: none"><li>– Certificate of incorporation, MoA, AoA, GSTIN registration</li><li>– Evidence for work experience of similar nature – copy of work order, Contract and completion certificate, or Contract awarded, and threshold amount received if client documents are confidential</li></ul>

3	Annexure 7	Declaration of Key Personnel as per requirements of the RFP
4	Annexure 8	Statutory auditor/registered chartered accountants statement specifying revenue for last three financial years, net worth, and working capital for last financial year
5	Annexure 9	No blacklisting certificate on stamp paper
6	Annexure 10	No deviation certificate
7	Annexure 11	Authorization of signatory in the form of Board Resolution/ or Power of Attorney (POA notarized and Applicable in case of Bid not being signed by the person directly authorized by the firm), as applicable
8	Annexure 12	Undertaking
9	Annexure 13	Undertaking of Indemnity
10		RFP documents issued along with updated addendums/amendments thereto, duly signed by the Bidder through its authorized signatory on all pages.

ired as part of the Technical Bid shall be submitted in hard copy in person as per the required format. All the documents shall be placed and sealed in an envelope on which the following shall be superscribed:

**“RFP No. GMDC/Power/ATPS/10/23-24 for Balance of Plant Package for Overhaul of GMDC’s 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat– Technical Bid”.**

Both envelopes specified in sections 4.4.1 and 4.4.2 shall be placed in an outer envelope and the following shall be superscribed:

**“RFP No. GMDC/Power/ATPS/10/23-24 for Balance of Plant Package for Overhaul of GMDC’s 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat – Bid Submission”.**

#### **4.4.3 Price Bid**

Price Bid shall be duly filled by the Bidder at designated places on <https://gmdc.nprocure.com> as per the format provided in the Annexure 14.

#### **4.5. Bid submission date**

The last date and time of submission of the Bids (the “Bid submission date”) are specified in Section 1.6. The Bidders shall duly submit their Technical and Price Bids according to the dates specified.

GMDC may, in its sole discretion, extend the Bid submission date by issuing an addendum uniformly for all Bidders as per Section 3.4. In such event, the extended Bid submission date shall be applicable for all Bidders. Any such change in the Bid submission date shall be

notified to the Bidders by uploading the addenda on GMDC's website <http://www.gmdcltd.com> and <https://gmdc.nprocure.com>.

#### 4.6. Late submission

Physical submissions for Technical Bid and EMD and RFP fee received by GMDC after the specified time and date shall not be eligible for consideration and shall be summarily rejected.

GMDC shall not be responsible for any delay or non-receipt / non-delivery of any documents/ or technical issues pertaining to online Bid. The Bidder is expected to take its registration for e-tendering well in time and complete all procedure relating to e-submission well in time so that there is time for handling any technical glitches. Bidders who are not familiar with the procedure for online Bidding may use the training made available by e Bidding platform nProcure. The contact details of nProcure are as follows:

**nCode Solutions (A Division of GNFC Ltd.)**

**403, GNFC Infotower, Bodakdev,**

**Ahmedabad - 380054. India**

**Sales : 079- 4000 7323**

**Support : 079- 4000 7300**

**Email : [nprocure@ncode.in](mailto:nprocure@ncode.in)**

#### 4.7. Modification and withdrawal of Bids

Bidder shall not be able to modify any part of its Bid after the Bid submission date. In order to avoid forfeiture of Bid Security, a Bidder may withdraw its Bid after online submission thereof. The Bidder may modify, substitute, or withdraw its Bid online after submission, prior to the Bid submission date.

Any alteration/ modification in the Bid or additional information supplied subsequent to the Bid submission date, unless the same has been explicitly sought for by GMDC, shall be disregarded.

### 5. Bid evaluation criteria

#### 5.1. Pre-qualification criteria

Category	Parameter	Supporting docs
<b>Statutory</b>	Registered in India under Indian Companies Act 1956/2013 or Limited Liability Partnership firm registered under LLP act in India	Registration certificate/certificate of Incorporation of business
	At least one office in India which has been operational for the last three years or more	Certificate of incorporation, MoA, AoA, GSTIN registration
	Not blacklisted by any Public Sector Undertaking (PSU) / Central or State Government in India / Central or State Government undertaking	- No blacklisting certificate - On 300 Rs. Stamp paper

Category	Parameter	Supporting docs
	Consortiums are not permitted to participate in the Bidding process	
Financial	Average audited annual revenue of INR 40 Cr per annum for last three years (FY2021 to FY2023)	- Revenue and net worth statement - On auditor's / CA's letterhead, signed with seal
	Positive net worth as on 31 <sup>st</sup> March 2023	- Revenue and net worth statement - On auditor's / CA's letterhead, signed with seal
Operational	At least one Contract of similar works <sup>2</sup> of value > INR 76 Cr, or two Contracts of value > INR 47.5 Cr, or three Contracts of value > INR 38 Cr in the last seven years (FY2017 to FY2023)	Relevant portions of the work order /Contract / completion certificate for Contracts undertaken. In case the client serviced is confidential, the Bidder shall provide a self-certification with document evidence including work order / relevant sections of the contract / agreement. In case the similar work has been done in-house, self-certification with a logical methodology to assess the value of the work.

## 5.2. Technical Score

The Technical Bids of Bidders meeting pre-qualification criteria shall be considered for evaluation and assignment of technical scores. The technical evaluation will be conducted in two steps, evaluation of technical Bids and evaluation of technical presentation. The Technical Score (TeS) will be computed as the sum of the scores in technical Bid and technical presentation.

### 5.2.1. Technical Bid

The score of the Bidder's Technical Bid shall be evaluated as per the scoring system detailed below.

Category	Criteria	Thresholds	Score	Verification
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<sup>2</sup> Similar works include – EPC / ETC / Overhauling / R&M / O&M of complete thermal power plants or EPC / ETC / Overhauling / R&M / O&M of material handling plants / ash handling plant / water treatment or circulations systems / electrical systems including switchyard, CT, CVT etc., in energy / process industries (power, oil & gas, chemicals, paint, cement, metals) carried out under a single LOI / work order / agreement.

Category	Criteria	Thresholds	Score	Verification
Prior Experience	<b>Number of similar BOP Projects<sup>3</sup></b> undertaken in coal / lignite based thermal power plants with a contract value greater than INR 50 Cr	10 points - >= 3 projects 6 points - >= 2 projects 3 point - >= 1 project 0 – No projects	10	Document evidence including relevant portions of the work order / Contract / completion certificate for contracts undertaken (Annexure 6)
	<b>Portfolio of similar BOP projects<sup>3</sup></b> undertaken in coal / lignite based thermal power projects (in MW)	10 points - >= 800 MW 8 points - >= 700 MW 6 points - >= 600 MW 4 points - >= 500 MW 2 points - >= 400 MW 0 points - <400 MW	10	
	Prior experience involving overhauling of <b>material handling plant / ash handling plant</b> in a coal / lignite based thermal power plant with capacity of 125 MW or higher	5 points – Yes 0 points – No	5	
	Prior experience involving overhauling of <b>water treatment or circulation systems</b> in a coal / lignite based thermal power plant with capacity of 125 MW or higher	5 points – Yes 0 points – No	5	
	Prior experience involving overhauling of <b>turbine auxiliaries (condenser, hotwell, HP/LP heaters, etc.)</b> in a coal / lignite based thermal power plant with capacity of 125 MW or higher	5 points – Yes 0 points – No	5	
	Prior experience involving overhauling of <b>electrical systems such as switchyard, CT/CVT, lighting etc.</b> in a coal/lignite based thermal power plant with capacity of 125 MW or higher	5 points – Yes 0 points – No	5	

<sup>3</sup> Similar BOP Projects include – EPC / ETC / Overhauling / R&M / O&M of complete thermal power plants or EPC / ETC / Overhauling / R&M / O&M of material handling plants / ash handling plant / water treatment or circulations systems / electrical systems including switchyard, CT, CVT etc., in a coal / lignite based thermal power plant, carried out under a single LOI / work order / agreement.

Category	Criteria	Thresholds	Score	Verification
<b>Workforce Capabilities</b>	Team leader	8 points - >= 15 years exp. 4 points - >= 12 years exp 0 points - < 10 years exp	8	Self-declaration of workforce capabilities (Annexure 7)
	Function leaders (Mechanical – MHP, Mechanical – BOP, Electrical, and C&I)	3 points - >= 12 years exp (each function lead) 2 points - >= 10 years exp (each function lead) 0 point - <8 years exp (each function lead)	12	
<b>Technical Bid</b>			<b>60</b>	
<b>Technical Presentation (as per Section 5.2.2)</b>			<b>40</b>	
<b>Total</b>			<b>100</b>	

## 5.2.2. Technical Presentation

The Technical Bid will be accompanied by a Technical Presentation to the Bid evaluation committee. Bidders shall prepare a presentation in PPT format and will be evaluated along the parameters detailed below. The Bidder shall, therefore, ensure appropriate details are incorporated in the presentation to be evaluated comprehensively. The score of the Bidder's Technical Presentation shall be evaluated as per the scoring system detailed below.

Category	Parameter	Score
<b>Technical capabilities</b> (10 marks)	Successful case studies of performance improvement of balance of plant systems such as material handling plant / water treatment or circulation systems / electrical systems including switchyard, CT CVT etc. at coal or lignite based thermal power projects post Overhauling or R&M	10
<b>Key personnel</b> (10 marks)	Personnel with prior experience of overhauling balance of plant systems such as MHP, AHP, SWTP, Electrical systems etc. in coal / lignite based thermal power plants	10
	Proposed team including BOP package leader and function leaders	
<b>Approach and methodology</b> (20 marks)	Plan for Procurement of all equipment / material / spares / services / works for the Overhaul and estimated timelines	20
	Plan for timely execution of Overhaul activities at Plant post procurement, including potential risk mitigation measures	
	Plan for integration, interfacing, and sequencing of all the Overhaul activities at Plant for smooth execution of the Overhaul	

Category	Parameter	Score
	Plan for testing (FATs, SATs, and Performance Guarantee Tests) and commissioning of the BOP systems	
<b>Total</b>		<b>40</b>

### 5.3. Financial Score

The Bidders obtaining a Technical Score (sum of scores of Technical Bid and Technical Presentation) of minimum 60 (sixty) shall be considered as technically qualified Bidders. The Price Bid of only the technically qualified Bidders shall be opened.

The Bidders shall be required to quote the Lumpsum Charges for Balance of Plant Package for the duration of the Contract, as per the format provided in Annexure 14, through online submission of Price Bids.

The Financial Score shall then be evaluated as follows:

$$\text{Financial Score (FiS)} = \frac{\text{FiL}}{\text{FiC}} \times 100$$

Where,

FiL is the L1 (Lowest Bidder)'s Lumpsum Charges for Balance of Plant Package

FiC is the Lumpsum Charges for Balance of Plant Package quoted by the Bidder

The Bidder recording the lowest aggregate Supply and Services charges for the tenure of the Contract among all technically qualified Bidders shall be given maximum score of 100.

### 5.4. Composite score

The Composite Score of the Bidders shall be computed using the Technical Score and the Financial Score as follows:

$$\text{Composite Score (CS)} = \text{Technical Score (TeS)} \times 70\% + \text{Financial Score (FiS)} \times 30\%$$

The technical criteria have been assigned a weightage of 70% while the commercial criteria have been assigned a weightage of 30%.

The Bidder obtaining the highest Composite Score shall be declared the Preferred Bidder. In case of a tie between two or more Bidders based on the Composite Score (i.e., two or more Bidder obtain the same Composite Score), the Bidder securing the higher Technical Score (TeS) among the tied Bidders shall be declared as the Preferred Bidder.

After discussions at the discretion of GMDC, the LOA would be granted to the Preferred Bidder who would then be the Successful Bidder with whom the Agreement shall be signed.

## **6. Bid evaluation process**

### **6.1. Opening of technical Bid**

The Bidder's names, the presence or absence of requisite RFP Fee and Bid Security and such other details, as GMDC in its sole discretion may consider appropriate, shall be announced at the opening of Technical Bid.

GMDC will subsequently examine and evaluate Technical Bids in accordance with the provisions set out hereunder in Section 6.2.

### **6.2. Evaluation of technical Bid**

The Bidders shall be required to submit documents as per Section 4.4.2 along with supporting documents. GMDC shall examine and evaluate the Technical Bids as per the evaluation steps specified below.

#### **6.2.1. Test of responsiveness**

Prior to evaluation of the Technical Bids, GMDC shall determine whether each Bid is responsive to the requirements of the RFP. A Bid shall be considered responsive only if:

1. The EMD, RFP Fee, and Technical Bids are submitted in hard copy as per the appropriate formats in person as per Section 4.4.1 and 4.4.2 within the Bid submission date
2. The Price Bid is submitted online as per the appropriate format within the Bid submission date
3. It does not contain any conditionality
4. It is not non-responsive to the terms hereof and any other condition specified elsewhere in the RFP

GMDC reserves the right to reject any Bid which is non-responsive and no request for alteration, modification, substitution, or withdrawal shall be entertained by GMDC in respect of such Bid.

Evaluation of pre-qualification criteria and document checks of only those Bidders shall be carried out whose Bids determined to be responsive.

#### **6.2.2. Assessment of pre-qualification criteria**

GMDC shall examine and evaluate the pre-qualification of each Technical Bid upon determining its responsiveness as per Section 6.2.1.

The Bidder must meet pre-qualification criteria specified in Section 5.1 and have submitted all documents as per Section 4.4.2 in order to qualify for next stage of assessment.

Evaluation of Technical Bids to assign Technical Score of only those Bidders shall be carried out whose Bids are meeting the pre-qualification criteria and submitted all required documents.

### **6.2.3. Determination of technical score**

GMDC shall examine and assign Technical Score to each pre-qualified Bid as per the scoring mechanism described in Section 5.2

The Technical Score of each Bid shall be calculated as the sum of the scores obtained in Technical Bid.

The Bids of the Bidders determined to be responsive, meeting the pre-qualification criteria, and obtaining a Technical Score of minimum 50 (fifty) will be declared as technical qualified Bids, and the Bidders thereby shall be declared as technically qualified Bidders.

### **6.3. Evaluation of Price Bid**

The Bidders shall be required to submit documents as per Section 4.4.3. GMDC shall examine and evaluate the Price Bids as per the evaluation steps specified below.

#### **6.3.1. Opening of Price Bid**

The Price Bids of only the Bidders determined to be responsive and meeting the Pre-Qualification Criteria and obtaining required Technical Score in accordance with Section 6.2 shall be opened.

The time and date of opening of Price Bids shall be informed to the Bidders who are declared as technical qualified Bidders pursuant to Section 6.2.3 in advance. The name of Bidder, Bid rates, etc. will be announced at such opening.

#### **6.3.2. Determination of financial score**

GMDC shall determine the Financial Score for each technical qualified Bid as specified in Section 5.3.

### **6.4. Determination of composite score**

The Technical Score and Financial Score obtained by the Bidder shall be combined as per the formula provided in Section 5.4.

The Bidder obtaining the highest Composite Score shall be declared the Preferred Bidder. In case of a tie between two or more Bidders based on the Composite Score (i.e., two Bidder obtain the same Composite Score), the Bidder securing the higher Technical Score (TeS) among the tied Bidders shall be declared as the Preferred Bidder.

After discussions at the discretion of GMDC, the LOA would be granted to the Preferred Bidder who would then be the Successful Bidder with whom the Agreement shall be signed.

### **6.5. Clarification of Bids and request for information**

To facilitate evaluation of Bids, GMDC may, at its sole discretion, seek in writing, clarifications / documents / missing information from any Bidder pertaining to its Bid. If the response from the Bidder is not received by GMDC before the expiration of the deadline

prescribed in the written request, GMDC reserves the right to proceed with the evaluation process at the total risk and cost of the Bidder.

## **6.6. Verification and disqualification**

GMDC reserves the right to verify all statements, information and documents submitted by the Bidder in response to the RFP and the Bidder shall, when so required by GMDC, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification by GMDC shall not relieve the Bidder of its obligations or liabilities hereunder nor will it affect any rights of GMDC there under.

GMDC reserves the right to reject any Bid and / or appropriate EMD if:

1. At any time, a material misrepresentation in terms of misleading or false representation is made or uncovered, or
2. The Bidder does not provide, within the time specified by GMDC, the supplemental information sought by GMDC for evaluation of the Bid
3. In case of fraudulent Bid and the Bidder is found to be involved in fraudulent and corrupt practice as per Section 8
4. In case the Bidder has any conflict of interest as per Section 9
5. A Bidder makes an effort to influence GMDC in its decisions on the evaluation process / selection process
6. While evaluating the Bid, if it comes to GMDC's knowledge expressly or implied, that some Bidders may have compounded in any manner whatsoever or otherwise joined to form an alliance resulting in distorting competitive price discovery or delaying the processing of proposal
7. Record of poor performance such as abandoning the work, rescinding of Contract for which the reasons are attributable to the non-performance of the Bidder, consistent history of litigation awarded against the applicant or financial failure due to bankruptcy
8. A Bidder submits or participates in more than one Bid under this RFP

If such disqualification / rejection occurs after the Bids have been opened and the Preferred Bidder as per award criteria gets disqualified / rejected, then GMDC reserves the right to consider the next best Bidder or take any other measure as may be deemed fit in the sole discretion of GMDC, including annulment of the process.

In case it is found during the evaluation of Bids or at any time before signing of the Contract or after its execution and during the period of subsistence thereof, that one or more of the pre-qualification criteria / technical criteria have not been met by the Bidder, or the Bidder has made material misrepresentation or has given any materially incorrect or false information, the Bidder shall be disqualified forthwith if not yet appointed as the Bidder either by issue of the LOA or entering into the Contract, and if the Successful Bidder has already been issued the LOA or has entered into the Contract, as the case may be, the same shall, notwithstanding anything to the contrary contained therein or in this RFP, be liable to be terminated, by a communication in writing by GMDC to the Successful Bidder or the Bidder, as the case may be, without GMDC being liable in any manner whatsoever to the Successful Bidder or the Bidder. In such an event, GMDC shall be entitled to forfeit and

appropriate the EMD or Performance Security, as the case may be, without prejudice to any other right or remedy that may be available to GMDC under the RFP and/or the Contract.

### **6.7. Contacts during Bid evaluation**

Bids shall be deemed to be under consideration immediately after they are opened and until such time GMDC makes official intimation of award/ rejection to the Bidders. While the Bids are under consideration, Bidders and/ or their representatives or other interested Parties are advised to refrain, save and except as required under the Bidding documents, from contacting by any means, GMDC and/ or their consultants/ employees/representatives on matters related to the Bids under consideration.

### **6.8. Correspondence with Bidder**

Save and except as provided in this RFP, GMDC shall not entertain any correspondence with any Bidder in relation to acceptance or rejection of any Bid.

### **6.9. Confidentiality**

Information relating to the examination, clarification, evaluation, and recommendation for the Bidders shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional advisor advising GMDC in relation to, or matters arising out of, or concerning the Bidding process. GMDC will treat all information, submitted as part of the Bid, in confidence and will require all those who have access to such material to treat the same in confidence. GMDC may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or GMDC or as may be required by law or in connection with any legal process.

## **7. Appointment of Bidder**

### **7.1. Notification of award**

Prior to expiry of the Bid Validity Period, GMDC shall notify the Preferred Bidder as the Successful Bidders through letter that their Bid has been accepted. This letter ("Letter of Award"/ "LOA") shall be issued, induplicate, and shall specify the sum which GMDC shall pay to the Successful Bidder and sum that the Successful Bidder shall pay to GMDC in consideration of scope as per the terms of Contract.

Successful Bidder shall, within 7 (seven) days of the receipt of the LOA, sign and return the duplicate copy of the LOA in acknowledgement thereof. In the event the duplicate copy of the LOA duly signed by the Successful Bidder is not received by the stipulated date, GMDC may, unless it consents to extension of time for submission thereof, appropriate the Bid Security of such Bidder as damages on account of failure of the Successful Bidder to acknowledge the LOA, and the next eligible and qualified Bidder may be considered.

## **7.2. Signing of agreement**

After acknowledgement of the LOA as aforesaid by the Successful Bidder, it shall cause the Successful Bidder, subject to furnishing the Performance Security as per the RFP provisions, to execute/sign the Agreement within the 30 (thirty) days from the date of LOA .

The Successful Bidder shall get correct amount of Stamp Duty adjudicated (Stamp Paper of Rs. 300 denominations can be used), at Ahmedabad in accordance with Applicable Law and submit the same in two copies duly stamped and executed within 30 (thirty) days from the dispatch of Letter of Award. GMDC shall return one copy duly sealed and signed as a token of acceptance of the Contract. Stamp Duty, and any other charges as may be levied under Applicable Law, shall be paid by the Successful Bidder.

After the signing of Agreement, the Successful Bidder shall be called the “Contractor”.

## **7.3. Performance Security**

The Successful Bidder shall furnish Performance Security to GMDC for securing the due and faithful performance of its obligations under the Agreement, within 7 (seven) days from the date of acceptance of LOA, in the form of Demand Draft or an unconditional and irrevocable bank guarantee (Annexure 16) for amount of equivalent to 10% (Ten percent) of the Lumpsum Charges for Balance of Plant Package (without GST) quoted, payable to GMDC by the Successful Bidders (the “Performance Security”) from the banks approved by Government of Gujarat except Co-Operative banks . Such Performance Security shall be in favor of “Gujarat Mineral Development Corporation Ltd” and admissible and payable at Ahmedabad branch from approved bank to GMDC. The list of approved banks has been listed in Annexure 17.

The Successful Bidder will be bounded for conflict resolution for a period of 12 (twelve) months after the completion of the Contract. Hence, the Bidder shall maintain a valid and binding Performance Security for a period of 24 (twenty-four) months. The Bidder shall ensure that the Performance Security shall subsist in full force and effect in terms hereof, throughout the tenure of the Contract and thereafter until expiry of three months. In case tenure of the Contract is extended then the Bidder shall have to renew Performance Security for a period of extended tenure.

If the Successful Bidder, fails to furnish the Performance Security, it shall be lawful for GMDC to forfeit the EMD and cancel the Contract or any part thereof.

GMDC shall be entitled to forfeit and appropriate the amount of the Performance Security in whole or in part:

1. in the event GMDC requires to recover any sum due and payable to it by the Bidder including but not limited to damages; and which the Bidder has failed to pay in relation thereof; and
2. in relation to Bidder’s breach in accordance with the terms contained in the Agreement

At any time during the Validity Period, the Performance Security has either been partially or completely been encashed by GMDC in accordance with the provision of the Agreement, the Bidder shall within 15 (fifteen) days of such encashment either replenish, or provide a

fresh Performance Security, as the case may be, failing which GMDC shall be entitled to terminate the Agreement.

At the end of the tenure of the Contract, the Performance Security shall be returned to the Bidder without any interest, subject to any deductions which may be made by GMDC in respect of any outstanding dues under the terms of the Agreement.

#### **7.4. Proprietary data**

Subject to the provisions of Section 6.9, all documents and other information provided by GMDC or submitted by Bidder to GMDC shall remain or become the property of GMDC. Bidder is to treat all information as strictly confidential. GMDC will not return any Bid, or any information related thereto. All information collected, analyzed, processed or in whatever manner provided by the Bidder to GMDC in relation to the assignment pursuant to the scope of work / terms of reference shall be the property of GMDC.

#### **7.5. Tax liability**

The rates quoted in Price Bid Annexure 14 shall be inclusive of all taxes, duties, surcharge Levies etc. as applicable except applicable Goods and Service Tax. Applicable GST at the time of invoicing shall be reimbursed by GMDC.

GMDC shall be entitled to deduct tax at source as may be applicable. The TDS certificate(s) shall be submitted as per the due date specified in the Income Tax Act.

### **8. Fraudulent and corrupt practices**

The Bidders and their respective officers, employees, agents, and advisers shall observe the highest standard of ethics during the Bidding process and subsequent to the issue of the LOA and during the subsistence of the Contract. Notwithstanding anything to the contrary contained herein, or in the LOA or the Contract, GMDC may reject a Bid, withdraw the LOA, or terminate the Contract, without being liable in any manner whatsoever to the Bidder, if it determines that the Bidder or as the case may be, has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice, or restrictive practice in the Bidding process. In such an event, GMDC shall be entitled to forfeit and appropriate the EMD, as the case may be, without prejudice to any other right or remedy that may be available to GMDC under the Bidding documents and/ or the Contract, or otherwise. In case of cancellation of Contract, if already awarded, GMDC shall be entitled to recover from the Bidder the amount of any loss arising from such cancellation in accordance with provisions of RFP document.

Without prejudice to the rights of GMDC hereinabove and the rights and remedies which GMDC may have under the LOA or the Contract or otherwise if a Bidder as the case may be, is found by GMDC to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bidding process, or after the issue of the LOA or the execution of the Contract and/or otherwise, such Bidder shall not be eligible to participate in any RFP or RFP issued by GMDC during a period of 2 (two) years from the date of identification of such practice.

For the purposes of this Section 8, the following terms shall have the meaning hereinafter respectively assigned to them:

1. **“Corrupt practice”** shall mean (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of GMDC who is or has been associated in any manner, directly or indirectly, with the Bidding process or the LOA or has dealt with matters concerning the Contract or arising there from, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of GMDC, shall be deemed to constitute influencing the actions of a person connected with the Bidding process); or (ii) engaging in any manner whatsoever, whether during the Bidding process or after the issue of the LOA or after the execution of the Contract, any person in respect of any matter relating to the LOA or the Contract or otherwise, who at any time has been or is a legal, financial or technical adviser of GMDC in relation to any matter concerning the assignment
2. **“Fraudulent practice”** shall mean a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding process
3. **“Coercive practice”** shall mean impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person's participation or action in the Bidding process
4. **“Undesirable practice”** shall mean (i) establishing contact with any person connected with or employed or engaged by GMDC with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding process; or (ii) having a Conflict of Interest as per Section 9
5. **“Restrictive practice”** shall mean forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Bidding process

## 9. Conflict of interest

The Bidder shall not have a conflict of interest that may affect the selection process. Any Bidder found to have a conflict of interest shall be disqualified. In the event of disqualification, GMDC shall forfeit and appropriate the Bid Security, if available, or as mutually agreed genuine pre-estimated compensation and damages payable to GMDC for, inter alia, the time, cost, and effort of GMDC including consideration of such Bid, without prejudice to any other right or remedy that may be available to GMDC hereunder or otherwise.

GMDC requires that the appointed Bidder provide professional, objective, and impartial advice and at all times hold GMDC's interests paramount, avoid conflicts with other assignments or its own interests, and act without any consideration for future work. The Bidder shall not accept or engage in any assignment that would be in conflict with its prior or current obligations to other clients, or that may place it in a position of not being able to carry out the assignment in the best interests of GMDC.

Without limiting the generality of the above, shall be deemed to have a conflict of interest affecting the selection process, if the relationship between two Bidders is established through common holding, either directly or through associates, of at least 26% holding of equity/profit sharing in another company/firm, or in each other and other terms as specified hereunder:

1. The Bidder, its member or associate (or any constituent thereof) and any other Bidder, its member or associate (or any constituent thereof) have common controlling Ownership interest. Common controlling Ownership interest for Company, Limited Liability Partnership Firm is defined as follows. Associates of the Bidding firm shall mean parent and/or subsidiary and/or sister concerned firm having meaning specified in definition Section:
  - a. **If Bidder is a Company:** In such case, the Bidder (including its associate or any shareholder thereof of Bidder and/or its associates) possessing over 26% of the paid up and subscribed capital in its own company or associate as the case may be, also holds:
    - i. more than 26% of the paid up and subscribed equity capital in the other Bidder, its member or associate of such other Bidder or associates is company and/or
    - ii. More than 26% of profit sharing in other Bidder or associates such other Bidder or associates is a Limited Liability Partnership firm and/or
  - b. **If Bidder is a Limited Liability Partnership Firm:** In such case, the Bidder or its partners or associate having a profit sharing of more than 26% of such Bidder or its partners or associate as the case may be also holds:
    - i. more than 26% of the paid up and subscribed equity capital in the other Bidder or associate of such other Bidder, its member or associates is company and/or
    - ii. more than 26% of profit sharing in other Bidder or its associates such other Bidder or its associates is a Limited Liability Partnership firm and/or
2. A constituent of such Bidders is also a constituent of another Bidders, or
3. Such Bidders receive or has received any direct or indirect subsidy or grant from any other Bidder/s, or has provided any such subsidy to any other Bidders, or
4. Such Bidder has the same legal representative for purposes of this Bid as any other Bidders or
5. such Bidders have a relationship with another Bidders, directly or through common third Parties, that puts them in a position to have access to each other's' information about, or to influence the Bid of either or each of the other Bidders or
6. there is a conflict among this and other assignments of the Bidder (including its personnel and other members, if any) and any subsidiaries or entities controlled by such Bidder or having common controlling shareholders. The duties of the Bidder will depend on the circumstances of each case. While providing services to GMDC for this assignment, the Bidder shall not take up any assignment that by its nature will result in conflict with the present assignment
7. The Bidder shall furnish an affirmative statement as to the existence of, or potential for conflict of interest on the part of the Bidder due to prior, current Contracts, engagements, or affiliations with GMDC. Additionally, such disclosure shall address

any and all potential elements (time frame for service delivery, resource, financial or other) that would adversely impact the ability of the Bidder to complete the requirements as given in the RFP

## Part 4: Annexures

List of annexures:

Annexure No.	Description
<b>Annexure 1</b>	Balance of Plant Technical Specifications
<b>Annexure 2</b>	Spares for Balance of Plant Overhaul
<b>Annexure 3</b>	List of Hangers
<b>Annexure 4</b>	Data sheet for fire and safety equipment
<b>Annexure 5</b>	Letter of bid submission
<b>Annexure 6</b>	Bidders experience and credentials
<b>Annexure 7</b>	Declaration of key personnel
<b>Annexure 8</b>	Revenue and net worth statement
<b>Annexure 9</b>	No blacklisting certificate
<b>Annexure 10</b>	No deviation certificate
<b>Annexure 11</b>	Format for power of attorney
<b>Annexure 12</b>	Undertaking regarding genuines of documents
<b>Annexure 13</b>	Undertaking of indemnity
<b>Annexure 14</b>	Indicative format of Price bid
<b>Annexure 15</b>	Format for Bank Guarantee towards EMD
<b>Annexure 16</b>	Format for Bank Guarantee towards Performance Security
<b>Annexure 17</b>	List of approved banks for EMD, RFP fees, and Performance Security

## Annexure 1: Turbine Auxiliaries Technical Specifications

### 1. Condenser

	DESCRIPTION		PARAMETER
1.00	<b>CONDENSER</b>		
1.01	Type of condenser single/twin shell		Single shell
1.02	Overall size		
1.02.1	Length	(mm)	13400
1.02.2	Width	(mm)	6300
1.02.3	Height	(mm)	~8500
1.03	Shell side design flow conditions		-
1.04	Steam from main turbine at MCR		
	a) Quantity	(kg/hr)	260595
	b) Enthalpy	(kcal/kg)	574.3
	c) Temperature	(°C)	45.8
1.05	Drains from feed cycle at MCR		
	a) Quantity	(kg/hr)	48746
	b) Enthalpy	(kcal/kg)	52.4
	c) Temperature	(°C)	52.4
1.06	Condensate make up at MCR		
	a) Quantity	(kg/hr.)	11400
	b) Temperature	(°C)	45
1.07	Other steam/drains through flash box or directly in condenser		Drain from GSC    Sealing leaks    Drain from drain cooler    Drain SJAE
	a) Quantity	(kg/hr)	248
	b) Enthalpy	(kcal/kg)	204
	c) Temperature	(°C)	
1.08	Condensate temperature at hot well		45.34
1.09	Temperature of air vapor mix at air cooler section	(°C)	Not furnished
1.10	Total heat load	(kcal/hr)	138072728.6
1.11	Cooling water as per design parameters		
1.11.1	Quality		Sea water
1.11.2	Flow	(kg/hr)	16800000

	DESCRIPTION		PARAMETER
1.11.3	Density	(kg/cm <sup>3</sup> )	1012.9
1.11.4	Temperature rise of cooling water at		
	i) rated load	(°C)	8.5
	ii) VVO condition	(°C)	Successful bidder to refer to relevant OEM drawings/manuals
1.11.5	Inlet temperature (max.)	(°C)	34
1.11.6	Outlet temperature	(°C)	42.5
1.11.7	Number of section of water box		2
1.11.8	number of passes in each section		2
1.11.9	Velocity of water in tubes	(m/s)	2.4
1.11.10	Cooling surface	(m <sup>2</sup> )	6668/7668*
1.12	Performance at above design conditons		
1.12.1	Condenser pressure at 100 mm above top row of tubes corresponding to max. CW inlet temperature and cleanliness factor mm Hg		Later
1.12.2	Temperature of condensate at hotwell outlet	(°C)	45.34
1.12.3	Degree of sub-cooling below saturation temperature corresponding to design vacuum in air cooler zone	(°C)	4
1.12.4	Oxygen content in condensate at condensate discharge	(cc/litre)	0.02
1.12.5	CO <sub>2</sub> content in condensate at condensate discharge	(cc/litre)	Later
1.12.6	Pressure drop side as measured across CW inlet and outlet terminal flanges, when passing design cooling water flow through tubes		5.87 MWC
	a) 100 % clean tubes	(MWC)	Later
	b) having 10% plugged tubes	(MWC)	4.05
1.12.7	LMTD		6.72
1.13	<b>Codes and Standards</b>		
1.13.1	Thermal design		HEI/ASME VIII
1.13.2	Pressure parts		Successful bidder to refer to relevant OEM drawings/manuals
1.13.3	Welding		ASME IX

DESCRIPTION		PARAMETER		
1.14	<b>Design pressure and temperature</b>		<b>Tube side</b>	<b>Shell side</b>
1.14.1	Design pressure	(kg/cm <sup>2</sup> /g)	5	1-Vacuum
1.14.2	Design temperature	(°C)	60	90
1.15	<b>Construction features</b>			
1.15.1	Details of shell			
	a) Shape of shell		Parallelepiped	
	b) Material of shell		ASTM A 285 Gr.C or similar	
	c) Material of shell flanges		ASTM A 36 or similar	
	d) Material of condenser neck		ASTM A 285 Gr.C or similar	
1.15.2	Connection between turbine exhaust and condenser		Neck with expansion joint (welded)	
1.15.3	Protection of condenser tubes from erosion by exhaust steam impingement		Stainless steel baffles	
1.15.4	No. of rows of stainless steel rods or stainless steel dummy tubes with clip-on stainless steel protection		Later	
1.15.5	Method of dispersing drains make-up water etc. into condenser		Sparges	
1.15.6	Are impingement baffles provided wherever required to prevent external drains into condenser hitting condenser tube straight		Yes	
1.15.7	Material of impingement baffles		Stainless steel	
1.15.8	Special provision, if any included to take care of thermal expansion of high temperature drain lines into condenser		Thermal sleeves	
1.15.9	Vertical expansion taken by		Expansion joint	
1.15.10	Details of auxiliary jack if provided for shell during hydro test		Temporary supports	
1.15.11	Details of rubber expansion joint	(mm)		
	a) Maximum axial movement permissible		Later	
	b) Max. lateral (along the length of tubes)		Later	
1.15.12	Type of provision made to take differential expansion between tube and shell		Flexible diaphragm	
1.15.13	Detail of tube sheets			

	DESCRIPTION		PARAMETER
	a) Material		C.S Titanium cladde
	b) For condenser with divided section, number of tube sheets at each end		2
	c) Design of tube sheet		HEI
	d) In case of double tube sheet design provision for venting and draining enclosed space		Yes
	e) Method of attachment of tube sheets to shell		Welded
	f) For bolted tube sheet provision for retaining tube sheets in place undisturbed on removal of water box.		N/A
1.15.14	Details of tube condensing section		
	a) Outer diameter	(mm)	25.4
	b) Thickness	(mm)	0.6
	c) Material specification		Titanium-ASTM B 338 Gr.2
	d) Total no (this includes tubes in either sections of condenser with divided sections)		7357/8460*
	e) Impingement section		418/482*
1.15.15	Details of tubes in air cooler section		
	a) Outer diameter	(mm)	25.4
	b) Thickness		0.6
	c) Material specification		Titanium-ASTM B 338 Gr.2
	d) Total number (this includes tubes in either sections of condenser with divided sections)		585/672*
1.15.16	Effective tube length between faces of tube sheets	(mm)	1000
1.15.17	Total length of tubes	(mm)	10070
1.15.18	Any provision for self draining of tubes		Slope
1.15.19	In case of bowed tubes, do the tubes take care of differential expansion between tubes and shell		yes
1.15.20	Method of securing tubes to tube sheets		Roller expansion+welding
1.15.21	Do tube holes in tube sheets have grooves?		No.

	DESCRIPTION		PARAMETER
1.15.22	Are tubes belled at inlet end		Yes
1.15.23	Do tubes at exit end protrude beyond face of tube sheet? If so, given length of protursion		Yes/5 mm
1.15.24	Material of tube plugs		Titanium
1.15.25	Number of tube plugs provided		5%
1.15.26	Number of spare tubes provided for condensing section		2%
1.15.27	Number of spare tubes provided for air cooler section		2%
1.15.28	<b>Detail of tube support plates</b>		
	a) Material		ASTM A 285 GrC or similar
	b) Minimum spacing	(mm)	720
	c) Maximum spacing	(mm)	845
	d) Thickness		16
	e) number		13 + 13
1.15.29	<b>Details of water boxes</b>		
	a) Materials of water boxes		ASTM A 285 GrC or similar
	b) Design pressure	[kg/cm <sup>2</sup> (g)]	5
	c) Minimum depth	(m)	~ 1500
	d) Shape of water boxes		Parallelepiped/ bonnet type
1.15.30	Are water boxes removable?		Yes
1.15.31	Are water boxes divided?		Yes
1.15.32	No. of section in water boxes		2
1.15.33	Are water box manhole covers hinged for quick opening?		Yes
1.15.34	Are water box covers removable		Yes
1.15.35	Material of bolts for shell to water box joints		ASTM A 193-B7
1.15.36	Material of nut for above bolts		ASTM A 194-4
1.15.37	Material of gaskets for shell to water box joint		Rubber
1.15.38	Method of corrosion protection of water boxes when cooling water is saline		Sacrificial anodes
1.15.39	Bidders scope under rubber protection lining		Yes

	DESCRIPTION		PARAMETER
1.15.40	Bidders scope under cathodic protection		Not epoxy resin
1.15.41	Name and make of loose paint to be applied on inside surfaces to tube plate and water boxes		Later
1.15.42	Are safety guards provided in the CW connections which run vertically down from water boxes to prevent personnel from falling in?		Yes
1.15.43	Details of hotwell		
	a) length	(m)	9500
	b) breadth	(m)	6300
	c) Depth	(m)	5000
	d) Volume of condensate stored at normal level	(m <sup>3</sup> )	~36
1.15.44	Is hotwell divided		Yes
1.15.45	Is provision made for installation of conductivity cell in each section of hotwell		Yes
1.15.46	Is screen provided at the outlet of the hotwell?		Yes
1.15.47	Are nozzles provided as required by the specification?		Yes
1.15.48	Confirm that revision in number size, and location of nozzles will be done, if required at no extra cost		yes
1.15.49	<b>Weight of condenser</b>		
	i) Empty	(kg.)	130000
	ii) Flooded	(kg.)	460000
	iii) Weight of tubes	(kg.)	19350
	iv) Method of supporting		Rigid Supports
1.16	<b>Accessories</b>		
1.16.1	2 Nos. full length hotwell gauge glasses (Complete with connection piping, forged bronze fitting and isolating and drain valves)		Yes
1.16.2	Tube expander tools, tube flaring tools, tube cutter and tube knock out tools		Yes
1.16.3	Motorised tube expander with electronic		Yes

	DESCRIPTION		PARAMETER
	control equipment		
1.16.4	Two sets of heavy duty offset socket wrenches of all sizes of bolting		Yes
1.16.5	High and Low level alarm switches		Yes
1.16.6	Guage glass for water box		Yes
1.16.7	Instrument mountings		Yes
1.16.8	Piping, valves, fittings for instruments		Yes
1.16.9	Strainers at cond pump inlet		Yes
1.16.10	Strainer at CW inlet to water box		No
1.16.11	Last stage wheel drain piping		Yes
1.16.12	Name plate		Yes
1.16.13	Lifting lugs		Yes
1.16.14	Manhole covers		Yes
1.16.15	Supports for heater in the condenser neck, if desired by Owner		Yes
1.16.16	LP heater 1 extraction piping with SS shielding		Yes
1.17.0	<b>Tests</b>		
1.17.1	Assembly of equipment in shop to check matching to parts and match marking?		Yes
1.17.2	Hydro fill test for shell side at field after erection		Yes
1.17.3	Hydro fill test for waterr boxes	[kgf/cm <sup>2</sup> (g)]	Yes
1.17.4	100% eddy current test by the tube manufacturers		Yes
1.17.5	Hydrotest pressure for individual tubes by tube manufacturers	[kgf/cm <sup>2</sup> (g)]	No
1.18.0	<b>Condenser Movements &amp; Loading</b>		
1.18.1	Vertical		Successful bidder to refer to relevant OEM drawings/manuals
1.18.2	Along tubes		Successful bidder to refer to relevant OEM drawings/manuals
1.18.3	Across tubes		Successful bidder to refer to relevant OEM drawings/manuals
1.18.4	Max. premissible down wind load transferred on turbine foundation		Successful bidder to refer to relevant OEM drawings/manuals

	DESCRIPTION		PARAMETER
1.19	<b>Weights</b>		
1.19.1	Tubes (incl. breakage allowance) only		Successful bidder to refer to relevant OEM drawings/manuals
1.19.2	Water boxes (incl. covers)		Successful bidder to refer to relevant OEM drawings/manuals
1.19.3	Unit operating		Successful bidder to refer to relevant OEM drawings/manuals
1.19.4	Equipment completely filled with water (upto 1 m above top row of tubes)		Successful bidder to refer to relevant OEM drawings/manuals
1.20	Set of anticipated performance curves for condenser pressure (vacuum) versus loading at different CW inlet temp. with 100% clean tubes. This set of curves shall assume that both sections of cooling water side are in operation		Successful bidder to refer to relevant OEM drawings/manuals
1.21	Any other data as required by spec list items		-
1.22	<b>Air extraction system</b>		
1.22.1	<b>Ejectors</b>		
1.22.1.1	Capacity in free dry air at standard conditions with ejector operating at intake condition of 25.4 mm Hg and subcooled		Successful bidder to refer to relevant OEM drawings/manuals
1.22.1.2	Discharge pressure of air ejector	(ata)	Successful bidder to refer to relevant OEM drawings/manuals
1.22.1.3	Operating pressure and temperature	(ata/°C)	
	a) For starting up		Successful bidder to refer to relevant OEM drawings/manuals
	b) Normal running		Successful bidder to refer to relevant OEM drawings/manuals
1.22.1.4	Main steam supply pressure and temperature		
	a) For starting up		Successful bidder to refer to relevant OEM drawings/manuals
	b) Normal running		Successful bidder to refer to relevant OEM drawings/manuals
	c) maximum for short duration		Successful bidder to refer to relevant OEM drawings/manuals
1.22.1.5	Maximum condensate temperature for design of inter and after stage coolers	(°C)	Successful bidder to refer to relevant OEM drawings/manuals

	DESCRIPTION		PARAMETER
1.22.1.6	Volume of condenser and turbine steam space taken as basis of ejector capacity design	(°C)	Successful bidder to refer to relevant OEM drawings/manuals
1.22.1.7	Time required to reach vacuum conditions (secs.)		Successful bidder to refer to relevant OEM drawings/manuals
1.22.1.8	Heat exchange rate with full condensate flow in	(kcal/hr)	
	a) Inter cooler		Successful bidder to refer to relevant OEM drawings/manuals
	b) After cooler		Successful bidder to refer to relevant OEM drawings/manuals
1.22.1.9	Gain in temperature of condensate	(°C)	Successful bidder to refer to relevant OEM drawings/manuals
1.22.1.10	Cooler drains to condenser/waste		
	a) Quality		Successful bidder to refer to relevant OEM drawings/manuals
	b) Temperature	(°C)	Successful bidder to refer to relevant OEM drawings/manuals
	c) Enthalpy	(kcal/kg)	Successful bidder to refer to relevant OEM drawings/manuals
1.22.1.11	Noise level (dB)		Successful bidder to refer to relevant OEM drawings/manuals
1.23	<b>Air ejector</b>		
	a) Suction size		Successful bidder to refer to relevant OEM drawings/manuals
	b) Steam inlet size		Successful bidder to refer to relevant OEM drawings/manuals
	c) Acceptable moments and forces at steam inlet flange	(kg.m/kg)	Successful bidder to refer to relevant OEM drawings/manuals
1.23.1	<b>Materials</b>		
	a) Suction chamber diffuser		Successful bidder to refer to relevant OEM drawings/manuals
	b) Steam nozzle		Successful bidder to refer to relevant OEM drawings/manuals
	c) Steam chamber		Successful bidder to refer to relevant OEM drawings/manuals
1.24	<b>Inter and After Stage Cooler</b>		
	a) Heat Exchanger area	(m <sup>2</sup> )	Successful bidder to refer to relevant OEM drawings/manuals

	DESCRIPTION		PARAMETER
	b) Acceptable forces and moments at inlet and outlet connections		Successful bidder to refer to relevant OEM drawings/manuals
	c) Tube size and thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	d) Shell design pressure	(kg/cm <sup>2</sup> )	Successful bidder to refer to relevant OEM drawings/manuals
1.24.1	<b>Materials</b>		
	a) tube		Successful bidder to refer to relevant OEM drawings/manuals
	b) Tube sheet		Successful bidder to refer to relevant OEM drawings/manuals
	c) Water box		Successful bidder to refer to relevant OEM drawings/manuals
	d) Baffle		Successful bidder to refer to relevant OEM drawings/manuals
	e) Base plate		Successful bidder to refer to relevant OEM drawings/manuals
1.25	<b>Air Motor</b>		
	a) Manufacturer		Successful bidder to refer to relevant OEM drawings/manuals
	b) Type		Successful bidder to refer to relevant OEM drawings/manuals
	c) Model No.		Successful bidder to refer to relevant OEM drawings/manuals
	d) Range	(m <sup>3</sup> /hr)	Successful bidder to refer to relevant OEM drawings/manuals
1.26	<b>Relief Valve</b>		
	a) Manufacturer		Successful bidder to refer to relevant OEM drawings/manuals
	b) Model No.		Successful bidder to refer to relevant OEM drawings/manuals
	c) Size	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	d) Relieving capacity	(m <sup>3</sup> /hr)	Successful bidder to refer to relevant OEM drawings/manuals
	e) Seeting	[kg/cm <sup>2</sup> (g)]	Successful bidder to refer to relevant OEM drawings/manuals
1.27	<b>Performance Data</b>		
	a) Capacity	(m <sup>3</sup> /hr)	Successful bidder to refer to relevant

	DESCRIPTION		PARAMETER
			OEM drawings/manuals
	b) Inlet pressure	(kg/cm <sup>2</sup> )	Successful bidder to refer to relevant OEM drawings/manuals
	c) Evacuation time	(min.)	Successful bidder to refer to relevant OEM drawings/manuals
	d) Vacuum range	(mm Hg)	Successful bidder to refer to relevant OEM drawings/manuals
	i) 0-200		Successful bidder to refer to relevant OEM drawings/manuals
	ii) 200-300		Successful bidder to refer to relevant OEM drawings/manuals
	iii) 300-400		Successful bidder to refer to relevant OEM drawings/manuals
	iv) 400-500		Successful bidder to refer to relevant OEM drawings/manuals
	v) 500-600		Successful bidder to refer to relevant OEM drawings/manuals
	vi) 600-650		Successful bidder to refer to relevant OEM drawings/manuals
	vii) 650-700		Successful bidder to refer to relevant OEM drawings/manuals
	viii) 700-710		Successful bidder to refer to relevant OEM drawings/manuals
	ix) 710-725		Successful bidder to refer to relevant OEM drawings/manuals
	x) 725-Max.		Successful bidder to refer to relevant OEM drawings/manuals

## 2. Gland Steam Condenser

S.No.	DESCRIPTION		PARAMETER
2.00	<b>GLAND STEAM CONDENSER</b>		
A.	<b>Technical Data</b>		
2.01	Type		Shell and tube
2.02	Manufacturer		Primary firm
2.03	Design and construction standard		TEMA C
2.04	No. of shell pass		One (1)
2.05	No. of tube pass		Two (2)

S.No.	DESCRIPTION		PARAMETER	
2.06	Heat transfer area			
	i) Drain cooling zone	(m <sup>2</sup> )	Successful bidder to refer to relevant OEM drawings/manuals	
	ii) Desup. zone	(m <sup>2</sup> )	Successful bidder to refer to relevant OEM drawings/manuals	
	iii) Condensing zone	(m <sup>2</sup> )	Not Furnished	
	iv) Total area	(m <sup>2</sup> )	32	
2.07	Position		Successful bidder to refer to relevant OEM drawings/manuals	
2.08	Alternate arrangement for gland steam condenser		Successful bidder to refer to relevant OEM drawings/manuals	
2.10	<b>Performance of one unit</b>		Shell side	Tube side
2.11	Fluid circulated		Steam air mixture	Condensate
2.12	Total fluid entering	(kg/hr)	2000	Condensate
2.13	Steam	(kg/hr)	900	-
2.14	Non-condensable	(m <sup>3</sup> /hr)	1000	-
2.15	Steam condensed	(kg/hr)	-	-
2.16	Enthalpy - Inlet	(kcal/kg)	-	-
2.17	Temperature - IN	(°C)	150	-
2.18	Temperature - OUT	(°C)	65	-
2.19	Operating pressure	(ata)	0.98	-
2.20	Nmber of passes per shell		1	-
2.21	Velocity	(m/s)	13 max	2.5
2.22	Maximum allowable pressure drop	(kg/cm <sup>2</sup> )	-	0.4
2.23	Fouling resistance	(Hr/M <sup>2</sup> /°C/Kcal)	TEMA C	
2.24	Rate of heat Exchange	(Kcal/hr)	500000	
2.25	Rate of heat transfer	(Kcal/hr. M <sup>2</sup> °C)	1300	
2.30	<b>Construction of each shell</b>		<b>Shell</b>	<b>Tube</b>
2.31	Design pressure	(Kg/cm <sup>2</sup> )	1	30
2.32	Hydro Test pressure	(Kg/cm <sup>2</sup> )	1.5	45
2.33	Design temperature	(°C)	200	100
2.34	Tubes:			

S.No.	DESCRIPTION	PARAMETER
	a) Number	156
	b) OD	15.875
	c) Length	Successful bidder to refer to relevant OEM drawings/manuals
	d) Pitch	22
	e) ID	Successful bidder to refer to relevant OEM drawings/manuals
	f) Thickness	1.245
2.35	Shell	
	a) ID	470
	b) OD	490
	c) Thickness	Successful bidder to refer to relevant OEM drawings/manuals
	d) Withdrawal length	Successful bidder to refer to relevant OEM drawings/manuals
	e) Corrosion allowance provided	2
2.36	Channels and Cover	
	a) Tube sheets	Successful bidder to refer to relevant OEM drawings/manuals
2.37	Baffles	Successful bidder to refer to relevant OEM drawings/manuals
2.38	Connections-shell-In	8"
2.39	Connections-shell-In	12"
2.310	Other connections-shell	Successful bidder to refer to relevant OEM drawings/manuals
2.311	Corrosion allowance-shell side	Successful bidder to refer to relevant OEM drawings/manuals
2.40	<b>Material of Construction:</b>	
2.41	Shell	Carbon steel
2.42	Shell nozzles	Successful bidder to refer to relevant OEM drawings/manuals
2.43	Shell nozzle flanges	Successful bidder to refer to relevant OEM drawings/manuals
2.44	Channel/Bonnet	Successful bidder to refer to relevant OEM drawings/manuals
2.45	Channel/Bonnet flanges	Successful bidder to refer to relevant

S.No.	DESCRIPTION		PARAMETER
			OEM drawings/manuals
2.46	Channel nozzles		Successful bidder to refer to relevant OEM drawings/manuals
2.47	Channel nozzle flanges		Successful bidder to refer to relevant OEM drawings/manuals
2.48	Tubes		OTS 76
2.49	Tube sheets: stationary		Muntz
2.410	Baffles: Cross		Successful bidder to refer to relevant OEM drawings/manuals
2.411	Spacers		Successful bidder to refer to relevant OEM drawings/manuals
2.412	Bolting:- Tube side joints		Successful bidder to refer to relevant OEM drawings/manuals
2.413	Gaskets: Fixed tube sheets channel side		Successful bidder to refer to relevant OEM drawings/manuals
2.414	Saddle supports/brackets		Successful bidder to refer to relevant OEM drawings/manuals
2.415	Name plate		Successful bidder to refer to relevant OEM drawings/manuals
2.50	<b>Vent fan</b>		
2.51	Quantity		2x100%
2.52	Capacity	(cum/hr)	Successful bidder to refer to relevant OEM drawings/manuals
2.53	Vacuum created in gland steam condenser	(mmwg)	Successful bidder to refer to relevant OEM drawings/manuals
2.54	Fan drive details		AC electric motor driven
	a) Motor rating	(kW)	Successful bidder to refer to relevant OEM drawings/manuals
	b) Speed	(rpm)	Successful bidder to refer to relevant OEM drawings/manuals
	c) Power consumed at motor shaft	(kW)	Successful bidder to refer to relevant OEM drawings/manuals
2.55	Accessories provided		Successful bidder to refer to relevant OEM drawings/manuals

### 3. Deaerator

S. No	DESCRIPTION		PARAMATER
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S. No	DESCRIPTION		PARAMATER
3.01	a) Type		Spray cum tray cum reboiling type
	b) Manufacturer		Successful bidder to refer to relevant OEM drawings/manuals
	c) Model number		Successful bidder to refer to relevant OEM drawings/manuals
3.02	Internal design pressure	(kg/cm <sup>2</sup> (g))	
	a) Storage tank		10
	b) Deaerator header		10
	c) Water side		Successful bidder to refer to relevant OEM drawings/manuals
	d) Coarse strainer at inlet; mesh size		Not applicable
	e) Spray valves		13
	f) Flow rate	(tphr)	370
3.03	Design temperature :	(°C)	
	a) Storage tank		200
	b) Deaerator header		360
3.04	Hydraulic test pressure:	(kg/cm <sup>2</sup> (g))	
	a) Storage tank		15
	b) Deaerator header		15
3.05	Storage tank capacity:		
	a) In minutes	(min.)	10
	b) At normal working level (2/3 tank I.D) fully filled	(M <sup>3</sup> )	100
3.06	Weights :		
	a) Storage tank	(tonnes)	24
	b) Deaerator header	(tonnes)	3.5
	c) Total weights (empty)	(tonnes)	27.5
	d) Working weights during - Erection - Maintenance	(tonnes)	27.5 27.5
	e) Flooded weight		136
	f) Shipping weight - During transport - Total weight		25 (storage tank) & 4 (dearator) 29
3.07	Fittings supplied		

S. No	DESCRIPTION		PARAMATER
3.08	Dimensions and thickness :		
	a) Deaerator ID	(mm)	1800
	b) Deaerator header overall length	(mm)	4000
	c) Deaerator shell thickness	(mm)	10
	d) Deaerator header dished end thickness	(mm)	10
	e) Number of perforated trays		Successful bidder to refer to relevant OEM drawings/manuals
	f) Size of top tray		Successful bidder to refer to relevant OEM drawings/manuals
	g) Size of each tray		Successful bidder to refer to relevant OEM drawings/manuals
	h) Thickness of tray		Successful bidder to refer to relevant OEM drawings/manuals
	i) No. of spray valves		Successful bidder to refer to relevant OEM drawings/manuals
3.09	<b>Storage tank</b>		
	a) Storage tank ID	(mm)	3400
	b) Overall length	(mm)	11500
	c) Storage tank thickness	(mm)	19
	d) Storage tank dished end thickness	(mm)	19
	e) Shipping dimensions		
	i) Length	(mm)	11599
	ii) Breadth	(mm)	3400
	iii) Height	(mm)	3800
3.10	Material of construction:		
	a) Shell dished end plate		ASTM A516-70
	b) Perforated trays		ASTM A 240 TP 304
	c) Spray valves		Stainless steel TP 304
	d) Pipe materials		A 106/A 213 TP 304
3.11	<b>Code for mechanical design</b>		
	a) Storage tank		ASME VIII
	b) Deaerator header		ASME VIII
3.12	Performance data		
	a) Dissolved O <sub>2</sub> content in ml/c.c in		0.005

S. No	DESCRIPTION		PARAMATER
	feed water at deaerator outlet at rated output		
	b) Capacity	(min)	10

#### 4. Feed Water Heater

S. No	DESCRIPTION		PARAMETERS		
4.00	<b>FEED WATER HEATER (LP heaters)</b>		<b>LPH1</b>	<b>LPH2</b>	<b>LPH3</b>
4.01	Service of the unit		Successful bidder to refer to relevant OEM drawings/manuals		
4.02	Type:Shell/tube bundle removable		Tube	Shell	Shell
4.03	Size of the unit		Successful bidder to refer to relevant OEM drawings/manuals		
4.04	Shell ID	(mm)	870	980	905
4.05	A.V. length of U-tube including tube plate thinckness		16700	18700	18400
4.06	Number of units		1	1	1
4.07	Position		Horizontal	Vertical	Vertical
4.08	Location				
	a) Indoor/Outdoor		<----- Indoor ----->		
	b) Inside condenser neck	-	Yes	-	-
4.10	<b>Design Data</b>				
4.11	<b>Shell side data</b>				
4.11.1	Extraction steam flow	(t/hr)	9.706	18.324	20.936
4.11.2	Inlet Enthalpy	(kcal/Kg)	613.1	658.6	745.6
	a) Inlet Temperature	(°C)	70.3	106.9	148.6
	b) Shell Temperature	(°C)	Successful bidder to refer to relevant OEM drawings/manuals		
4.11.3	Shell inlet pressure	[Kg/cm <sup>2</sup> (a)]	0.322	1.313	4.675
4.11.4	<b>Drains Entering</b>				
	a) Source		LPH2	LPH3	-
	b) Flow	(T/hr)	39.36	20.936	0.0
	c) Enthalpy	(Kcal/kg)	73.3	110.1	0.0
	d) Temperature	(°C)	73.3	109.9	0.0
4.11.5	Drains Leaving				

	a) Flow	(T/hr)	48.966	39.260	20.936
	b) Enthalpy	(Kcal/Kg)	53.5	73.3	110.0
	c) Temperature	(°C)	53.5	73.3	109.9
4.11.6	Design pressure	[Kg/cm <sup>2</sup> (g)]	<-----3.5&FV----->		
4.11.7	Test pressure Skirt/shell	[Kg/cm <sup>2</sup> (g)]	<-----5.25/5.25/5.25/7.5----->		
4.11.8	Design Temperature	(°C)	140	150	220-350
4.11.9	Fouling resistance	(Hr/M <sup>2</sup> /°C/kcal )			
	a) Condensing		<-----0.00004----->		
	b) Sub cooling		<-----0.00006----->		
4.11.10	<b>Tube side data</b>				
4.11.101	Feed water flow	(Kg/hr)	<-----312.729----->		
4.11.102	Inlet Enthalpy	(Kcal/Kg)	47.7	67.5	104.1
4.11.103	Inlet temperature	(°C)	47.5	67.3	103.9
4.11.104	Outlet Enthalpy	(Kcal/Kg)	67.5	104.1	146.6
4.11.105	Outlet temperature	(°C)	67.3	103.9	145.6
4.11.106	Inlet pressure	[Kg/cm <sup>2</sup> (g)]	-	-	-
4.11.107	Design pressure	[Kg/cm <sup>2</sup> (g)]	<-----27.5----->		
4.11.108	Test pressure	kg/cm <sup>2</sup> (g)	41.3		
4.11.109	Design temperature	(°C)	139	139	20
4.11.110	Fouling resistance	(Hr/M <sup>2</sup> °C/kcal)	<-----0.00004----->		
4.11.111	Desuperheating section		-	-	-
4.11.112	Included		No	No	Yes
4.11.113	Heat transfer surface	(M <sup>2</sup> )	-	-	41
4.11.12	<b>Condensing section</b>				
4.11.121	Included		Yes	Yes	Yes
4.11.122	Heat transfer surface		221	285	220
4.11.13	<b>Drain cooling section</b>		Yes	Yes	Yes
4.11.131	Included		Yes	Yes	Yes
4.11.132	Heat transfer surface	(m <sup>2</sup> )	41	43	22
4.12.0	<b>Performance Data</b>		<b>LPH1</b>	<b>LPH2</b>	<b>LPH3</b>
4.12.1	Terminal Temp difference rated output	(°C)	3	3	3

4.12.2	Drain cooler approach rated output	(°C)	6	6	6
4.12.3	Shell side data			-	
4.12.3.1	Desuperheating section				
	a) Heat Exchanged	(kcal/hr.)	NA	NA	825700
	b) LMTD	(°C)	NA	NA	141
	c) Transfer rate	(kcal/hr.M <sup>2</sup> °C)	NA	NA	
	d) Pressure drop	(Kg/cm <sup>2</sup> )	NA	NA	0.1
4.12.3.2	Overall pressure drop on the tube side at average operating temperature	(Kg/cm <sup>2</sup> )	0.8	0.6	0.6
4.12.3.3	Feed water velocity through tubes at average operating temperature	(m/s)	1.9	1.5	1.7
4.13.0	<b>Drain level in heater</b>				
4.13.1	Normal (below support)	(mm)	Successful bidder to refer to relevant OEM drawings/manuals		
4.13.2	Maximum	(mm)	Successful bidder to refer to relevant OEM drawings/manuals		
4.13.3	Maximum	(mm)	Successful bidder to refer to relevant OEM drawings/manuals		
4.14.0	<b>Construction data</b>		<b>LPH1</b>	<b>LPH2</b>	<b>LPH3</b>
4.14.1	Codes applicable		<----- ASME VIII HEI ----->		
4.14.2	<b>Shell</b>				
4.14.2.1	ID/OD	(mm)	870/890	980/1000	920/942
4.14.2.2	Thickness	(mm)	10	10	10
4.14.3.3	Length	(mm)	10000	10850	10650
4.14.3	Shell skirt				
4.14.3.1	ID/OD		870/890	980/1000	920/941
4.14.3.2	Thickness	(mm)	10	10	12
4.14.3.3	Length	(mm)		-	
4.14.4	Shell cover:(Bottom)				
	a) Attachment to shell welded		<-----Welded----->		
	b) Shape of dish hemispherical/ torispherical/ ellipsoidal		<-----Ellipsoidal----->		
4.14.5	Length of desuperheating zone	(mm)	Successful bidder to refer to relevant OEM drawings/manuals		
4.14.6	Length of shroud of cooling zone	(mm)	Successful bidder to refer to relevant OEM drawings/manuals		

4.14.7	Type of joint between shell and tube sheet welded/flanged		<-----Welded----->
4.14.8	Shell flange (shell and tube sheet joint)		Successful bidder to refer to relevant OEM drawings/manuals
4.14.8.1	Type of flanges		Successful bidder to refer to relevant OEM drawings/manuals
4.14.8.2	Thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
4.14.9	Shell flange (shell and skirt joint)		Successful bidder to refer to relevant OEM drawings/manuals
4.14.9.1	Type of flanges		Successful bidder to refer to relevant OEM drawings/manuals
4.14.9.2	Thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
4.14.9.3	Series and facing		Successful bidder to refer to relevant OEM drawings/manuals
4.14.9.4	Number		Successful bidder to refer to relevant OEM drawings/manuals
4.14.10	Cross Baffles		Successful bidder to refer to relevant OEM drawings/manuals
4.14.10.1	Spacing		Successful bidder to refer to relevant OEM drawings/manuals
4.14.10.2	Number		Successful bidder to refer to relevant OEM drawings/manuals
4.14.10.3	% cut		Successful bidder to refer to relevant OEM drawings/manuals
4.14.10.4	Thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
4.14.10.5	Arrangement of Baffles		Successful bidder to refer to relevant OEM drawings/manuals
4.14.11	Support plates		Successful bidder to refer to relevant OEM drawings/manuals
4.14.11.1	Spacing		Successful bidder to refer to relevant OEM drawings/manuals
4.14.11.2	Number		Successful bidder to refer to relevant OEM drawings/manuals
4.14.11.3	Thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
4.14.12	Tie rods and spacer		Successful bidder to refer to relevant OEM drawings/manuals
4.14.12.1	Number of tie rods		Successful bidder to refer to relevant OEM drawings/manuals

4.14.12.2	Number of spacers		Successful bidder to refer to relevant OEM drawings/manuals
4.14.13	Shell nozzles		Successful bidder to refer to relevant OEM drawings/manuals
4.14.13.1	Steam inlet		Successful bidder to refer to relevant OEM drawings/manuals
	a) Number		Successful bidder to refer to relevant OEM drawings/manuals
	b) Size (Nominal)	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	c) Wall thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	d) Type (Butt welded)		Successful bidder to refer to relevant OEM drawings/manuals
4.14.13.2	Drains Entering		Successful bidder to refer to relevant OEM drawings/manuals
	a) Number		Successful bidder to refer to relevant OEM drawings/manuals
	b) Size (Nominal)	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	c) Wall thickness (SCH)	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	d) Type (Flanged)		Successful bidder to refer to relevant OEM drawings/manuals
4.14.13.3	Other drains entering		
	a) Number		Successful bidder to refer to relevant OEM drawings/manuals
	b) Size	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	c) Wall thickness (Sch)	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	d) Type (Butt-welded/flanged)		Successful bidder to refer to relevant OEM drawings/manuals
4.14.13.4	Drain leaving		
	a) Number		Successful bidder to refer to relevant OEM drawings/manuals
	b) Size (Nominal)	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	c) Wall thickness (SCH)	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	d) Type (Flanged)		Successful bidder to refer to relevant

			OEM drawings/manuals
4.14.14	Shell nozzles flanges		Successful bidder to refer to relevant OEM drawings/manuals
4.14.14.1	Steam inlet		
	a) Number		Successful bidder to refer to relevant OEM drawings/manuals
	b) Thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	c) Series and facing		Successful bidder to refer to relevant OEM drawings/manuals
4.14.14.2	Drains Entering		
	a) Number		Successful bidder to refer to relevant OEM drawings/manuals
	b) Thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	c) Series & facing	(Kg/cm <sup>2</sup> )	Successful bidder to refer to relevant OEM drawings/manuals
4.14.14.3	Other drains entering		
	a) Number		Successful bidder to refer to relevant OEM drawings/manuals
	b) Thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	c) Series & Facing	(Kg/cm <sup>2</sup> )	Successful bidder to refer to relevant OEM drawings/manuals
4.14.14.4	<b>Drains leaving</b>		
	a) Number		Successful bidder to refer to relevant OEM drawings/manuals
	b) Thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	c) Series & Facing	Kg/cm <sup>2</sup>	Successful bidder to refer to relevant OEM drawings/manuals
4.14.15	<b>Other connections</b>		
	a) Shell side		
	i) No./Size/type		Successful bidder to refer to relevant OEM drawings/manuals
	ii) S-screwed		Successful bidder to refer to relevant OEM drawings/manuals
	iii) F-flanged		Successful bidder to refer to relevant OEM drawings/manuals
	iii) W-Butt welded		Successful bidder to refer to relevant

			OEM drawings/manuals
4.14.15.1	Sheel vent		Successful bidder to refer to relevant OEM drawings/manuals
4.14.15.2	Shell drain		Successful bidder to refer to relevant OEM drawings/manuals
4.14.15.3	Acid cleaning		Successful bidder to refer to relevant OEM drawings/manuals
4.14.15.4	Pressure gauges		Successful bidder to refer to relevant OEM drawings/manuals
4.14.15.5	Relief valve		Successful bidder to refer to relevant OEM drawings/manuals
4.14.15.6	Liquid level controller		Successful bidder to refer to relevant OEM drawings/manuals
4.14.15.7	Liquid level switches		Successful bidder to refer to relevant OEM drawings/manuals
4.14.15.8	Gauges glass		Successful bidder to refer to relevant OEM drawings/manuals
4.14.16	<b>Tubes</b>		<-----U-Tubes----->
4.14.16.1	OD	(mm)	<-----16----->
4.14.16.2	Selected gauges before forming thickness	(mm)	<-----0.89----->
4.14.16.3	Minimum thickness at bend after forming BWG		Successful bidder to refer to relevant OEM drawings/manuals
4.14.16.4	Total straight length of one leg	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
4.14.16.5	Av. effective length of one tube	(mm)	16700      18700      18400
4.14.16.6	Pitch		<-----21----->
4.14.16.7	Pitch type (tringular/square)		<-----Triangular----->
4.14.16.8	Number of U-tubes & Number of tube passes		318/2      410/2      373/2
4.14.16.9	Tube bundle removal space	(mm)	9000      9000      9000
4.14.16.10	Total length-overall		10000      10850      10660
4.14.17	U-tubes		
4.14.17.1	OD	(mm)	<-----16----->
4.14.17.2	BWG selected		<-----20----->
4.14.18	Tube Sheet: a) Type integral/removal		<-----Integral----->

	b) Thickness	(mm)	<-----70----->
4.14.19	Channel details Channel skirt		
	a) OD/ID		700/-      780/-      750/-
	b) Thickness	(mm)	12          12          12
	c) Length	(mm)	-
4.14.20	Type of joint between channel & tube sheet flanged/welded/integral		<-----Welded----->
4.14.21	Channel flange at cover joint		Successful bidder to refer to relevant OEM drawings/manuals
4.14.21.1	Type of flange		Successful bidder to refer to relevant OEM drawings/manuals
4.14.21.2	Thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
4.14.21.3	Series & facing	(P nom Kg/cm <sup>2</sup> )	Successful bidder to refer to relevant OEM drawings/manuals
4.14.22	Channel flange at tube sheet joint		Successful bidder to refer to relevant OEM drawings/manuals
4.14.22.1	Type of flange		Successful bidder to refer to relevant OEM drawings/manuals
4.14.22.2	Thickness		Successful bidder to refer to relevant OEM drawings/manuals
4.14.22.3	Series & facing-raised face	(P nom Kg/cm <sup>2</sup> )	Successful bidder to refer to relevant OEM drawings/manuals
4.14.23	Channel closure (bidder to furnish a sktech of heater head closure for LP heaters)		Removable
4.14.23.1	Type removable /welded		
	Shape:		
	a) For removable type		Flat bolted cover
	b) For welded type full flat/breach hemispherical/Tori-spherical/ Ellipsoidal		Successful bidder to refer to relevant OEM drawings/manuals
4.14.24	Access manway cover: Type flat bolted manways with welded diaphragm, if any, other type give particulars		Successful bidder to refer to relevant OEM drawings/manuals
4.14.25	Channel closure details		Successful bidder to refer to relevant OEM drawings/manuals
4.14.25.1	Dish portion thickness		Successful bidder to refer to relevant OEM drawings/manuals
4.14.25.2	Flat cover thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals

4.14.25.3	Access manway cover thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
4.14.25.4	Channel pass portion plates thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
4.14.26	Channel Nozles		Successful bidder to refer to relevant OEM drawings/manuals
4.14.26.1	Feed water inlet		Successful bidder to refer to relevant OEM drawings/manuals
	a) Size	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	b) Wall thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	c) Type Butt welded/flanged		Successful bidder to refer to relevant OEM drawings/manuals
4.14.26.2	Feed water outlet		Successful bidder to refer to relevant OEM drawings/manuals
	a) Size (Nominal)	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	b) Wall thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	c) Type butt-welded/flanged		Successful bidder to refer to relevant OEM drawings/manuals
4.14.26.3	Access manway nozzles		Successful bidder to refer to relevant OEM drawings/manuals
	a) Size		Successful bidder to refer to relevant OEM drawings/manuals
	b) Wall thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	c) Type Butt welded/flanged		Successful bidder to refer to relevant OEM drawings/manuals
4.14.27	Other connections:		Successful bidder to refer to relevant OEM drawings/manuals
	a) Tube side		Successful bidder to refer to relevant OEM drawings/manuals
	b) No./size/type		Successful bidder to refer to relevant OEM drawings/manuals
4.14.27.1	Channel vent		Successful bidder to refer to relevant OEM drawings/manuals
4.14.27.2	Channel drain		Successful bidder to refer to relevant OEM drawings/manuals
4.14.27.3	Channel relief valve		Successful bidder to refer to relevant OEM drawings/manuals

4.14.28	Shell relief valves		Successful bidder to refer to relevant OEM drawings/manuals
4.14.28.1	Number and size		Successful bidder to refer to relevant OEM drawings/manuals
4.14.28.2	Manufacturer		Successful bidder to refer to relevant OEM drawings/manuals
4.14.28.3	Designation		Successful bidder to refer to relevant OEM drawings/manuals
4.14.28.4	Relieving capacity	(M <sup>3</sup> /hr)	Successful bidder to refer to relevant OEM drawings/manuals
4.14.28.5	Set pressure	[kg/cm <sup>2</sup> (g)]	Successful bidder to refer to relevant OEM drawings/manuals
4.14.28.6	Type		Successful bidder to refer to relevant OEM drawings/manuals
4.14.29	Channel relief valves (Thermal expansion)		Successful bidder to refer to relevant OEM drawings/manuals
4.14.29.1	Number and size		Successful bidder to refer to relevant OEM drawings/manuals
4.14.29.2	Manufacturer		Successful bidder to refer to relevant OEM drawings/manuals
4.14.29.3	Designation		Successful bidder to refer to relevant OEM drawings/manuals
4.14.29.5	Set Pressure	[kg/cm <sup>2</sup> (g)]	Successful bidder to refer to relevant OEM drawings/manuals
4.14.29.6	Type		Successful bidder to refer to relevant OEM drawings/manuals
4.14.30	Inpingement Baffles		Successful bidder to refer to relevant OEM drawings/manuals
4.14.30.1	Type : Plates/Clip on protection		Successful bidder to refer to relevant OEM drawings/manuals
4.14.30.2	Number		Successful bidder to refer to relevant OEM drawings/manuals
4.14.30.3	Size	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
4.14.31	Gaskets		Successful bidder to refer to relevant OEM drawings/manuals
4.14.31.1	Steam Side		Successful bidder to refer to relevant OEM drawings/manuals
4.14.31.2	Feed Water Side		Successful bidder to refer to relevant OEM drawings/manuals
4.14.32	<b>Materials of Construction</b>		

	a) Shell		<-----A516-70----->
	b) Shell skirt		<-----A516-70----->
	c) Shell cover		<-----A516-70----->
	d) Shroud of Desuperheating zone		<-----A516-70----->
	e) Shroud of drain cooling zone		<-----A516-70----->
	f) Shell flange (Shell & Tube sheets joint)		<-----A 105----->
	g) Shell flange (Shell & shell skirt joint)		<-----A 105----->
	h) Cross baffles		<-----carbon steel----->
	i) Support plates		<-----carbon steel----->
	j) Tie rods		<-----carbon steel----->
	k) Spacers		<-----carbon steel----->
	l) Shell Nozzles		<-----ASTM A 106 B----->
	m) Shell nozzles flanges		<-----ASTM A 105 B----->
	n) Tubes		<-----ASTM A 213 TP 304----->
	o) Tube sheet		<-----ASTM A 266 CP II----->
	p) Channel		<-----ASTM A 516 - 70----->
	q) Channel flange at cover joint		
	r) Channel flange at tube joint		
	s) Channel cover		<-----ASTM A 516 - 70----->
	t) Access cover		<-----ASTM A 516 - 70----->
	u) Channel pass partition plate		
	v) Channel nozzles		<-----ASTM A 106 B----->
	w) Gaskets		Successful bidder to refer to relevant OEM drawings/manuals
	i) Steam side		Successful bidder to refer to relevant OEM drawings/manuals
	ii) Water side		Successful bidder to refer to relevant OEM drawings/manuals
	x) Bolting material		Successful bidder to refer to relevant OEM drawings/manuals
	i) Bolts (eq. material may also be used)		Successful bidder to refer to relevant OEM drawings/manuals
	ii) Studs		<-----ASTM A 193 B-7----->
	iii) Nuts		<-----ASTM A 193 24----->

4.14.33	<b>Accessories included</b>		
4.14.33.1	Tube bundle shield		Successful bidder to refer to relevant OEM drawings/manuals
4.14.33.2	Shell mounting flanges (to be provided for the heater in the condenser neck)		Successful bidder to refer to relevant OEM drawings/manuals
4.14.33.3	Supports/Brackets		Successful bidder to refer to relevant OEM drawings/manuals
4.14.33.4	Lifting lugs		Successful bidder to refer to relevant OEM drawings/manuals
4.14.33.5	Insulation clips		Successful bidder to refer to relevant OEM drawings/manuals
4.14.33.6	Jack screws		Successful bidder to refer to relevant OEM drawings/manuals
4.14.33.7	Alignment dowels		Successful bidder to refer to relevant OEM drawings/manuals
4.14.33.8	Name plates		Successful bidder to refer to relevant OEM drawings/manuals
4.14.33.9	Hydro test included		Successful bidder to refer to relevant OEM drawings/manuals
4.14.34	Protective painting included		Successful bidder to refer to relevant OEM drawings/manuals
4.14.35	Weights	(kg)	
	a) Heater dry		7000      8000      8000
	b) Heater flooded		15000      17000      15000
	c) Tube bundle dry		Successful bidder to refer to relevant OEM drawings/manuals
	d) Shell dry (removable section)		Successful bidder to refer to relevant OEM drawings/manuals
4.14.36	Corrosion allowance		
4.14.36.1	Shell side	(mm)	<-----1.6----->
4.14.36.2	Tube side	(mm)	<-----1.6----->
4.14.37	Parts stress relieved		Successful bidder to refer to relevant OEM drawings/manuals
4.14.38	Parts radio graphed		Successful bidder to refer to relevant OEM drawings/manuals
4.14.39	Maintenance tools offered		Successful bidder to refer to relevant OEM drawings/manuals
4.14.40	Start-up spares offered		Successful bidder to refer to relevant OEM drawings/manuals
4.14.41	Maintenance spares offered		Successful bidder to refer to relevant

			OEM drawings/manuals
4.14.42	Weight		
	i) Empty		Successful bidder to refer to relevant OEM drawings/manuals
	ii) Flooded		Successful bidder to refer to relevant OEM drawings/manuals
	iii) Wt. of tube bundle		Successful bidder to refer to relevant OEM drawings/manuals
	iv) Heaviest part weight		Successful bidder to refer to relevant OEM drawings/manuals
4.14.43	Shipping dimension		
	i) Length	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	ii) Breadth	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
	iii) Height	(mm)	Successful bidder to refer to relevant OEM drawings/manuals

## 5. HP Heater

S No.	DESCRIPTION		PARAMATER	
5.00	<b>HP HEATERS</b>			
5.1.0	<b>Description</b>		<b>HP5</b>	<b>HP6</b>
5.1.1	a) Type		<-----shell and tube----->	
	b) Manufacturer		Successful bidder to refer to relevant OEM drawings/manuals	
	c) Model number		Successful bidder to refer to relevant OEM drawings/manuals	
5.1.2	Arrangement		<-----vertical----->	
5.1.3	Desgin & construction standard		<-----ASMEVIII-HEI----->	
5.2.0	<b>Operating pressure:</b>			
5.2.1	Shell side	[kg/cm <sup>2</sup> (abs)]	20.38	35.08
5.2.2	Tube side	[kg/cm <sup>2</sup> (abs)]		
5.3.0	<b>Tube surface area</b>			
5.3.1	Desuperheating zone	(M <sup>2</sup> )	65	42
5.3.2	Condensing zone,	(M <sup>2</sup> )	316	386

5.3.3	Drain cooling zone	(M <sup>2</sup> )	51	22
5.3.4	Total surface (gross)	(M <sup>2</sup> )	459	473
5.4.0	<b>Heater design parameters</b>			
5.4.1	Terminal temperature difference	(°C)	2	0
5.4.2	Drain cooling approach	(°C)	6	6
5.4.3	Feed water velocity through tube	(M/sec.)	2	2
5.4.4	Tube side pressure drop	(kg/cm <sup>2</sup> )	0.7	0.65
5.5.0	<b>Design condition</b>			
5.5.1	Shell:			
5.5.1.1	Shell design pressure	(kg/cm <sup>2</sup> (g))	24	37
5.5.1.2	Shell side temperature	(°C)	480/220	370/220
5.5.2	Tube:			
5.5.2.1	Tube design pressure	(kg/cm <sup>2</sup> (g))	200	200
5.5.2.2	Tube design temperature	(°C)	220	220
5.6.0	<b>Feed water parameters</b>			
5.6.1	Feed water flow	(T/hr)	<-----369.612----->	
5.6.2	Feed water inlett temperature	(°C)	176.8	214.3
5.6.3	Feed water outlet temperature	(°C)	214.3	241.6
5.7.0	<b>Extraction steam</b>			
5.7.1	Flow	(kg/hr)	21.873	21.413
5.7.2	Inlet temperature	(°C)	212.3	241.6
5.7.3	Inlet enthalpy	(kcal/kg)	813.2	738.7
5.8.0	<b>Drain leaving heater</b>			
5.8.1	Flow	(kg/hr)	43.286	21.413
5.8.2	Temperature	(°C)	182.8	220.3
5.8.3	Enthalpy	(kcal/kg)	185.4	225.8
5.9.0	<b>Drain entering heater</b>			
5.9.1	Flow	(kg/hr)	21.413	0
5.9.2	Temperature	(°C)	220.3	-
5.9.3	Enthalpy	(kcal/kg)	225.8	-
5.10.0	<b>Material of construction</b>			
5.10.1	Shell		<-----ASTM A 516-70----->	

5.10.2	Tubes		<-----ASTM A 213 TP 304----->	
5.10.3	Baffles		<-----carbon steel----->	
5.10.4	Water box		<-----ASTM A 516-70----->	
5.10.5	Water box manhole cover		<-----ASTM A 516-70----->	
5.10.6	Tube plate		<-----ASTM A 266 Cl.3----->	
5.10.7	Inpingement baffle		<-----Stainless steel----->	
5.11.0	<b>Constructional features</b>			
5.11.1	Shell:			
5.11.1.1	Shell OD	(mm)	1030	1035
5.11.1.2	Shell thickness	(mm)		
5.11.1.3	Type of joint with tube plate tube		<-----Expanding + welding----->	
5.11.2	Tubes:			
5.11.2.1	Number of tube passes		2	2
5.11.2.2	Number of `U' passes		557	615
5.11.2.3	Tube OD	(mm)	16	16
5.11.2.4	Tube thickness	(mm)	1.8	1.8
5.11.2.5	Type of joint with tube plate		Successful bidder to refer to relevant OEM drawings/manuals	
5.11.3	Tube plate:			
5.11.3.1	Tube plate thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals	
5.11.3.2	Tube plate OD	(mm)	Successful bidder to refer to relevant OEM drawings/manuals	
5.11.3.3	Type of joint with water box		Successful bidder to refer to relevant OEM drawings/manuals	
5.11.4	Water box:			
5.11.4.1	Type of water box		<-----Hemispherical----->	
5.11.4.2	Water box ID	(mm)	Successful bidder to refer to relevant OEM drawings/manuals	
5.11.4.3	Water box thickness	(mm)	Successful bidder to refer to relevant OEM drawings/manuals	
5.12.0	<b>Heater details</b>			
5.12.1	Overall length	(mm)	10700	10200
5.12.2	Shell withdrawl weight	(tonnes)		
5.12.3	Heater dry weigh		16	18
5.12.4	Heater operating weights		19	21

5.12.5	Heater flooded weight		25	27
5.13.0	<b>Weights</b>	(Tonnes)		
	i) Empty		Successful bidder to refer to relevant OEM drawings/manuals	
	ii) Normal operating		Successful bidder to refer to relevant OEM drawings/manuals	
	iii) Hydro test weight flooded		Successful bidder to refer to relevant OEM drawings/manuals	
	iv) Weight of tube bundle		Successful bidder to refer to relevant OEM drawings/manuals	
	v) Weight of shell		Successful bidder to refer to relevant OEM drawings/manuals	
	vi) Weight of water box		Successful bidder to refer to relevant OEM drawings/manuals	
	vii) Total shipping weight		Successful bidder to refer to relevant OEM drawings/manuals	
	viii) Weight of heaviest part during			
	a) Erection		15.5	17.5
	b) Maintenance		15.5	17.5
5.14.0	<b>Shipping dimensions:</b>			
	a) Length	(mm)	11000	10800
	b) Breadth	(mm)	Successful bidder to refer to relevant OEM drawings/manuals	
	c) Height	(mm)	Successful bidder to refer to relevant OEM drawings/manuals	
5.15.0	<b>Performance data</b>			
5.15.1	Terminal difference at rated output		2	0
5.15.2	Drain cooler approach at rated output		6	6
5.15.3	Shell side data		Successful bidder to refer to relevant OEM drawings/manuals	
5.15.3.1	Desuperheating section:			
	a) Heat exchanged	(kcal/hr)	2.6	1.13
	b) LMTD	(°C)	120	8
	c) Transfer rate	(kcal/hr M <sup>2</sup> °C)	Successful bidder to refer to relevant OEM drawings/manuals	
	d) Pressure drop	(kg/cm <sup>2</sup> )	0.2	0.3
5.15.3.2	Overall pressure drop on the tube side at average operating temperature	(kg/cm <sup>2</sup> )	0.7	0.65

5.15.3.3	Feed water velocity through tubes at av. operating temperature	(m/s)	2	2
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## 6. Boiler Feed Pumps

S No.	DESCRIPTION		PARAMETER
6.00	<b>BOILER FEED PUMPS</b>		
6.1.0	<b>General</b>		
6.1.1	Designation		Successful bidder to refer to relevant OEM drawings/manuals
6.1.2	No. of pumps		3x50%
6.1.3	No. of pumps normally working		2
6.1.4	Type of operation continuous		Feed pump
6.1.5	Type of pump		Centrifugal barrel
6.1.6	Type of drive		Electrical motor
6.2.0	<b>Capability and design conditions</b>		
6.2.1	Liquid handled		Feed water
6.2.2	Temperature of feed water	(°C)	177
6.2.3	Specific gravity of feed water		Successful bidder to refer to relevant OEM drawings/manuals
6.2.4	pH of feed water parameters (without HP/LP bypass)		Successful bidder to refer to relevant OEM drawings/manuals
6.2.5	<b>Design parameters</b>		
	a) Capacity	(cu.m/hr)	288
	b) Dynamic head	(MWC)	1893
	c) Speed,	(rpm)	4700
	d) Power input,	(kW)	1628
	e) Efficiency	(%)	80
	f) NPSH required	(MWC)	8.5
6.2.6	BFP balancing leak off flow at rated speed		Later
6.2.7	Hydraulic test pressure	(bar)	350
6.2.8	Min. flow through the pump	(T/hr)	113
6.2.9	Max. feed water temperature	(°C)	174
6.2.10	Min. feed water temperature	(°C)	Successful bidder to refer to relevant OEM drawings/manuals

6.2.11	Pump specific speed	rpm	937
6.2.12	Power required at pump shaft under shut-off conditions	(MWC)	1050
6.2.13	Parameters without HP/LP bypass		
	a) Capacity	(T/hr)	Successful bidder to refer to relevant OEM drawings/manuals
	b) Dynamic head at		Successful bidder to refer to relevant OEM drawings/manuals
	i) Interstage	(MWC)	Successful bidder to refer to relevant OEM drawings/manuals
	ii) Normal	MWC	Successful bidder to refer to relevant OEM drawings/manuals
	iii) Kicker stage		Successful bidder to refer to relevant OEM drawings/manuals
	iv) Shutoff	(MWC)	Successful bidder to refer to relevant OEM drawings/manuals
	c) Speed	(rpm)	Successful bidder to refer to relevant OEM drawings/manuals
	d) Power input at		Successful bidder to refer to relevant OEM drawings/manuals
	i) Normal		Successful bidder to refer to relevant OEM drawings/manuals
	ii) Shutoff		Successful bidder to refer to relevant OEM drawings/manuals
	e) Efficiency		Successful bidder to refer to relevant OEM drawings/manuals
	f) NPSH required		Successful bidder to refer to relevant OEM drawings/manuals
6.2.14	Parameters with HP/LP bypass		
	a) Capacity	(T/hr)	Successful bidder to refer to relevant OEM drawings/manuals
	b) Dynamic head	(MWC)	Successful bidder to refer to relevant OEM drawings/manuals
6.3.0	<b>Cooling water requirement</b>	(cu.m/hr)	
	a) BFP motor air cooler (wherever applicable)		Successful bidder to refer to relevant OEM drawings/manuals
	b) BFP seal water cooler	(m <sup>3</sup> /hr)	4
	c) BFP working oil cooler	(m <sup>3</sup> /hr)	20
	d) BFP lub oil cooler	(m <sup>3</sup> /hr)	10
	e) BFP bearing and stuffing box		None

6.4.0	<b>Performance of pump at rated speed</b>		
6.4.1	Power required by BFP	(kw)	1439
6.4.2	Efficiency of BFP	(%)	77
6.4.3	Power losses in speed increaser (gear box)	(kw)	70
6.4.4	Power losses in Hyderabad coupling	(kw)	50
6.4.5	Overall efficiency of Hyderabad coupling	(%)	94
6.4.6	Total developed head at pump rated speed	MWC	1893
6.5.0	<b>Boiler feed pump</b>		
6.5.1	a) Mechanical design standard		Successful bidder to refer to relevant OEM drawings/manuals
	b) Hydraulic design standard		Successful bidder to refer to relevant OEM drawings/manuals
6.5.2	a) Startup time of BFP set with full load at (100% voltage)	(sec)	20
	b) Startup time of BFP set with full load at (80% voltage)	(sec)	25
6.5.3	Tests		
	a) Mechanical performance		As per 150 STD
	i) Bearing temperature		As per MFR DES
	ii) Vibrations		VDI 2056
	b) Hydraulic performance  Above test would be conducted with cold water in the presence of Owner/Owner's authorised agency.		As reduced speed with cold water
6.6.0	<b>Constructional features</b>		
6.6.1	Casing type		Barrel
6.6.2	Impeller arrangement		Between bearings
6.6.3	No. of stages		7
6.6.4	Connections		
	a) Discharge (butt weld)		150 mm (6 inch)
	b) Suction (flanged)		200 mm (8 inch)
	c) BC leak off (flanged)		Successful bidder to refer to relevant OEM drawings/manuals

6.6.5	Type of journal bearings		Sleeve
6.6.6	Type of thrust bearings		Pads
6.6.7	Method of cooling thrust bearing and journal bearing		Forced oil
6.6.8	No. of pump bearings		Two
6.6.9	Type of balancing system		Balanced drum
6.6.10	Rotation (viewed from driving end)		CCW
6.6.11	Coupling type and make		Flexible
6.6.12	Nozzle orientation		
	a) BFP suction		Top
	b) BFP discharge		Top
6.6.13	BFP suction strainer		
	a) Type		Basket
	b) Strainer mesh size	(microns)	500
	c) Ratio of strainer area to inlet pipe area		Later
	d) Pressure drop (combined)	(kg/cm <sup>2</sup> )	Later
	e) Material of strainers		Steel
6.6.14	Impeller dia	(mm)	319
6.6.15	Shaft span		Later
6.6.16	Average shaft dia at impeller		Later
6.6.17	Shaft deflection		Successful bidder to refer to relevant OEM drawings/manuals
6.6.18	Diametral clearance between impeller hub and wearing ring		Successful bidder to refer to relevant OEM drawings/manuals
6.6.19	Material of construction		
	a) Ring suction		Chrome steel
	b) Impellers		A 487 CA 6 NM
	c) Outcasing		A 182 F 6 NM
	d) Diffusers		A 487 CA 6 NM
	e) Wearing rings (casing)		A 473-410
	f) Wearing rings (impellers)		A 193
	g) Shaft		A 473 410
	h) Shaft nuts		A 193
	i) Shaft sleeves		A 473-410

	j) Stuffing box		Steel
	k) Shaft sleeves nuts		Steel
	l) Balancing drum		Chrome steel
	m) Pressure bolting studs		A 193/194
6.7.0	<b>Lube oil system</b>		
6.7.1	No. of pumps		1
6.7.2	Capacity of each pump	(M <sup>3</sup> /hr)	Later
6.7.3	Type of driven for AOP		Motor
6.7.4	Oil pump discharge pressure	(Bar)	2
6.7.5	Max. quantity of lube oil for external lubrication	(lit./hr)	80
6.7.6	No. of cooler		
	i) Working		One
	ii) Standby		None
6.7.7	Cooling water requirement at		
	i) Quantity	(m <sup>3</sup> /hr)	30
	ii) Pressure	(kg/cm <sup>2</sup> )	3
	(iii) Temperature	(°C)	30
6.8.0	<b>Booster pump</b>		
6.8.1	Type of pump		Centrifugal, volute, double entry
6.8.2	No. of pumps required per each turboset		3
6.8.3	Rated speed	(rpm)	1480
6.8.4	Design flow	(m <sup>3</sup> /hr)	288
6.8.5	Heat developed	(MWC)	55
6.8.6	Power input at design flow	(KW)	50
6.8.7	Efficiency at design point	(%)	81
6.8.8	Suction nozzle size	(mm)	150
6.8.9	Discharge nozzle size	(mm)	125
6.8.10	Direction of rotation of the pump (viewed from motor side)		Successful bidder to refer to relevant OEM drawings/manuals
6.8.11	Type of journal bearings		Roller
6.8.12	No. of bearings		2
6.8.13	Type of lubrication		Oil

6.8.14	Type of coupling		Flexible
6.8.15	Materials of construction		
	a) Casing		BS 1504 161 G 430 or equivalent
	b) Shaft		BS 1504 425 C11
	c) Impeller		BS 1504 425 C11
6.9.0	<b>Hydraulic coupling</b> (Motor driven)		
6.9.1	Nos. offered		2
6.9.2	Type & Model No.		Successful bidder to refer to relevant OEM drawings/manuals
6.9.3	Manufacturer		Primary firm
6.9.4	Input motor speed (RPH)	(rpm)	1485
6.9.5	Gear ratio		3.16
6.9.6	Primary set-up speed	(rpm)	1485
6.9.7	Full load slip	(%)	3
6.9.8	Secondary speed (max)	(rpm)	4700
6.9.9	Oil recommended		Successful bidder to refer to relevant OEM drawings/manuals
6.9.10	No. of lube oil coolers		One common with pump
6.9.11	No. of working oil coolers		One
6.9.12	Quantity of oil required in	(M <sup>3</sup> /hr)	Later
6.9.13	Bearings		
	a) Number		6
	b) Type		Sleeve
6.9.14	Performance		
	a) Maximum possible slip between impeller and runner at design ratings of driven equipment		5:1
	b) Scoop tube min. position to start the unit		Inserted
6.9.15	Oil coolers		
	a) Lubricating oil cooler		Successful bidder to refer to relevant OEM drawings/manuals
	b) Type		Shell and tubes
	c) Materials of water tube/tube plate		Steel
	d) Working oil coolers		Successful bidder to refer to relevant OEM drawings/manuals

	e) Type		Shell and tubes
	f) Material of water tube/tube plate	(m <sup>3</sup> )	Steel
	g) Oil tank storage capacity		2
6.9.16	Hydraulic coupling scoop tube actuator		
	a) Make		Primary firm
	b) Type		Electric Actuator
	c) Rated torque		Later
	d) Quantity of air required		Not applicable
6.10.0	<b>Boiler feed pump motor</b>		
6.10.1	Type of motor and model no.		Successful bidder to refer to relevant OEM drawings/manuals
6.10.2	Nos. offered		2
6.10.3	Manufacturer		Primary firm
6.10.4	Shaft orientation		Successful bidder to refer to relevant OEM drawings/manuals
6.10.5	Rated output	(kw)	1930
6.10.6	Rated speed	(rpm)	1485
6.10.7	Type of duty		Continuous
6.10.8	Supply conditions		
	a) Rated voltage		66.00
	b) No. of phases		3
	c) Frequency		50
6.10.9	Enclosures and ventilation		Successful bidder to refer to relevant OEM drawings/manuals
6.10.10	Full load current		Successful bidder to refer to relevant OEM drawings/manuals
6.10.11	Bearings		Successful bidder to refer to relevant OEM drawings/manuals
6.10.12	No. of space heaters		Successful bidder to refer to relevant OEM drawings/manuals
6.10.13	Rating of space heaters		Successful bidder to refer to relevant OEM drawings/manuals
6.10.14	Class of insulation		Successful bidder to refer to relevant OEM drawings/manuals
6.10.15	Method of starting		Successful bidder to refer to relevant OEM drawings/manuals
6.10.16	Cooling water required (if any)		Successful bidder to refer to relevant

			OEM drawings/manuals
	i) Quantity		Successful bidder to refer to relevant OEM drawings/manuals
	ii) Pressure		Successful bidder to refer to relevant OEM drawings/manuals
	iii) Temperature		Successful bidder to refer to relevant OEM drawings/manuals
6.11.0	<b>Valves</b>		
6.11.1	Recirculation valves		
	a) Type		Automatic
	b) Design pressure		Successful bidder to refer to relevant OEM drawings/manuals
	c) Temperature		Successful bidder to refer to relevant OEM drawings/manuals
	d) Size		Successful bidder to refer to relevant OEM drawings/manuals
	e) Flow	(m <sup>3</sup> /hr)	113
	f) Inlet pressure	(bar)	220
	g) Outlet pressure	(bar)	30
	h) Accessories		All accessories for good operation
6.12.0	<b>Weight Schedule</b>		
6.12.1	Boiler feed pump	(kg)	4000
6.12.2	Drive motor	(kg)	6000
6.12.3	Hydraulic coupling	(kg)	4500
6.12.4	Base plate		
	a) Boiler feed pump		1000
	b) Hydraulic coupling		500
	c) Motor		1500
6.13.0	<b>Shipping dimension</b>		
6.13.1	Hydraulic coupling	(mmxmm)	2000x2000
6.13.2	Boiler feed pump	(mmxmm)	3000x1500
6.14.0	List of special tools included		Included

## 7. Condensate Extraction Pumps

S No.	DESCRIPTION	PARAMETER
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7.0.0	<b>CONDENSATE EXTRACTION PUMPS</b>		
7.1.0	<b>Design Features</b>		
7.1.1	Type of operation		Continuous
7.1.2	Pump classification		Barrel
7.1.3	Pump orientation		Verticle
7.1.4	Impeller classification		Closed
7.1.5	Design capacity	(m <sup>3</sup> /hr)	186
7.1.6	TDH developed at design capacity	(mwc)	223
7.1.7	Liquid handled		Condensate
7.1.8	Min. NPSH required at the eye of the first stage impeller	(mwc)	2.6
7.1.9	Rotating speed	(rpm)	1485
7.1.10	Direction of rotation when viewed from NDE of motor		CCN
7.1.11	Thrust:		
	a) Pump startup		Successful bidder to refer to relevant OEM drawings/manuals
	b) Normal thrust at design		Successful bidder to refer to relevant OEM drawings/manuals
7.1.12	Moment of interia of pump		Successful bidder to refer to relevant OEM drawings/manuals
7.1.13	No. of pumps required		3
	i) Working		2
	ii) Standby		1
7.2.0	<b>Performance Data</b>		
7.2.1	KW required at design point	(kw)	145
7.2.2	Efficiency at design point	(%)	78
7.2.3	Min. flow the pump handled	(m <sup>3</sup> /hr)	76
7.2.4	TDH at design point	(mwc)	223
7.3.0	<b>Construction Features</b>		
7.3.1	Casting, type and design code		-
7.3.2	Arrangement of impeller		Verticle
7.3.3	No. of stages		7
7.3.4	Connection:		
	a) Suction size arrangement		250 mm (10 inch)

	b) Discharge size arrangement		200 mm (8 inch)
7.3.5	Journal bearing type		Sleeve
7.3.6	Thrust bearing type		Ruler
7.3.7	Mounting with driver		No
7.3.8	Coupling type		Flexible
7.3.9	Packing type		Packing
7.4.0	<b>Construction Materials</b>		
7.4.1	Casing		A48
7.4.2	Impellers a) 1st stage b) Other stage		A 487 CA 6NM
7.4.3	Wearing ring (casing)		A 473-420
7.4.4	Shaft		A 434-4190
7.4.5	Shaft sleeves and nuts		A 276-420
7.4.6	Couplings		Steel
7.4.7	Stuffing box bust		Steel
7.4.8	Pressure bolting studs		Steel
7.4.9	Base plate or motor stool		Cast iron
7.4.10	Gasket		-
7.4.11	Bearings		-
7.5.0	<b>Weight Schedule</b>		
7.5.1	Pumps and coupling	(kgs)	2000
7.5.2	Bed plate (foundation ring)	(kg)	200
7.5.3	Motor stool/head piece	(kg)	500
7.5.4	Rotor alone	(kg)	Successful bidder to refer to relevant OEM drawings/manuals
7.5.5	Total weight of assembled unit (excluding motor)	(kg)	2700
7.5.6	Max. shipping weight kg		3000
7.6.0	<b>Dimension Schedule</b> Overall dimensions of assembled unit		
7.6.1	Length	(mm)	3000
7.6.2	Width	(mm)	800
7.6.3	Height	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
7.7.0	<b>Cooling Water Requirement</b>		

7.7.1	Temperature of water at inlet	(°C)	None
7.7.2	Quantity required	(lit/min)	Successful bidder to refer to relevant OEM drawings/manuals
7.7.3	Quality of water		Successful bidder to refer to relevant OEM drawings/manuals
7.8.0	<b>Sealing Water Requirement</b>		
7.8.1	Quality of water		From pump discharge
7.8.2	Pressure of water		Successful bidder to refer to relevant OEM drawings/manuals
7.8.3	Quantity required	(lit/min)	Successful bidder to refer to relevant OEM drawings/manuals
7.8.4	Temperature of water at inlet	(°C)	

## Annexure 2: Spares for BOP overhaul

### Mechanical

#### Plan 1: Lignite Handling System

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Apron Feeder	Feed Roller assembly (Guide Roller)	Feed roller Assy.Item Sr.No-14,Drg No.-0-4518-000,Machine Sr. No-6742 with clamps including nuts and bolts,Make -TRF	Nos	50	Common
2	Apron Feeder	Hold Back for gear box	Hold back for gear box type: CKC:400 ratio:71:1 (1000/13.81),Make-NAW	Nos	1	Common
3	Apron Feeder	Apron Pan Bolts	HT Hex Bolt (Grade 10.9) M24 X 80 With Nylon Nut Half Thread	Nos	800	Common
4	Apron Feeder	Apron Feeder Drive Shaft Bearing	Apron feeder drive shaft bearing - 22256 CCK W33,Make-SKF	Nos	2	Common
5	Apron Feeder	Apron Feeder Drive Shaft Sleeve	Apron feeder drive shaft, Sleeve OH 3156 H, Make-SKF	Nos	2	Common
6	Apron Feeder	Apron Feeder Driven Shaft Bearing	Apron feeder driven shaft Bearing,22236 CCK/ W33 with sleeve H 3136 , Make: SKF	Nos	2	Common
7	Dribble conveyor	Dribble conveyor Shaft bearing	Dribble conveyor shaft, Bearing, 22232 EK, Make -SKF	Nos	1	Common
8	Dribble conveyor	Dribble conveyor Shaft Sleeve	Dribble conveyor shaft, Sleeve H-3132, Make-SKF	Nos	1	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
9	Sizer-01	Breaker Shaft Assembly- Left Hand	part no:246250191, Make: MMD, application: lignite sizer-1 (S625-0128)	Nos	1	Common
10	Sizer-01	Breaker Shaft Assembly- Right Hand	part no:246250192, Make: MMD, application: lignite sizer-1 (S625-0128)	Nos	1	Common
11	Sizers	Pump Assembly	Code 6000/M-150-5-30L(NEW), Part No: 023060300,Unit mass: 21.00 Kg.,Application : MMD 625 series twin shaft sizer 625 MM centers ,Machine sr. number S625-0128 with motor, Make-MMD	Nos	3	Common
12	Sizers	Sizers-2,3	Fixed bearing Assymby ,Part Number-141540800,MMD 154 searies twin shaft sizer 500MM centres S154-0819,Make-MMD	Nos	4	Common
13	Sizers	Sizers-2,3	Floting bearing Assymby ,Part Number-141540811,MMD 154 searies twin shaft sizer 500MM centres S154-0819,Make-MMD	Nos	4	Common
14	Impactors	Impactor Beater Head	part no: 35214109, drg no:1220/28-GM-100,GA Drg no:0-5214-001,application: Rev. lig. impactor-machine Sr. no.6818 & 6819, make: TRF/equivalent as per attached drawing	Nos	232	Common
15	Impactors	Pin for Beater Head	part no: 45214118, Drg no:1220/28-GM-100,GA Drg no:0-5214-001, application: rev. lig. impactor-machine sr. no.6818 & 6819, make: TRF/equivalent as per attached drawing	Nos	232	Common
16	Impactors	Flat Belt	Size: length 13314 x width 350 mm ,Type: extremulus flat 80,Make: NTB INTERNATIONAL PVT. LTD, application: Lignite Impactor-01&02	Nos	2	Common
17	Impactors	Drive Pulley Bearing	22236 CCK /C3 W33,Make-SKF	Nos	4	Common
18	Impactors	Drive Pulley Bearing Sleeves	Sleeve H 3136 , Make-SKF	Nos	4	Common
19	Impactor – 02	Impactor Rotor Bearing	23152 CCK C3 W33,Make-SKF	Nos	2	Common
20	Impactor – 02	Impactor Rotor Bearing Adaptor Sleeve	Sleeve OH 3152 H, Make-SKF	Nos	2	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
21	Impactors	Impactor Wall Grinding Plate	Grinding plate as per attached drawing with mounting bolts	Nos	8	Common
22	Impactors	Impactor Wall Grinding Gib	Grinding Gib as per attached drawing with mounting bolts	Nos	40	Common
23	Impactor – 02	Beater Arm for Impactor	Item N0:07,Part No:35214110,Drawing No 1220/28-GM-100 Rev 00, Make-TRF / Equivalent as per attached drawing	Nos	116	Common
24	Impactor – 02	Tension Bush for Impactor	Item No:26,Part No:45214113,Drawing No 1220/28-GM-100 Rev 00 Make-TRF / Equivalent as per attached drawing	Nos	116	Common
25	Impactor – 02	Rotor Pin for Impactor	Item No:21,Part No:35214114A,Drawing No 1220/28-GM-100 Rev 00, Make-TRF / Equivalent as per attached drawing	Nos	8	Common
26	Impactor – 02	Rotor Pin for Impactor	Item No:22,Part No:35214114B,Drawing No 1220/28-GM-100 Rev 00, Make-TRF / Equivalent as per attached drawing	Nos	8	Common
27	Impactor – 02	Rotor Pin for Impactor	Item No:23,Part No:35214114C,Drawing No 1220/28-GM-100 Rev 00, Make-TRF / Equivalent as per attached drawing	Nos	100	Common
28	Impactor – 02	Rotor Pin for Impactor	Item No:24,Part No:35214114D,Drawing No 1220/28-GM-100 Rev 00, Make-TRF / Equivalent as per attached drawing	Nos	8	Common
29	Impactor-01	Disc Rotor Assembly	For 1220/28 Impactor part list-1 Drawingnumber:1220/28-gin-100 Machine Sr.No.6818 and 6819,Make-TRF /Equivalent as per attached drawing	Set	1	Common
30	Screen-1,2,5,6	BVT-Sieve mat	328V/2710/3/16x5/3x2, 32.5/151.5 item no: 300, XEXK 109315 (appature 16x5), Application: Screening machine KRL/ED/ 2400x8 R45(SBT 0676),Make:Binder+co/Equivalent as per attached drawing	Nos	48	Common
31	Screen-1,2,5,6	BVT-Sieve mat	328/2710/3/7x7/3x3, item no: 301 XEXK 118880 (appature :7x7), Application: screening machine KRL/ED/ 2400x8 R45(SBT 0676), Make:Binder+co/Equivalent as per attached drawing	Nos	44	Common
32	Screen-1,2,5,6	BVT-Sieve mat (unpunched/plain)	item no: 302, 246/S=2, T290, XEXK 104402, application: screening machine KRL/ED/ 2400x8 R45(SBT 0676), Make:Binder+co/Equivalent as per attached drawing	Nos	4	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
33	Screen-1,2,5,6	Clamping Ledge	item no: 306 , XEKP 0006, application: screening machine KRL/ED/ 2400x8 R45(SBT 0676),Make:Binder+co/Equivalent as per attached drawing	Mtr	275	Common
34	Screen-1,2,5,6	Edge strip bivitec V2000 (th:2mm)	Item no: 305, XEKP 100902, Application: screening machine KRL/ED/ 2400x8 R45(SBT 0676) Make:Binder+co/Equivalent as per attached drawing	Nos	8	Common
35	Screen-3,4,7,8	BVT Sieve Mat	328V/2710/3/16x5/3x2, 32.5/151.5 item no: 300, XEXK 109315 (apparture 16x5), Application: Screening machine KRL/ED/ 2400x8 R45(SBT 0676),Make:Binder+co/Equivalent as per attached drawing	Nos	48	Common
36	Screen-3,4,7,8	BVT-Sieve mat	328/2710/3/7x7/3x3, item no: 301 XEXK 118880 (apparture :7x7), Application: screening machine KRL/ED/ 2400x8 R45(SBT 0676), Make:Binder+co/Equivalent as per attached drawing	Nos	44	Common
37	Screen-3,4,7,8	BVT-Sieve mat (unpunched/plain)	Item no: 302, 246/S=2, T290, XEXK 104402, application: screening machine KRL/ED/ 2400x8 R45(SBT 0676), Make:Binder+co/Equivalent as per attached drawing	Nos	4	Common
38	Screen-3,4,7,8	Clamping ledge	item no: 306 , XEKP 0006, application: screening machine KRL/ED/ 2400x8 R45(SBT 0676),Make:Binder+co/Equivalent as per attached drawing	Mtr	275	Common
39	Screen-3,4,7,8	Edge strip bivitec V2000 (th:2mm)	bivitec V2000 (th:2mm), Item no: 305, XEKP 100902, Application: screening machine KRL/ED/ 2400x8 R45(SBT 0676) Make:Binder+co/Equivalent as per attached drawing	Nos	8	Common
40	All screens	Clamping Piece	part no. XUJK1152, machine no.SBT0676,model:KRL/ED 2400x8-R45,make:binder	Nos	55	Common
41	All screens	Clamping Piece	part no. EUJK1020, machine no.SBT0676,model:KRL/ED 2400x8-R45,make:binder	Nos	65	Common
42	All screens	Clamping Piece	part no. XUJK1337, machine no.SBT0676,model:KRL/ED 2400x8-R45,make:binder	Nos	5	Common
43	Screen-3,4,7,8	Cardan shaft	Item no:008, XUVW1004,Drive unit assembly XOAK1147,fabr no: SBT0676, Application: screen machine model KRL/ED/2400x8M,Make:Binder+co/Equivalent as per	Set	4	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			attached drawing			
44	All screens	RUBBER BLOCK 4-LAPS	XEFG001603, SIZE: 50 X 45 X 283, NO: 324, VF 6266-0-143, INTRASTAT: 40169991, FABR NO: SBT0676, APPLICATION: SCREEN MACHINE KRL/ED/2400X8M OEM:-Binder+Co	Nos	272	Common
45	All Screens	Joint pipe	XUSO104702,Verbindungsrohr, FABR NO: SBT0676, APPLICATION: SCREEN MACHINE KRL/ED/2400X8M OEM:-Binder+Co	nos	8	Common
46	All Screens	Gummi Feeder	XEFG1003, Gummifeder marsh mellow W22-358-0176, FABR NO: SBT0676, APPLICATION: SCREEN MACHINE KRL/ED/2400X8M OEM:-Binder+Co	Nos	64	Common
47	All Screens	Nuts & Bolts	For Sr.No-31 to 48 items nuts and bolts. (BVT sieve to gummi feeder)	Set	1	Common
48	All Screens	Side wall for cover	XURC1493 ,Side wall for cover W=2500 R-45 Fixing bracket for tension rope,FABR NO: SBT0676, APPLICATION: SCREEN MACHINE KRL/ED/2400X8M OEM:-Binder+Co	Nos	6	Common
49	Screen-1,2,5,6	Con-rod	XUVP1157,Con-rod U-160,,L=7989mm,R=45 1xleft,1xright,FABR NO: SBT0676, APPLICATION: SCREEN MACHINE KRL/ED/2400X8M OEM:-Binder+Co	Nos	4	Common
50	All Screens	Drive shaft of plumber block	Drive shaft EOAK1054,APPLICATION: SCREEN MACHINE KRL/ED/2400X8M OEM:-Binder+Co	Nos	3	Common
51	Screen-3,4,7,8	V-Belt	V BELT SPB 2240, TYPE: POLY-F PLUS	Nos	20	Common
52	Screen-3,4,7,8	Bearing 22216 EK	Bearing 22216 EK,Make-SKF	Nos	8	Common
53	Screen-3,4,7,8	Sleeve H-316	Sleeve H-316,Make-SKF	Nos	8	Common
54	Conveyor	Troughing Trainer Assembly	Troughing trainer assembly 35 Deg,Width-1350mm, Fixing bolt center distance-1290mm,Idler dia- 152.4mm,Idler length-380 mm,Idler shaft dia- 30mm,Idler qty: 03Nos.,suitable for 1000mm width belt,Make-TRF	Nos	181	Common
55	Conveyor	Return Trainer Assembly	Return trainer assembly,Width-1490mm,Height-344mm,fixing bolt center distance-1290mm,Idler dia-139.7mm,Idler length-1150mm,Idler shaft dia-	Nos	56	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			20mm,suitable for 1000mm width belt,Make-TRF			
56	Conveyor	Troughing Trainer Assembly	Troughing trainer assembly 35 Deg,Width-1000mm, Fixing bolt center distance-940mm,Idler dia- 152.4mm,Idler length-250 mm,Idler shaft dia- 30mm,Idler qty: 03Nos.,suitable for 600mm width belt,Make-TRF	Nos	21	Common
57	Conveyor	Return Trainer Assembly	Return trainer assembly,Width-1140mm,Height-344mm,fixing bolt center distance-940mm,Idler dia-139.7mm,Idler length-750mm,Idler shaft dia-20mm suitable for 600mm width belt,Make-TRF	Nos	6	Common
58	Conveyor	Troughing Trainer Assembly	Troughing Trainer Assembly,35 Deg troughing,Width-1350mm, Fixing bolt center distance-1290mm,Idler dia-152.4mm,Idler length-380 mm,Idler shaft dia-30mm,Idler qty: 03nos.,suitable for 1000mm width reversible belt,Make-TRF	Nos	31	Common
59	Conveyor	Return Trainer Assembly	Return Trainer Assembly ,Width-1490mm,Height-344mm,fixing bolt center distance-1290mm,Idler dia-139.7mm,Idler length-1150mm,Idler shaft dia-20mm,suitable for 1000mm width reversible belt ,Make-TRF	Nos	16	Common
60	Conveyor	Frame Assembly with Impact pads	35 deg troughing angle, fixing bolt center distance-1290mm,frame material-M.S., total impact pads-07 no., impact pad detail-Fusion bonded, Size: 1000x100x70mm thick (30mmthick polymer with 40mm thick rubber=Total 70mm thick) for 1000mm width belt,Make-Kaveri/Flexco	Nos	18	Common
61	Conveyor	Belt Scrapper - Primary	Polyurethane monoblock design suitable for 1000mm width belt Make:Kaveri/Flexo	Nos	15	Common
62	Conveyor	Belt Scrapper - Primary	Polyurethane monoblock design suitable for 600mm width belt Make:Kaveri/Flexo	set	4	Common
63	Conveyor	Belt Scrapper - Secondary	Multiblade segmented-tungton carbide blade tips, suitable for 600mm width reversible belt ake:Kaveri/Flexo	set	4	Common
64	Conveyor	Belt Scrapper - Primary	Polyurethane monoblock design suitable for 1000mm width reversible belt Make:Kaveri/Flexo	set	1	Common
65	Conveyor	Belt Scrapper - Secondary	Multiblade segmented-tungton carbide blade tips, suitable for 1000mm width reversible belt ake:Kaveri/Flexo	set	1	Common
66	Conveyor	Belt Scrapper - Primary	Polyurethane monoblock design suitable for 1200mm width reversible belt Make:Kaveri/Flexo	set	1	Common
67	Conveyor	Belt Scrapper -	Multiblade segmented-tungton carbide blade tips, suitable	set	1	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
		Secondary	for 1200mm width reversible belt Make:Kaveri/Flexo			
68	Conveyor	Belt Scrapper - Primary	Polyurethane monoblock design suitable for 1200mm width belt Make:Kaveri/Flexo	set	1	Common
69	Conveyor	Belt Scrapper - Secondary	Multiblade segmented-tungton carbide blade tips, suitable for 1200mm width belt Make:Kaveri/Flexo	set	1	Common
70	Conveyor	Complete Brake Assembly	Type: TC.TB-12, Drum dia-300 mm, Torque: 40 Kg.,Sr.No of existing assembly:282/6-278, Make:bangal technocrat pvt.ltd.	set	2	Common
71	Conveyor	Complete Brake Assembly	Type: TC.TB-12, Drum dia-300 mm, Torque: 50 Kg.,Sr.No of existing assembly:282/6-280, Make:bangal technocrat pvt.ltd.	set	1	Common
72	Conveyor	Complete Brake Assembly	Type: TC.TB-10, Drum dia-250 mm, Torque: 30 Kg.,Sr.No of existing assembly:282/6-03, Make:bangal technocrat pvt.ltd.	set	1	Common
73	Conveyor	Complete Brake Assembly	Type: TC.TB-12, Drum dia-300 mm, Torque: 40 Kg.,Sr.No of existing assembly:282/6-036&35, Make:bangal technocrat pvt.ltd.	set	2	Common
74	Conveyor	Curved Tooth Flexible Gear Coupling	NGC-50	Nos	2	Common
75	Conveyor	Curved Tooth Flexible Gear Coupling	NGC-30	nos	1	Common
76	Conveyor	Carrying Idler	Size: 380 mm long x 152.4 mm dia., material- tube (ERW YST-210, IS: 9295, tube wall thickness: 4.85 mm), shaft: (30mm dia-uniform, EN-8/40C8, Is: 1570), application: 1000 mm conveyor belt, Make-TRF	Nos	500	Common
77	Conveyor	Return Idler	Size: 1150 mm Long X 139.7 mm DIA., Material- tube (ERW YST-210, IS: 9295, Tube wall thickness: 4.85mm), Shaft: (20mm Dia.-Uniform, EN-8/40C8, IS: 1570), Bearing:SKF Make(Grease packed), Seal:Double labyrinth, Make-TRF	Nos	700	Common
78	Conveyor	Frame Assembly with Impact idlers	35 Deg, Width-1560mm, Fixing bolt center distance-1490mm,Idler dia-152.4mm,Idler length-465 mm,Idler shaft dia-30mm,Idler qty: 03nos.,suitable for 1200mm width reversible belt,as per attahced drawing, Make-TRF	Nos	6	Common
79	Conveyor	Frame Assembly with Impact idlers	25 Deg, Width-1560mm, Fixing bolt center distance-1490mm,Idler dia-152.4mm,Idler length-465 mm,Idler shaft dia-30mm,Idler qty: 03nos.,suitable for 1200mm	Nos	2	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			width reversible belt,as per attached drawing, Make-TRF			
80	Conveyor	Frame Assembly with Impact idlers	20 Deg, Width-1560mm, Fixing bolt center distance-1490mm,Idler dia-152.4mm,Idler length-465 mm,Idler shaft dia-30mm,Idler qty: 03nos.,suitable for 1200mm width reversible belt,as per attached drawing, Make-TRF	Nos	2	Common
81	Conveyor	Frame Assembly with Impact idlers	10 Deg, Width-1560mm, Fixing bolt center distance-1490mm,Idler dia-152.4mm,Idler length-465 mm,Idlershaft dia-30mm,Idler qty: 03nos.,suitable for 1200mm width reversible belt,as per attached drawing,Make-TRF	Nos	2	Common
82	Conveyor	conveyor Pulley with Diamond rubber lagging	Width 1150 X Diameter 500 x Shaft diameter 100 mm with extended shaft with key way for drive pulley as per attached reference sheet,Make-TRF	nos	1	Common
83	Conveyor	Conveyor Pulley with plain rubber lagging	Width 1150 X Diameter 400 x Shaft diameter 75mm as per attached reference sheet, Make-TRF	nos	5	Common
84	Conveyor	conveyor Pulley with Diamond rubber lagging	Width 750 X Diameter 510 x Shaft diameter 75 mm with extended shaft with key way for drive pulley as per attached reference sheet, Make-TRF	nos	1	Common
85	Conveyor	Conveyor Pulley with plain rubber lagging	Width 750 X Diameter 400 x Shaft diameter 75 mm as per attached reference sheet, Make-TRF	nos	1	Common
86	Conveyor	Bearing	23028 CCK/W33, Make: SKF	Nos	10	Common
87	Conveyor	Adaptor Sleeve	H-3028, Make: SKF	Nos	10	Common
88	Conveyor	Bearing	22217 Ek,Make: SKF	NOS	20	Common
89	Conveyor	Sleeve	H-317, Make: SKF	NOS	20	Common
90	Conveyor	conveyor Belt	width:1000MM,CARCASS Designation:500/3 Ply,Top cover Thickness:5MM,Bottom cover thickness:3MM, Fabric:Nylon/Nylon, Heavy duty ,Grade:FR. Make: Eureka/Somi/Phoenix/Oriental	Mtr	400	Common
91	Conveyor	conveyor Belt	Width:1000mm,Carcass Designation:800/4,Top/Bottom cover:5/3mm,Fabric:Nylon/Nylon,Heavy Duty, Grade:FR,Make-Somi/Oriental/Eureka/Phoenix	Mtr	350	Common
92	Conveyor	conveyor Belt	width:600mm,Carcass designation:500/3 ply Top cover thickness:5mm Bottom cover thickness:3mm Fabric: nylon/nylon Heavy duty, Grade:FR.Cut edge	Mtr	380	Common
93	Conveyor	conveyor Belt	Width:1200mm,Carcass Designation:500/3,Top/Bottom cover:5/3mm,Fabric:Nylon/Nylon,Heavy Duty, Grade:FR,Make-Somi/Oriental/Eureka/Phoenix	Mtr	50	Common
94	Lignite RSC	Sealing Belt	Width:800mm,Carcass Designation: 315/3, Top/Bottom	Mtr	50	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			cover:2/2mm, Fabric: Nylon/Nylon, Heavy Duty, Grade:FR, Make-Somi/Oriental/Eureka/Phoenix			
95	Lignite RSC	Troughing Trainer Assembly	35 Deg,Width-1560mm, Fixing bolt center distance-1490mm,Idler dia-152.4mm,Idler length-380 mm,Idler shaft dia-30mm,Idler qty: 03nos.,suitable for 1200mm width reversible belt, Make-TRF	Nos	4	Common
96	Lignite RSC	Return Trainer Assembly	Width-1690mm,Height-344mm,fixing bolt center distance-1490mm,Idler dia-139.7mm,Idler length-1400mm,Idler shaft dia-20mm,suitable for 1200mm width reversible belt , Make-TRF	Nos	3	Common
97	Lignite Tripper	Duplex Sprocket Drive	Size:1.25 inch, 42 teeth, Drawing no.RS-56-20-42ASA,for lignite tripper, Make: Rolcon	Nos	1	Common
98	Lignite Tripper	Duplex Sprocket Drive	Size:1.25 inch, 19 teeth, Drawing no.RS-56-20-19 ASA,for lignite tripper, Make: Rolcon	Nos	1	Common
99	Lignite Tripper	Optimax Gear Unit	Size:R53,Input RPM : 1500, Ratio:27/1 (For Ref. Existing Gear box detail : No:0/35066,Year-2005 ), Make:New allenbery work,Application-Tripper CRD	Nos	1	Common
100	Ultra flow feeder	Exciter Unit	Linear motion type, series TUF 11, Part no : 03905200Item no : 3 ,Drawing no ; 1-3952-000, Application : Ultraflo feeder -11,Machine sr. number-6707, Size : 2400 x 3000 x 400 Deep TUF-11,Make:TRF	nos	1	Common
101	Ultra flow feeder	Bearing	22322 EJA/VA405 EXPLORER,Make:SKF	nos	4	Common
102	Ultra flow feeder	Oil Seal	Size:125X150X12,Make-SKF	nos	8	Common
103	ILMS	Rubber Belt	Type: Endless (M24), Width:1300MM, Total length:6360 MM – 3 Nos and 6130 MM – 3 Nos; 3 ply, belt thickness:08mm with 05 nos equispaced SS cleat (cleat height:40MM,length:1100mm), Application: inline magnetic separators	Nos	3+3	Common
104	ILMS	Non-Magnetic Pulley	size:Dia.330X length 1400X shaft dia. 50mmX total length with shaft ends 1690mm as per attached drawing no.GMDC/ATPS/MHP/016	nos	2	Common
105	ILMS	Pulley (For Magnetic Seperator)	Type: Flange size:Dia.165X width 1400X shaft dia. 40mmX Total Shaft length end to end 1625mm as per attached drawing no.GMDC/ATPS/MHP/017	nos	2	Common
106	ILMS	Bearing	SYJ 50 TF, Make : SKF	nos	12	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
107	ILMS	Bearing	SYJ 40 TF , Make : SKF	nos	12	Common
108	DW pump 1B	Pump (Without Motor)	Model:5 MDP 40/135,Capacity:10 Cu.M/Hr.,Head-110m, Size(suction/delivery)-50/40NB,Make-SAM Turbo industry Limited.Reference drawing no.N281-08/TMC/CP/11059/S-I	Nos	1	Common
109	pump	Vertical Sump Pump (without motor)	Model : 65VWS-2, Drawing no : VP/CSD/VWS/12378/04-1, Make-Varat pump and machinery	nos	3	Common
110	pump	Vertical Sump Pump (without motor)	Model : 65VWS-3, Drawing no : VP/CSD/VWS/12378/04-2, Make-Varat pump and machinery	nos	1	Common
111	Steel	Angle (MS)	Size:75X75X6 mm	KG	1000	Common
112	Steel	Angle (MS)	Size:65X65X6 mm	KG	700	Common
113	Steel	Angle (MS)	Size:50X50X5 mm	KG	700	Common
114	Steel	Checkered Plate (MS)	Size: 06mm	Ton	5	Common
115	Steel	MS Plain Plate	Size:04 mm Standard Size	Ton	2.5	Common
116	Steel	MS Plain Plate	Size:06 mm Standard Size	Ton	3	Common
117	Steel	MS Plain Plate	Size:10 mm Standard Size	Ton	2	Common
118	Steel	MS Plain Plate	Size:12 mm Standard Size	Ton	3	Common
119	Steel	Plate	Material: SS-304, Size-6mm Standard Size	Ton	3	Common
120	Steel	Plate	Material: SS-304, Size-10mm Standard Size	Ton	0.5	Common
121	Steel	Square Hollow Steel Section	Size:80x80x4.8mm,confirming to is 4923-1997	Ton	1	Common
122	Steel	Rectangular Hollow Steel Section	size:80x40x3.2 mm, confirming to is 4923-1997	Ton	1	Common
123	Steel	Staircase Steps	Material-M.S. chequered plate, as per drawing, Size:1050x250x60x6mm, Application: House stairs	Nos	500	Common
124	Steel	Channel	MOC: M.S., Size: 125 X 65mm	Ton	2	Common
125	Steel	Channel	MOC:M.S.,Size- 100 X 50 X 5mm	Ton	2	Common
126	bucket wheel	Bearing	23056 CCK W33, MAKE: SKF	nos	1	Common
127	bucket wheel	Sleeve	OH 3056H, Make: SKF	nos	1	Common
128	Bucket wheel	Bucket Wheel Assembly	Supply and installation of only Bucket wheel assembly with 8Nos bucket Buckets-06Mtr. dia of Rail mounted slewing boom type stacker cum bucket wheel reclaimers.Capacity-Stacking 600 TPH&Reclaiming 300TPH,Make-TRF (technical data :-Type-Cess-less, Bucket wheel diameter-6000MM,Nos of bucket-08 capacity-480Ltr.,Ref. Drg.No.-0-0740-18-MA-07,Rev-A with bearing replacement	set	1	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
129	Hydraulic power pack	Pipings	Supply and complete replacement of pipings of Hydrulic system Application :-Rail mounted slewing boom type stacker cum bucket wheel reclaimer.Capacity-Stacking 600 TPH&Reclaiming 300TPH,Make-TRF (SS line)	lot	1	Common
130	Hydraulic power pack	Boom cylinder,Bucket chute cylinder,center chute and cabin level cylinder servicing	Supply required spares, Replacement and servicing of Boom cyliner,Bucket chute cylinder,center chute and cabin level cyliner servicing . Application :-Rail mounted slewing boom type stacker cum bucket wheel reclaimer.Capacity-Stacking 600 TPH&Reclaiming 300TPH,Make-TRF	lot	1	Common
131	Grease Lubrication system	Grease Lubrication System	Complete servicing work of Grease lubrication system with spares(Including pumps) Application :-Rail mounted slewing boom type stacker cum bucket wheel reclaimer.Capacity-Stacking 600 TPH&Reclaiming 300TPH,Make-TRF	lot	1	Common
132	Dust suppression system	Dust suppression system	Supply and installation of complete new revival of dust suppression system for Lignite Handling plat.Ref (1)Drq No.-AJT-TRF-2005-002-00-02,R-1 (2)AJT-TRF-2005-002-00-02,R-1 (3) AJT-TRF-2005-002-03,R-1 (4)AJT-TRF-2005-002-00-06	lot	1	Common
133	Dry fog system	Dry fog system	Revival of dry fog system at Material Handling Plant-ATPS Supply and installation of Spray bars, nozzles, adaptors, FAS, PRU, Belt loader monitor, water pump filters and pipes &fittings as mentioned in the scope of work. Area revival of dry fog system. 1.Below Dump Hopper 2.TP-01 3.TP-2 4.Primary crusher house 5.Secondary crusher house 6.Screen house 7.Water Pump & filter Servicing Complete new revival (supply and installation)	lot	1	Common

**Plan 2: Lime Handling System**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Lime Apron feeder	Apron Pan	Material.Sailma-350, Part no.4517-000/11,Drawing no.0-4517-000, Make: TRF	Nos	66	Common
2	Lime Apron feeder	Chain Assembly	pitch:300mm,Drawing no: RS-12-3054/A,RHS., Make: Rolcon	Mtr	20	Common
3	Lime Apron feeder	Chain Assembly	pitch:300mm,Drawing no: RS-12-3054/A,LHS., Make: Rolcon	Mtr	20	Common
4	Lime Apron feeder	HT Bolt	Grade 10.9, M24 X 80 With Nylon Nut Half Thread, Unbrako/TVS	Nos	400	Common
5	Lime Apron feeder	Feed guide roller assembly	Material.Forged steel, Part no.4517-000-/14,Drawing no.0-4517-000,Make:TRF	Nos	42	Common
6	Lime Apron feeder	Rubber Pads	L 370 X W 135 XH 40mm with 4nos 22mm dia.hole for fixing. Hardness 65 (shore-A)	Nos	90	Common
7	Lime Sizer	Lube Pump Assembly (with Pipings)	Part no. 143060306, Machine Serial no.S625-0127,make:MMD	set	1	Common
8	Lime Sizer	Dipstick (for Spur Gearbox)	Part no. 0063023-01,Machine Serial no.S625-0127,make:MMD	Nos	1	Common
9	Lime DC	Scrapper	Item No-36,Drg No:0-4517-000,Rev-02,Make-TRF	Nos	20	Common
10	Lime DC	Roller Chain	Chain with K-2 attachment at every 10th link, Pitch: 4 Inch(101.6 Mm),LHS, Drawing No: RC-12-2239/A, Make: Rolcon	Mtr	20	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
11	Lime DC	Roller Chain	Chain with K-2 attachment at every 10th link, Pitch: 4 Inch(101.6 Mm),RHS, Drawing No: RC-12-2239/A, Make: Rolcon	Mtr	20	Common
12	Conveyor belts LM-1,2,LM-1A,1B	conveyor Belt	Width: 1000 mm, Carcass designation :500/3ply,Top/Bottom cover thickness:6.5/3mm, Fabric: nylon/nylon, Heavy duty, Grade: FR.Make: Phoenix/Oriental/ Eureka	Mtr	950	Common
13	Conveyor belts LM-1,2,LM-1A,1B	Return Training Assembly	For 1000mm belt with idlers,Drawing no.3-1019-698,Make:TRF	Nos	21	Common
14	Conveyor belts LM-1,2,LM-1A,1B	Return Idler	Size: 1150 mm long x 139.7 mm dia.,Drawing No.S38 SR NO 1.1	Nos	149	Common
15	Conveyor belts LM-1,2,LM-1A,1B,LM-2A,2B	Bracket (For return idlers)	1000 MM conveyor belt return roller bracket as per reference drawing	Nos	100	Common
16	Conveyor belts LM-1,2,LM-1A,1B	Troughing Trainer Idler Frame Assembly (With Idlers)	35 Deg. Idler Frame assembly with idlers, for 1000mm, Drawing no.3-1019-696,Make:TRF	Nos	36	Common
17	Conveyor belts LM-1,2,LM-1A,1B	Troughing Idler	For 1000mm belt,Drawing no.3-1019-694,Make:TRF	Nos	915	Common
18	Conveyor belts LM-2	Impact Idler	For 1000mm belt, as per attached drawing reference	Nos	15	Common
19	Conveyor belts LM-1,2,LM-1A,1B,LM-2A,2B	conveyor Pulley	With plain rubber lagging –Width 1150 X Diameter 400x Shaft diameter 75mm as per reference drawing	Nos	3	Common
20	Conveyor belts LM-1,2,LM-1A,1B,LM-	Bearing Block Assembly	SNL-517	Nos	20	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	2A,2B					
21	Conveyor belts LM-1,2,LM-1A,1B,LM-2A,2B	Bearing	22217EK	Nos	52	Common
22	Conveyor belts LM-1,2,LM-1A,1B,LM-2A,2B	Sleeve	H-317	Nos	52	Common
23	Conveyor belts LM-1,2,LM-1A,1B,LM-2A,2B	Bearing	22222 EK	Nos	12	Common
24	Conveyor belts LM-1,2,LM-1A,1B,LM-2A,2B	Sleeve	H-322	Nos	12	Common
25	Conveyor belts LM-1,LM-1A,1B	Impact Pad Frame Set	Impact pads with support structure for 1000mm width conveyor belt, Drawing no.BG/IP/130/SL R.2,Make-Kaveri, Impact pad size:1000x100x70mm	set	13	Common
26	Conveyor belts LM-1,LM-1A,1B	Impact Pads	Type: Fusion Bonded Size:1000x100x70mm thick(30mm thick polymer with 40mm thick rubber=Total 70mm thick),Make: Kaveri	Nos	91	Common
27	Conveyor belts LM-2A,2B	Impact Idler	For 600mm belt, as per attached drawing reference	Nos	30	Common
28	Conveyor belts LM-2A,2B	Return Idler	Size: 750 mm long x 139.7 mm dia. Shaft dia.20mm,as per attached drawing reference	Nos	188	Common
29	Conveyor belts LM-2A,2B	Troughing Idler	For 600mm belt, Drawing no.3-1019-694,Make:TRF	Nos	1134	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
30	Conveyor belts LM-2A,2B	Troughing Trainer Idler Frame Assembly (With Idlers)	35 Deg. Idler Frame assembly with idlers, for 600mm, Drawing no.3-1019-696,Make:TRF	Nos	44	Common
31	Conveyor belts LM-2A,2B	Return Trainer Assembly (With rollers)	For 600mm belt,Drawing no.3-1019-698,Make:TRF	Nos	22	Common
32	Bunker Saling belt	Idler (For seating belt)	size: 890 mm long x 152.4 mm dia., shaft dia.20mm	Nos	8	Common
33	Conveyor belts LM-2A,2B	conveyor Belt	Width:600mm,Carcass designation :500/3ply,Top/Bottom cover thickness:5/3mm, Fabric: nylon/nylon, Heavy duty, Grade: FR. Make: Phoenix/ Oriental/ Eureka	Mtr	1100	Common
34	Conveyor belts LM-1,2,LM-1A,1B,LM-2A,2B	Plain rubber pulley lagging sheet	1150 width x10mm thick	Mtr	20	Common
35	Conveyor belts LM-1,2,LM-1A,1B,LM-2A,2B	Diamond rubber pulley lagging sheet	1150 widthx10mm thick	Mtr	10	Common
36	Conveyor belts LM-1,2,LM-1A,1B,LM-2A,2B	Breather plug	suitable for gear box model CSB 180 and CSB 225,make:NAW	Nos	10	Common
37	Conveyor belts LM-1,2,LM-1A,1B,LM-2A,2B	Oil view glass	suitable for gear box model CSB 180 and CSB 225,make:NAW	Nos	10	Common
38	Conveyor belts LM-1,2,LM-1A,1B,LM-2A,2B	Skirt pads (For coffinn box with front and back plates)	size:width 250mmxheight 260mmx20mm thick X ( 02nos 20mmx115mm slot at 125 distance from each other),make: mehcano rubber and allied industries,jamshedpur	Nos	280	Common
39	Lime ILMS-	Bearing	SYJ-50TF	Nos	8	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	1&2					
40	Lime ILMS-1&2	Bearing	SYJ-40TF	Nos	8	Common
41	Lime ILMS-1&2	Non Magnetic Pulley	size:Dia.330X length 1400X shaft dia. 50mmX total length with shaft ends 1690mm	Nos	1	Common
42	Lime ILMS-1&2	Rubber Belt - Endless (M24)	Width:1300mm,Total length:6350 MM,3 ply, belt thickness:08mm with 05 nos. equal-spaced ss cleat(cleat height:40MM,length:1100mm)	Nos	2	Common
43	Lime ILMS-1&2	V belt pulley	Size:6 inch,2-groove, Type:B	Nos	2	Common
44	Lime ILMS-1&2	V belt pulley	Size:8 inch,2-groove, Type:B	Nos	2	Common
45	Lime ILMS-1&2	Gear box for gear motor	Type:A TF 15S,KW 5.5,Poles;4,Actual ratio:15, Output torque:51.2 Kgf.m., Sr.No of existing gear box:04/24179, Make: PBEGL	Nos	1	Common
46	LM Impactor-1&2	Roller Chain	Roller Chain, size:3/4" P ,Item sr No-9,Drg. No.-4016/18-GM-200,Model no-4016/18 Reversible Impactor,Machine Sr.No-6734&6735,Make-TRF	Nos	4	Common
47	LM Impactor-1&2	Hydraulic pipe	size:10mm	Mtr	10	Common
48	LM Impactor-1&2	Hydraulic Hose	1 meter long/unit,size:10mm	Nos	30	Common
49	LM Impactor-1&2	High pressure hydraulic valve	Size:10mm	Nos	10	Common
50	Dust Extraction system	Dust extraction system		set	2	Common
51	Lime Tripper 1&2	Roller Chain	type: duplex, pitch: 1.25"inch, standard: ansi,(1 nos. =10 ft standard length)	Nos	2	Common
52	Lime Agitator	Lime Agitator - A&B (Complete Assembly)	Motor power:1.1 KW,RPM:1440,Impeller RPM:8 to 9,Gear box model no:A 337,speed ratio:40:1,drg no:P039-D0030-117.	Nos	2	Common
53	MHP Hoist	Spares for MHP Hoist Servicing	Hoist servicing work with spares for 15 Ton-05 nos.,10Ton-03Nos.,7.5Ton-02Nos.,5ton-01Nos.,3Ton-02Nos.,2Ton-10Nos. For Lignite and Lime handling system	Lot	1	Common

### Plan 3: Ash Handling System

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Air Compressor-07	Main Oil Filter	MAIN OIL FILTER , PART NO : 220444059, MODEL : EL07335, MAKE : ELGI - 25 SERIES	Nos	1	Common
2	Air Compressor-07	Bearing oil filter	FILTER BEARING OIL, PART NO : 10440229, MODEL : EL07335, MAKE : ELGI - 25 SERIES	Nos	1	Common
3	Air Compressor-07	Air Suction Filter	SUCTION AIR FILTER, PART NO : 220419499, MODEL : EL07335, MAKE : ELGI - 25 SERIES	Nos	2	Common
4	Air Compressor-07	Separator Element	ELEMENT SEPERATOR, PART NO. 010454600, MODEL: EL07335, MAKE: ELGI - 25 SERIES	Nos	1	Common
5	Air Compressor-07	HLP-68 oil	SERVO SYSTEM HLP-68 Oil	Ltr	210	Common
6	Air Compressor-07	Minimum Pressure valve (MPV) Assembly	MINIMUM PRESSURE VALVE, MODEL: EL07335, MAKE: ELGI - 25 SERIES	Nos	1	Common
7	Air Compressor-07	Blowdown Valve Assembly (BDV)	BLOW DOWN VALVE ASSY., PART NO : A010029, MODEL : EL07335, MAKE : ELGI - 25 SERIES	Nos	2	Common
8	Air Compressor-07	Actuator Assembly	DOUBLE ACTING ACTUATOR ASSY., PART NO : A010033, MODEL : EL07335, MAKE : ELGI - 25 SERIES	Nos	1	Common
9	Air Compressor-07	Air End Servicing	Air end Servicing work ,MODEL : EL07335, MAKE : ELGI - 25 SERIES	Nos	1	Common
10	Air Compressor-07	Air Cooler	OCAND AC ASSY WC EL07335 E25,MAKE : ELGI - 25 SERIES	Nos	1	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
11	Air Compressor-07	Oil Cooler		Nos	0	Common
12	Air Compressor-07	Air Dischage Valve	Air discharge header 80Nb Ball valve,CS,ASA 150,Flanged end, MODEL : EL07335, MAKE : ELGI - 25 SERIES	Nos	1	Common
13	Air Compressor-07	Air Butter Fly valve	BUTTERFLY VALVE, SIZE : 8", PART NO : 220217480, MODEL: EL07335, MAKE : ELGI - 25 SERIES	Nos	1	Common
14	Air Compressor-07	Water line NRV	65NB CI check valve,PN-1.0,Flanged end	Nos	1	Common
15	Air Compressor-07	Rubber Elbow	Rubber elbow,Size : 6" X 6", Part No. : 220375410, Model : EL07335, Make : ELGI - 25 Series	Nos	2	Common
16	Air Compressor-07	Flexible hose	Hose set,Part No-01240145, ELD7335(01240145C&01240145B)	Nos	1	Common
17	Air Compressor-07	Return line site glass	return line sight glass 1/4",Part No.-A010017,Model : EL07335, Make : ELGI - 25 Series	Nos	1	Common
18	Air Compressor-07	coupling element	COUPLING ELEMENT-F 140, PART NO:22048410 F, APPLICATION:COMPRESSOR MODEL EL 07 335, MAKE:ELGI	Nos	1	Common
19	Air Compressor	Seperator Element	ELEMENT SEPERATOR, PART NO. 010454600, MODEL: EL07335, MAKE: ELGI - 25 SERIES	Nos	4	Common
20	Air Compressor	Cooler Discharge NRV	65NB CI check valve,PN-1.0,Flanged end	Nos	7	Common
21	Air dryer	Compressor	COMPRESSOR-MANEUROP RECIPROCATING, MODEL: MT 160 HW 4 DVE, THERMALLY PROTECTED, 460V, 3-60 HZ, 36 A MAX., P.E.D.:PS 18.4 BAR, MARKING: TS MAX.:50 DEG.	Nos	3	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			AIR DRYER COMPRESSOR, MAKE:DANFOSS			
22	ESP Fluidising Blower	Piston Ring	Piston ring (1set=16Nos),Item ,Model:610AC,Sr.No:610AC04066640406T,Make:KAY INTERNATIONAL PVT.LTD.	Nos	1	Common
23	ESP Fluidising Blower	Piston Ring Bush	Piston ring bush(1set=4Nos),Item code:CSTNG-00699,Model:610AC,Sr.No:610AC04066640406T,Make:KAY INTERNATIONAL PVT.LTD.	Nos	1	Common
24	ESP Fluidising Blower	Spacer	Oil securing disc and oil seal bush(combined) (1Set=4Nos),Item code:MISC-000579,Model:610AC,Sr.No:610AC04066640406T,Make:KAY INTERNATIONAL PVT.LTD.	Nos	4	Common
25	ESP Fluidising Blower	Securing Disc		Nos	0	Common
26	ESP Fluidising Blower	External C-Clip	External circlip,Item sr no-35,Drg. No.-K-CS-0610AH01A3,Model:610AC,Sr.No:610AC04066640406T,Make:KAY INTERNATIONAL PVT.LTD.	Nos	2	Common
27	Rotary Ash Conditioner	Drive Chain Sprocket	Drive chain sproket,Item sr no.-11,Drg. No-1-025-SD-2-019,Rev.-1,Make-Mcnally Bharat	Nos	2	Common
28	Rotary Ash Conditioner	Output Teflon Seal	Output taflon seal,Drg. No-1-025-SD-2-019,Rev.-1,Make-Mcnally Bharat	Nos	2	Common
29	Rotary Ash Conditioner	Spray Bar Assembly	Spray nozzleand buffel plate sub assembly,sr no.-06,Drg. No-1-025-SD-2-019,Rev.-1,Make-Mcnally Bharat	set	1	Common
30	Vibrating screen-1 & 2	Screen Mat	Wire cloth ,1MM Dia. X 2MM Apr. X 950 INS. Crimp X 950 LG.,for 1000MM wide x 3000 mm long S.deck inclined vibrating screen,Item no-00.01.04, Equip. Sr. no.-2004-l-1,Make-Mcnally Bharat	Nos	6	Common
31	Vibrating screen-1 & 2	V-belt	V-Belt SPA-1900	Nos	4	Common
32	Vibrating screen-3 & 4	Screen Mat	Wire cloth for 1500MM wide x 3000 mm long S.deck inclined vibrating screen,Item no-00.01.04, Equip. Sr. no.-2004-l-3,Make-Mcnally Bharat	Nos	4	Common
33	Vibrating screen-3 & 4	V-belt	V-Belt B-64	Nos	6	Common
34	By Pass belts	ISMC- 150 for structure	MS CHANNEL, MOC: M.S., SIZE: 150 X 75 X 5.7MM THICK	Ton	1.2	Common
35	By Pass belts	ISA-65 for structure	MS Angle,Size:65X65X6 mm	Ton	0.85	Common
36	By Pass belts	Carrying Idler	Carrying idler, Size: 220 mm long x 90 mm dia.500 mm conveyor belt -As per attached drawing	Nos	66	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
37	By Pass belts	Return Idler	Return idler, Size: 700 mm long x 75 mm dia.500 mm conveyor belt -As per attached drawing	Nos	20	Common
38	Both TAPH transporters	Expansion Bellow	Expansion Bellow-280 MM width	Nos	2	Common
39	Cup valve	Bearing for cup valve	6207,2Z Bearing for cup valve (Spare)	Nos	68	Common
40	Cup valve	O-ring	"O" RING , SIZE: DIA 15 MM X ID 245 MM, MATERIAL: VITON	Nos	20	Common
41	Cup valve	O-ring	O RING, SIZE:- ID 240 X DIA 09 MM,- VITON	Nos	34	Common
42	Cup valve	Cup valve climping ring (Spare)	CLAMPING RING, MAT:M.S. IS 2062 GR-A,, ITEM NO: 11, DRAWING NO: 1-A999-01--001A REV -0, APPLICATION: ASH INLET CUP VALVE 200/350NB, MAKE: MCNALLY BHARAT	Nos	18	Common
43	Cup valve	Cup valve face (Spare)	VALVE FACE, MAT:M.S. IS 2062 GR-B,, ITEM NO: 12, DRAWING NO: 1-A999-01--001A REV -0, APPLICATION: ASH INLET CUP VALVE 200/350NB, MAKE: MCNALLY BHARAT	Nos	18	Common
44	Cup valve	Cup (Spare)	CUP, ITEM NO: 02, DRAWING NO: 1-A999-01--001A REV -0, APPLICATION: ASH INLET CUP VALVE 200/350NB, MAKE: MCNALLY BHARAT	Nos	18	Common
45	Cup valve	Cup valve Assy.(Spare)	Ash inlet cup valve assy. Drg. No-1-025-SD-2-010,Rev-01,Make :Mcnally bharat	Nos	2	Common
46	Ash Transporter-3000 ltr	Perforated plate for bottom Disc-3000Ltr transporter (spare)	Perforated plate for bottom Disc-3000Ltr transporter as per drawing no 1-025-DS-2-012,Rev-01 ,Item no-06 ,Make :Mcnally bharat	set	8	Common
47	ESP-01&02 ASH TRANSPORTER	Expansion Bellow-300 MM width(Replacement)	Metalic Expansion joint, Free length:300 MM, Axial movement 36MM, Lateral movement 56MM,working PR..300MMWC,Temp.:200 Deg. C	Nos	16	Common
48	1st&2nd field vent valve	SDD valve -80 NB(Replacement)	80 NB VALVE PNEUMATIC CYLINDER OPERATED SLIDING DISC TYPE VLAVE	Nos	4	Common
49	ESP -1&2 Chain valve	200 NB Chain Valve full assy(Replacement)	200 NB Chain Valve full assy	Nos	24	Common
50	ASH TRANSPORTER 01TRS1	200Ltr Top discharge transporter with valves(Replacement)	200Ltr Top discharge transporter with valves	set	1	Common
51	ESP-1 LINE-03&04	SDD -65 NB valve (Spare)	65 NB VALVE PNEUMATIC CYLINDER OPERATED SLIDING DISC TYPE VLAVE	Nos	6	Common
52	ESP-1&2 LINE-01&02	SDD valve -125NB discharge	125 NB VALVE PNEUMATIC CYLINDER OPERATED SLIDING DISC TYPE VLAVE	Nos	2	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
		valve(Spare)				
53	ESP-1&2 LINE-01&02	150 NB MS pipe for discharge line(Replacement)	MS ERW Heavy duty pipe 150 NB as per IS: 1239 (HVY.GR.)/IS:3589	Mtr	100	Common
54	ESP-1&2 LINE-01&02,vent line	ERW MS pipe size-80 NB(Replacement)	MS ERW Heavy duty pipe 80 NB as per IS: 1239 (HVY.GR.)/IS:3589	Mtr	150	Common
55	ESP-1&2 LINE-03&04	65 NB MS pipe for discharge line(Replacement)	MS ERW Heavy duty pipe 65 NB as per IS: 1239 (HVY.GR.)/IS:3589	Mtr	240	Common
56	ESP-1&2 LINE-03&04	100 NB MS pipe for discharge line(Replacement)	MS ERW Heavy duty pipe 100 NB as per IS: 1239 (HVY.GR.)/IS:3589	Mtr	100	Common
57	ESP-1&2 LINE-01&02	150 KGV Gate Assy(Replacement)	150 KGV Gate Assy,Make-Vass	Nos	0	Common
58	ESP-1 LINE-03&04	Gate-150 NB KGV(Replacement)	GATE FOR 150 NB KNIFE GATE VALVE (MODEL :950), MATERIAL : SS304, WORKING PRESSURE :150 PSI, MAX TEMP. : 232'C,PART SR NO :03,MAKE : VAAS	Nos	16	Common
59	ESP-1 LINE-01&02	Body -150 NB KGV(Replacement)	BODY FOR 150 NB KNIFE GATE VALVE (MODEL :950), WORKING PRESSURE :150 PSI, MAX TEMP. : 232'C, PART SR NO:01,MAKE : VAAS	Nos	16	Common
60	ESP-1 LINE-01&02	Gland-150 NB KGV(Replacement)	GLAND FOR 150 NB KNIFE GATE VALVE (MODEL :950), WORKING PRESSURE :150 PSI, MAX TEMP. : 232'C, PART SR NO:04,MAKE : VAAS	Nos	16	Common
61	ESP-1 LINE-01&02	Deflector cone -150 NB KGV(Replacement)	DEFLECTOR CONE FOR 150 NB KNIFE GATE VALVE (MODEL :950), WORKING PRESSURE :150 PSI, MAX TEMP. : 232'C, PART SR NO:04,MAKE : VAAS	Nos	16	Common
62	ESP-1&2 LINE-03&04	100 KGV Gate Assy(Replacement)	100 KGV Gate Assy,Make-Vass	Nos	0	Common
63	ESP-1 LINE-03&04	Gate-100 NB KGV(Replacement)	GATE FOR 100 NB KNIFE GATE VALVE (MODEL :950), WORKING PRESSURE :150 PSI, MAX TEMP. : 232'C, PART SR NO:04,MAKE : VAAS	Nos	16	Common
64	ESP-1 LINE-03&04	Deflector cone -100 NB KGV(Replacement)	DEFLECTOR CONE FOR 100 NB KNIFE GATE VALVE (MODEL :950), WORKING PRESSURE :150 PSI, MAX TEMP. : 232'C, PART SR NO:04,MAKE : VAAS	Nos	16	Common
65	ESP-1 LINE-03&04	Body -100 NB KGV(Replacement)	BODY FOR 100 NB KNIFE GATE VALVE (MODEL :950), WORKING PRESSURE :150 PSI, MAX TEMP. : 232'C, PART SR NO:04,MAKE : VAAS	Nos	16	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
66	ESP-1 LINE-03&04	Gland-100 NB KGV(Replacement)	GLAND FOR 100 NB KNIFE GATE VALVE (MODEL :950), WORKING PRESSURE :150 PSI, MAX TEMP. : 232°C, PART SR NO:04,MAKE : VAAS	Nos	16	Common
67	Fly Ash Silo-1,2&3	6 mm checker plate for walk way(Replacement)	MS Chequered Plate ,Size:06 mm	Ton	1.8	Common
68	Fly Ash Silo-1,2&3	Fluidising felt -Dia-780MM(Replacement)	FLUIDIZING FELT FOR ASH SILO, SIZE : DIA 780MM, PCD : 755 MM, NO. OF HOLES : 24	Nos	3	Common
69	Fly Ash Silo-01	Filter bag(Replacement)	FILTER BAG , SIZE: DIA 160 X 1500 MM LONG, MODEL : PJBFB-50, CAPACITY: 3000 CU.M/HR,BAG MATERIAL: NOMEX NON WOVEN, PRESSURE DROP: 125-150 MMWG, FILTERING AREA: 43.3 SQ.M., AIR TO CLOTH RATIO: 69.2 CU.M/HR/SQ.M., MAX TEMP: 250 DEC C, END	Nos	80	Common
70	Fly Ash Silo-01	Cage(Replacement)	CAGE(MATERIAL: G.I.) WITH VENTURI(ALLUMINIUM) ,SIZE: LENGTH 1460MM X CAGE DIA: 142 MM (WIRE DIA. 03MM X NO. OF VERTICAL WIRE 10 NOS. X 150MM RING SPACING) SUITABLE FOR FILTER BAGS(DIA. 160MM X 1500MM LONG.) APPLICATION: BAG FILTER HOUSE OF ASH SILO	Nos	80	Common
71	Fly Ash Silo-01	Penumatic cut off valve (Replacement)	PNEUMATIC CUT OFF VALVE, DRAWING NO: 1-025-SD-2-017, APPLICATION: FLY ASH SILO, MAKE: MCNALLY BHARAT	Nos	1	Common
72	Bed Ash Silo	Roller chain 1 inch(Replacement)	Roller chain 1 inch simplex	Nos	1	Common
73	Bed Ash Silo	Filter bag(Replacement)	FILTER BAG , SIZE: DIA 160 X 1500 MM LONG, MODEL : PJBFB-50, CAPACITY: 3000 CU.M/HR,BAG MATERIAL: NOMEX NON WOVEN, PRESSURE DROP: 125-150 MMWG, FILTERING AREA: 43.3 SQ.M., AIR TO CLOTH RATIO: 69.2 CU.M/HR/SQ.M., MAX TEMP: 250 DEC C, END CONNECTION: SNAP BEND	Nos	56	Common
74	Bottom ash transporters system (Ash cooler to IMBASilo)	Bag filter House(Replacement)	Bag filter for bed ash buffer hopper ,Model No.PJBFB-10,Drawing No.-1-025-SD-2-023	set	4	Common
75	Bottom ash transporters system (Ash cooler to IMBASilo)	Fluidising Pannel (1Set=2 Nos)(Replacement)	Fluidising Panel No : 01&02, Ref Drg.No.-1-025-SD-2-035,Make :Mcnally Bharat	set (1 set = 2 Nos)	4	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
76	Bottom ash transporters system (Ash cooler to IMBASilo)	Buffer Hopper Body(Replacement)	Buffer Hopper Body,ref drg. No-1-025-SD-2-025-,Rev-1,Make-Mcnally Bharat	set	4	Common
77	Bottom ash transporters system (Ash cooler to IMBASilo)	Ash Inlet Valve-SDD 200NB(Replacement)	200 NB VALVE PNEUMATIC CYLINDER OPERATED SLIDING DISC TYPE VLAVE	Nos	8	Common
78	Bottom ash transporters system (Ash cooler to IMBASilo)	Vent Valve-SDD 65NB(Replacement)	65 NB VALVE PNEUMATIC CYLINDER OPERATED SLIDING DISC TYPE VLAVE	Nos	8	Common
79	Bottom ash transporters system (Ash cooler to IMBASilo)	Transporter-Bottom discharge 1100 ltr(Replacement)	1100 LTR. Capacity bottom discharge ash transporter,Drg. No.-1-025-SD-2-004A,Rev-01,Make-Mcnally Bharat	Nos	8	Common
80	Bottom ash transporters system (Ash cooler to IMBASilo)	Air Knife Valve(Replacement)	80NB Air Knife valve for buffer hopper system,Make-Mcnally Bharat	Nos	8	Common
81	Bottom ash transporters system (Ash cooler to IMBASilo)	Ash Discharge Valve-SDD 80NB(Replacement)	80 NB VALVE PNEUMATIC CYLINDER OPERATED SLIDING DISC TYPE VLAVE	Nos	8	Common
82	Bottom ash transporters system (Ash cooler to IMBASilo)	Air Inle Valve- 50 NB Pneumatic ball valve(Replacement)	BV FL 3P 50MM RP (5) FS API 607800# SWESCH-80	Nos	8	Common
83	Bottom ash transporters system (Ash cooler to IMBASilo)	Air Knife Valve-40 NB Penumatic Ball valve(Replacement)	BV FL 3P 40MM RP (5) FS API 607800# SWESCH-80	Nos	8	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	cooler to IMBASilo)					
84	Bottom ash transporters system (Ash cooler to IMBASilo)	50 NB NRV Bronze both side thread(Replacement)	BRONZE LIFT TYPE CHECK VALVE SCREW ENDS, SIZE:50NB,CONFIRMING TO IS 778:1984	Nos	16	Common
85	Bottom ash transporters system (Ash cooler to IMBASilo)	40 NB NRV Bronze both side thread(Replacement)	BRONZE LIFT TYPE CHECK VALVE SCREW ENDS, SIZE:40NB,CONFIRMING TO IS 778:1984	Nos	32	Common
86	Bottom ash transporters system (Ash cooler to IMBASilo)	MS ERW 50NB Pipe (Air line)(Replacement)	50NB PIPE,M.S.MEDIUM DUTY ERW PIPE,PLAIN END CONFIRMING TO IS:1239(PART-1)1990	Mtr	288	Common
87	Bottom ash transporters system (Ash cooler to IMBASilo)	MS ERW 40 NB PIPE (Air line)(Replacement)	40NB PIPE,M.S.MEDIUM DUTY ERW PIPE,PLAIN END CONFIRMING TO IS:1239(PART-1)1990	Mtr	288	Common
88	Bottom ash transporters system (Ash cooler to IMBASilo)	MS ERW 80 NB MS PIPE(Discharge line)(Replacement)	M.S .PIPE,TYPE:ERW, SIZE: 80NB, CLASS:HEAVY DUTY, DIM STD: IS1239(PART-1)-2004	Mtr	700	Common
89	Bottom ash transporters system (Ash cooler to IMBASilo)	80NB Basalt bend(Replacement)	MS BEND LINED WITH CAST BASALT ,SIZE : ID 80 MM X R 500 MM X 45 DEGREE ,FLANGED ENDED, DRG. NO. : CB-2205-APP-01, MAKE: DEMECH	Nos	105	Common
90	Bottom ash transporters system (Ash cooler to IMBASilo)	80 NB Basalt Pipe - 600MM length(Replacement)	MS PIPE LINED WITH CAST BASALT ,SIZE : ID 78 MM X 600 MM LONG ,FLANGED ENDED, MAKE: DEMECH	Nos	32	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
91	Bottom ash transporters system (Ash cooler to IMBASilo)	MS ERW 65 NB MS Pipe(Replacement)	M.S .PIPE,TYPE:ERW, SIZE: 65NB, CLASS:HEAVY DUTY, DIM STD: IS1239(PART-1)-2004	Mtr	80	Common
92	Bottom ash transporters system (Ash cooler to IMBASilo)	MS 90drg bend-50NB(Replacement)	ELBOW,MATERIALS:M.S.,90 ANGEL FOR 50NB PIPE PLAIN END	Nos	48	Common
93	Bottom ash transporters system (Ash cooler to IMBASilo)	MS 90 drg Tee-50NB(Replacement)	TEE,MATERIALS:M.S.,90 ANGEL FOR 50NB PIPE PLAIN END	Nos	16	Common
94	Bottom ash transporters system (Ash cooler to IMBASilo)	MS 90 drg bend-40NB(Replacement)	ELBOW,MATERIALS:M.S.,90 ANGEL FOR 40NB PIPE PLAIN END	Nos	48	Common
95	Bottom ash transporters system (Ash cooler to IMBASilo)	MS 90 drg Tee-40NB(Replacement)	TEE,MATERIALS:M.S.,90 ANGEL FOR 40NB PIPE PLAIN END	Nos	16	Common
96	Intermediate bed ash silo	Vent house filter bag(Replacement)	FILTER BAG , SIZE: DIA 160 X 1500 MM LONG, MODEL : PJBFB-50, CAPACITY: 3000 CU.M/HR,BAG MATERIAL: NOMEX NON WOVEN, PRESSURE DROP: 125-150 MMWG, FILTERING AREA: 43.3 SQ.M., AIR TO CLOTH RATIO: 69.2 CU.M/HR/SQ.M., MAX TEMP: 250 DEC C, END CONNECTION: SNAP BEND	Nos	28	Common
97	Intermediate bed ash silo	Vent house filter bag cage(Replacement)	CAGE(MATERIAL: G.I.) WITH VENTURI(ALLUMINIUM) ,SIZE: LENGTH 1460MM X CAGE DIA: 142 MM (WIRE DIA. 03MM X NO. OF VERTICAL WIRE 10 NOS. X 150MM RING SPACING) SUITABLE FOR FILTER BAGS(DIA. 160MM X 1500MM LONG.) APPLICATION: BAG FILTER HOUSE OF ASH SILO	Nos	28	Common
98	Intermediate bed ash silo	Vent Fan(Replacement)	Centrifugal fan,Item sr. no.-14,Drawing No.-1-025-SD-2-024,Rev-1.Make-Mcnally Bharat.Application I.M.B.A.silo	Nos	1	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
99	Intermediate bed ash silo	V-Belt(A-42)(Replacement)	V BELT A 42, TYPE: POLY-F PLUS	Nos	2	Common
100	ASH TRANSPORTER 0TR01&02	SDD -80 NB Vent valve (Replacement)	80NB VALVE PNEUMATIC CYLINDER OPERATED SLIDING DISC TYPE VLAVE	Nos	2	Common
101	ASH TRANSPORTER 0TR01&02	SDD-125 NB Ash Discharge valve(Replacement)	125NB VALVE PNEUMATIC CYLINDER OPERATED SLIDING DISC TYPE VLAVE	Nos	2	Common
102	ASH TRANSPORTER 0TR01&02	80 NB MS Pipe for vent line(Replacement)	M.S .PIPE,TYPE:ERW, SIZE: 80NB, CLASS:HEAVY DUTY, DIM STD: IS1239(PART-1)-2004	Mtr	30	Common
103	ASH TRANSPORTER 0TR01&02	125 NB MS pipe for discharge line(Replacement)	MS ERW Heavy duty pipe 125 NB AS PER IS :1239(HVY.GR.)/IS:3589	Mtr	100	Common
104	ASH TRANSPORTER 0TR01&02	150 NB MS pipe for discharge line(Replacement)	MS ERW Heavy duty pipe 150 NB as per IS: 1239 (HVY.GR.)/IS:3589	Mtr	100	Common
105	ASH TRANSPORTER 0TR01&02	125 NB Basalt Bend(Replacement)	125 NB-MS Bend Lined with Cast Basalt Size: CB ID 128 x R 750 x 45 Deg. x Extn.. (50+50) along with fixed flange at both ends.	Nos	9	Common
106	ASH TRANSPORTER 0TR01&02	150 NB Basalt Bend(Replacement)	150 NB-MS Bend Lined with Cast Basalt Size: CB ID 153 x R 900 x 45 Deg. x Extn.. (50+50) along with fixed flange at both ends.	Nos	9	Common
107	ASH TRANSPORTER 0TR03&05	65 NB MS pipe for discharge line (Replacement)	M.S .PIPE,TYPE:ERW, SIZE: 65NB, CLASS:HEAVY DUTY, DIM STD: IS1239(PART-1)-2004	Mtr	100	Common
108	ASH TRANSPORTER 0TR03&05	65 NB Basalt Bend (Replacement)	MS BEND LINED WITH CAST BASALT ,SIZE : ID 65 MM X R 450 MM X DEGREE 45,FLANGED ENDED, DRG. NO.: CB-2205-APP-02	Nos	20	Common
109	ASH TRANSPORTER 0TR03&05	65 NB Spool piece (Replacement)	MS PIPE LINED WITH CAST BASALT ,SIZE : ID 65 MM X 600 MM LONG ,FLANGED ENDED, MAKE: DEMECH	Nos	8	Common
110	ASH TRANSPORTER 0TR02&05	SDD-200 NB Ash Inlet Valve (Replacement)	200 NB VALVE PNEUMATIC CYLINDER OPERATED SLIDING DISC TYPE VLAVE	Nos	2	Common
111	ASH TRANSPORTER	200Ltr bottom discharge transporter	200Ltr bottom discharge transporter ,Drg No.-1-025-SD-2-007,REV-01 with Ash Inlet-200 NB SDD valve and Ash Discharge valve-	set	2	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	OTR04&06	with valves (Replacement)	65ND SDD Valve Make:Mcnalley Bharat			
112	Sea water line Silo area	PIPE, SIZE:150 NB, SCH:40, MOC:SS 316 L	PIPE, SIZE:150 NB, SCH:40, MOC:SS 316 L	Mtr	0.084	Common

#### **Plan 4: Pumps**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Main BFP#2A	Discharge MOV	Make: Niton, Size - 8" (200MM), Class - 2500, Operating by Rotork Actuator, Bypass line size - 1" (25mm)	Set	1.00	Unit 2
2	Sea water intake pump-B	Impeller guide piece	Part no:2120101,MOC code:219,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
3	Sea water intake pump-B	Ratchet cover	Part no:4740101,Moc code:012,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
4	Sea water intake pump-B	Journal Bearing	Part no:3710101,Moc code:011,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
5	Sea water intake pump-B	Cooling Coil	Part no:3700101,Moc code:257,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
6	Sea water intake pump-B	Thrust Bearing Housing	Part no:2470101,,Moc code:011,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
7	Sea water intake pump-B	Ratchet Pin	Part no:3690101,Moc code:073,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	4.00	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
8	Sea water intake pump-B	Ratchet Housing	Part no:4750101,Moc code:011,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
9	Sea water intake pump-B	Bowl	Part no:1200101,MOC code:219,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
10	Sea water intake pump-B	Bearing Holder	Part no:2540101,MOC code:219,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
11	Sea water intake pump-B	Bell mouth	Part no:2110101,MOC code:219,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
12	Sea water intake pump-B	Impeller	Part no:1520101,MOC code:306,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
13	Sea water intake pump-B	Thordon bearings	TRANSMISSION BEARING, SIZE:80.71MM OD X 60.20 MM ID X 155 MM LONG, (6X5X5), MATERIAL: THORDON SXL FULLY FINISHED, FOR SEA WATER INTAKE PUMP	Nos	6.00	Common
14	Sea water intake pump-B	Thordon bearings	BOWL BEARING, SIZE:90.80 MM OD X 70.20 ID X 155 MM LONG, (8X6X5), MATERIAL:THORDON SXL FULLY FINISHED, FOR SEA WATER INTAKE PUMP	Nos	1.00	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
15	Sea water intake pump-B	Plasma coated sleeve	SLEEVE FOR TRANSMISSION SHAFT SIZE: OD: 60MM X ID: 50MM X LENGTH: 210MM , MOC : SS 316 , WITH CARBIDE (METAL BASE ) COATING ON OUTER SURFACE COATING HARDNESS: 68 TO 70 HRC MUST BE 50+0.03 , - 0.00	Nos	6.00	Common
16	Sea water intake pump-B	Plasma coated sleeve	SLEEVE FOR IMPELLER SHAFT , SIZE: OD: 70MM X ID: 58MM X LENGTH: 230MM , WITH KEY WAY SIZE: 3 MM DEPTH X 10 MM WIDTH X 35 MM LONG MOC : SS 316 , WITH CARBIDE (METAL BASE ) COATING ON OUTER SURFACE COATING HARDNESS: 68 TO 70 HRC	Nos	1.00	Common
17	Sea water intake pump-B	Impeller shaft	Part no:1860101,MOC code:252,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
18	Sea water intake pump-B	Head shaft	Part no:1850101,MOC code:252,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
19	Sea water intake pump-B	Transmission shaft 1500 NB	Part no:1840101,MOC code:252,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	4.00	Common
20	Sea water intake pump-B	Bearing spider	Part no:2450101,MOC code:219,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	7.00	Common
21	Sea water intake pump-B	Column pipe	Part no:1330101,MOC code:662,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	4.00	Common
22	Sea water intake pump-B	Column pipe	Part no:1330201,MOC code:662,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
23	Sea water intake pump-B	Taper column pipe	Part no:1410101,MOC code:662,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
24	Sea water intake pump-B	Column pipe 600 mm	Part no:1350101,MOC code:662,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
25	Sea water intake pump-C	Thordon bearings	TRANSMISSION BEARING, SIZE:80.71MM OD X 60.20 MM ID X 155 MM LONG, (6X5X5), MATERIAL: THORDON SXL FULLY FINISHED, FOR SEA WATER INTAKE PUMP	Nos	6.00	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
26	Sea water intake pump-C	Thordon bearings	BOWL BEARING, SIZE: 90.80 MM OD X 70.20 ID X 155 MM LONG, (8X6X5), MATERIAL: THORDON SXL FULLY FINISHED, FOR SEA WATER INTAKE PUMP	Nos	1.00	Common
27	Sea water intake pump-C	Plasma coated sleeve	SLEEVE FOR TRANSMISSION SHAFT SIZE: OD: 60MM X ID: 50MM X LENGTH: 210MM, MOC : SS 316, WITH CARBIDE (METAL BASE) COATING ON OUTER SURFACE COATING HARDNESS: 68 TO 70 HRC MUST BE 50+0.03, -0.00	Nos	6.00	Common
28	Sea water intake pump-C	Plasma coated sleeve	SLEEVE FOR IMPELLER SHAFT, SIZE: OD: 70MM X ID: 58MM X LENGTH: 230MM, WITH KEY WAY SIZE: 3 MM DEPTH X 10 MM WIDTH X 35 MM LONG MOC : SS 316, WITH CARBIDE (METAL BASE) COATING ON OUTER SURFACE COATING HARDNESS: 68 TO 70 HRC	Nos	1.00	Common
29	Sea water intake pump-C	Impeller guide piece	Part no: 2120101, MOC code: 219, Model no: BHQ 32 M4, single stage, self water lub, Drg no: TC 152 02 006 2, Make: KBL	Nos	1.00	Common
30	Sea water intake pump-C	Ratchet cover	Part no: 4740101, MOC code: 012, Model no: BHQ 32 M4, single stage, self water lub, Drg no: TC 152 02 006 2, Make: KBL	Nos	1.00	Common
31	Sea water intake pump-C	Journal brg	Part no: 3710101, MOC code: 011, Model no: BHQ 32 M4, single stage, self water lub, Drg no: TC 152 02 006 2, Make: KBL	Nos	1.00	Common
32	Sea water intake pump-C	Cooling Coil	Part no: 3700101, MOC code: 257, Model no: BHQ 32 M4, single stage, self water lub, Drg no: TC 152 02 006 2, Make: KBL	Nos	1.00	Common
33	Sea water intake pump-C	Thrust bearing housing	Part no: 2470101, MOC code: 011, Model no: BHQ 32 M4, single stage, self water lub, Drg no: TC 152 02 006 2, Make: KBL	Nos	1.00	Common
34	Sea water intake pump-C	Ratchet pin	Part no: 3690101, MOC code: 073, Model no: BHQ 32 M4, single stage, self water lub, Drg no: TC 152 02 006 2, Make: KBL	Nos	4.00	Common
35	Sea water intake pump-C	Ratchet housing	Part no: 4750101, MOC code: 011, Model no: BHQ 32 M4, single stage, self water lub, Drg no: TC 152 02 006 2, Make: KBL	Nos	1.00	Common
36	Sea water intake pump-C	Bowl	Part no: 1200101, MOC code: 219, Model no: BHQ 32 M4, single stage, self water lub, Drg no: TC 152 02 006 2, Make: KBL	Nos	1.00	Common
37	Sea water intake	Bearing Holder	Part no: 2540101, MOC code: 219, Model no: BHQ 32 M4, single	Nos	1.00	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	pump-C		stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL			
38	Sea water intake pump-C	Bell mouth	Part no:2110101,MOC code:219,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
39	Sea water intake pump-C	Head shaft	Part no:1850101,MOC code:252,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
40	Sea water intake pump-C	Transmission shaft	Part no:1840101,MOC code:252,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
41	Sea water intake pump-C	Bearing spider	Part no:2450101,MOC code:219,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	7.00	Common
42	Sea water intake pump-C	Impeller shaft	Part no:1860101,MOC code:252,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
43	Sea water intake pump-C	impeller	Part no:1520101,MOC code:306,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
44	Sea water intake pump-C	Column pipe (600 mm)	Part no:1350101,MOC code:662,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
45	Sea water intake pump-C	Column pipe (1500 NB)	Part no:1330101,MOC code:662,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	4.00	Common
46	Sea water intake pump-C	Column pipe (1200 NB)	Part no:1330201,MOC code:662,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
47	Sea water intake pump-C	Taper column pipe	Part no:1410101,MOC code:662,Model no:BHQ 32 M4,single stage,self water lub,Drg no:TC 152 02 006 2,Make:KBL	Nos	1.00	Common
48	CW pumps-A & C	Lower thrust pad	LOWER THRUST PAD SET CP (1 SET(6+2) = 8 NOS.) PART NO:TP/X/215260, MOC:STEEL/WM. DRG NO: V/0V215266, MAKE: MICHELL VERTICAL DOUBLE THRUST & GUIDE BEARING, REF:12 DNT 2 FOR CW PUMP	Set	1.00	Common
49	CW pumps-A & C	Journal thrust pad	JOURNAL PAD SET (1 SET (6+2) = 8 NOS.), PART NO: JP/X/215268, MOC:STEEL/WM, DRG NO: V/0V215266, MAKE:MICHELL VERTICAL DOUBLE THRUST & GUIDE BEARING, REF:12 DNT 2 FOR CW PUMP	Set	1.00	Common
50	CW Pump	Gear box assembly	GEAR BOX FOR FOURESS MAKE 1500 MM BUTTER FLY VALVE MODEL BQO-181 GEAR POT 350-1,Drg:B-60066-E	Nos	2.00	Common
51	CW Pump	CW Pump Discharge	1500 NB distance piece with 1500NB rubber below Make:D.Wren Industries pvt ltd,Rubber expansion joint,1500 NB.Drg no:DW/EJ/3023/01 R2	Nos	5.00	Common
52	Good win pump(200 m <sup>3</sup> )	Complete assembly of Goodwin pump	COMPLETE ASSEMBLY OF SUBMERSIBLE SLURRY PUMP WITH INTEGRAL AGITATOR,CAPACITY:200 M <sup>3</sup> /HR,HEAD:40 MTR,RPM:1450,MOTOR TYPE &	Nos	1.00	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			RATING:INTEGRAL OIL COOLED 30KW/440V/50HZ			
53	Effluent disposal pump	Complete assembly of pump	Model no:CPHS 50/13,Cap:50 m <sup>3</sup> /hr,head:23 m,Drg no:TC17902025-1,Make:Kirlosker brothers ltd.	Nos	2.00	Common
54	Jockey pump	Pump spares	Model no:6M/7STG,Cap:30m <sup>3</sup> /hr,Head:90,RPM:2900,Rating:15 KW,Drg no:TSA / 47402082k3 ( C ) Rev 0	Nos	2.00	Common
55	Hydrant pump	Pump spares	Figure:7000,Size:15H,Stage:Five,Cap:410 m <sup>3</sup> /hr,head:92 mtrs,Rating:150 KW,Speed:1488 RPM,Drg no:CSD / 474 03 08 2k3(A) Rev 02.	Nos	2.00	Common
56	Spray pump	Pump spares	Figure:7000,Size:15H,Stage:Five,Cap:410 m <sup>3</sup> /hr,head:92 mtrs,Rating:150 KW,Speed:1488 RPM,Drg no:CSD / 474 03 08 2k3(A) Rev 02.	Nos	2.00	Common
57	TWS back wash pump	TWS back wash pump	Type:Through flow,Cap:2160 m <sup>3</sup> /hr,Speed:3 m/min,No of baskets:50 nos,Drg no:GMW-J.1029-TWS-01 Rev 2,Make:General Mechanical works.	Nos	2.00	Common

### **Plan 5: Turbine Auxiliaries**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Dearetor#1 & 2	Spray nozzles	Equipment Name - Dearator Fabricated By : GEA Energy System (I) Ltd. Chennai,Technical Colloborator : Crane Environmental, USA Manufactured for : Ansaldo Services Pvt. Ltd. Client : Gujarat Mineral Development Corp. Ltd. Design Pressure : 10 Bar Design Temp : 370 Degree Test Pressure : 15 bar Vessel ID X THK : 2106mm X 14mm Vessel T/T Length : 4260mm,Make:GEA ENERGY SYSTEM (I) LTD. CHENNAI.	Nos	24.00	Unit 1 and Unit 2
2	MOT#1,2 & COT,DOT centrifuge	Spares set	Make - Veronesi Separatori, Model - RSY 180, Italy	Nos	2.00	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
2.1	MOT#1,2 & COT, DOT centrifuge	O-Ring	O-RING 2062, PART NO:0018810, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. ITALY	Nos	6.00	Unit 1 and Unit 2
2.2	MOT#1,2 & COT, DOT centrifuge	O-Ring	O-RING 4150, PART NO:0018060, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	6.00	Unit 1 and Unit 2
2.3	MOT#1,2 & COT, DOT centrifuge	O-Ring	O-RING 152, PART NO:0018070, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	12.00	Unit 1 and Unit 2
2.4	MOT#1,2 & COT, DOT centrifuge	O-Ring	O-RING 167, PART NO:0018078, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	6.00	Unit 1 and Unit 2
2.5	MOT#1,2 & COT, DOT centrifuge	O-Ring	O-RING 6150, PART NO:0018140, FOR MOT CENTRIFUGE, Type:RSY	Nos	6.00	Unit 1 and Unit 2
2.6	MOT#1,2 & COT, DOT centrifuge	O-Ring	O-RING 6200, PART NO:0018146, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	12.00	Unit 1 and Unit 2
2.7	MOT#1,2 & COT, DOT centrifuge	Big Gasket	BIG GASKET, PART NO:0304100, DRG NO:C00/04, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	6.00	Unit 1 and Unit 2
2.8	MOT#1,2 & COT, DOT centrifuge	Little Gasket	LITTLE GASKET, PART NO:0304105, DRG NO:C00/10, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	6.00	Unit 1 and Unit 2
2.9	MOT#1,2 & COT, DOT centrifuge	Bearing	BEARING 6306, PART NO:0145146, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	2.00	Unit 1 and Unit 2
2.10	MOT#1,2 & COT, DOT centrifuge	Bearing	BEARING 6305 1RS, PART NO:0145433, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	4.00	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
2.11	MOT#1,2 & COT, DOT centrifuge	Bearing	BEARING 1204 ETN9, PART NO:0145536, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	2.00	Unit 1 and Unit 2
2.12	MOT#1,2 & COT, DOT centrifuge	Bearing	BEARING 51201, PART NO:0145854, FOR MOT CENTRIFUGE, TYPE:RSY 180, MAKE:VERONESI SEPARATORI S.P.A.ITALY	Nos	2.00	Unit 1 and Unit 2
2.13	MOT#1,2 & COT, DOT centrifuge	Bearing	BEARING 53202, PART NO:0145874, FOR MOT CENTRIFUGE, TYPE: RSY 180, MAKE:VERONESI SEPARATORI S.P.A.ITALY	Nos	2.00	Unit 1 and Unit 2
2.14	MOT#1,2 & COT, DOT centrifuge	Gasket	GASKET, PART NO:0304150, DRG NO:D00/11, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	4.00	Unit 1 and Unit 2
2.15	MOT#1,2 & COT, DOT centrifuge	Gasket	GASKET, PART NO:0304153, DRG 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	4.00	Unit 1 and Unit 2
2.16	MOT#1,2 & COT, DOT centrifuge	Gasket	GASKET, PART NO:0304156, DRG NO:D01/06, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	4.00	Unit 1 and Unit 2
2.17	MOT#1,2 & COT, DOT centrifuge	Gasket	GASKET, PART NO:0304159, DRG NO:D05/06, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	4.00	Unit 1 and Unit 2
2.18	MOT#1,2 & COT, DOT centrifuge	Gasket	GASKET, PART NO:0304162, DRG NO:D06/06, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	4.00	Unit 1 and Unit 2
2.19	MOT#1,2 & COT, DOT centrifuge	Gasket	GASKET, PART NO:0304165, DRG NO:D06/07, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	4.00	Unit 1 and Unit 2
2.20	MOT#1,2 & COT, DOT centrifuge	Lining Couterweight	LINING COUNTERWEIGHT, PART NO:0452155, DRG NO:D03/04, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	12.00	Unit 1 and Unit 2
2.21	MOT#1,2 & COT, DOT centrifuge	Belleville Spring	BELLEVILLE SPRING, PART NO:0453021, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	4.00	Unit 1 and Unit 2
2.22	MOT#1,2 & COT, DOT centrifuge	Spring	SPRING, PART NO:0453165, DRG NO:D05/05, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	18.00	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
2.23	MOT#1,2 & COT, DOT centrifuge	Brake Spring	BRAKE SPRING, PART NO:0453275, DRG NO:F14/27, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	2.00	Unit 1 and Unit 2
2.24	MOT#1,2 & COT, DOT centrifuge	Elastic Pin	ELASTIC PIN, PART NO:0550292, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	4.00	Unit 1 and Unit 2
2.25	MOT#1,2 & COT, DOT centrifuge	Little Piston	LITTLE PISTON, PART NO:0608155, DRG NO:D05/03, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	18.00	Unit 1 and Unit 2
2.26	MOT#1,2 & COT, DOT centrifuge	Horizontal Shaft	HORIZONTAL SHAFT, PART NO:0005152, DRG NO:D 02/02, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	2.00	Unit 1 and Unit 2
2.27	MOT#1,2 & COT, DOT centrifuge	Tachometer Shaft	TECHOMETER SHAFT, PART NO:0007155, DRG NO:D 06/02, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	2.00	Unit 1 and Unit 2
2.28	MOT#1,2 & COT, DOT centrifuge	Vertical Shaft	VERTICAL SHAFT, PART NO:0008198, DRG NO:D 27/17, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	4.00	Unit 1 and Unit 2
2.29	MOT#1,2 & COT, DOT centrifuge	Shock absorber	SHOCK ABSORBER, PART NO:0013156, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	16.00	Unit 1 and Unit 2
2.30	MOT#1,2 & COT, DOT centrifuge	Complete Brake	COMPLETE BRAKE, PART NO:0254455, DRG NO:I 16/04, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	2.00	Unit 1 and Unit 2
2.31	MOT#1,2 & COT, DOT centrifuge	Tachometer Gear	TACHOMETER GEAR, PART NO:0351155, DRG NO:D 01/07, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	2.00	Unit 1 and Unit 2
2.32	MOT#1,2 & COT, DOT centrifuge	Tachometer Gear	TACHOMETER GEAR, PART NO:0351160, DRG NO:D 06/04, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	2.00	Unit 1 and Unit 2
2.33	MOT#1,2 & COT, DOT centrifuge	Worm Wheel	WORM WHEEL, PART NO:0735160, DRG NO:D 01/08, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	4.00	Unit 1 and Unit 2
2.34	MOT#1,2 & COT, DOT centrifuge	Thrust Bearing Seat	THRUST BEARING SEAT, PART NO:0750165, DRG NO:D 27/12, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	2.00	Unit 1 and Unit 2
2.35	MOT#1,2 &	Base Support	BASE SUPPORT, PART NO:0752175, DRG NO:D 27/01,	Nos	2.00	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	COT, DOT centrifuge		FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy			
2.36	MOT#1,2 & COT, DOT centrifuge	Oil Level Indicator	OIL LEVEL INDICATOR, PART NO:0758079, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	2.00	Unit 1 and Unit 2
2.37	MOT#1,2 & COT, DOT centrifuge	Oil Charge Cap	OIL CHARGE CAP, PART NO:0801001, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	2.00	Unit 1 and Unit 2
2.38	MOT#1,2 & COT, DOT centrifuge	oil Discharge Cap	OIL DISCHARGE CAP, PART NO:0801002, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	2.00	Unit 1 and Unit 2
2.39	MOT#1,2 & COT, DOT centrifuge	Collar Cap	COLLAR CAP, PART NO:0801160, DRG NO:D 05/04, FOR MOT CENTRIFUGE, Type:RSY 180, MAKE:VERONESI SEPARATORI S.p.A. Italy	Nos	18.00	Unit 1 and Unit 2
3	STG area Structure & platform & railing	I BEAM ISMB	150MM	Mtr	260.00	Unit 1 and Unit 2
4	STG area Structure & platform & railing	ANGLE	MOC: M.S., SIZE: 75 X 75 X 6 MM, LENGTH: 6.1 MTR	Mtr	150.00	Unit 1 and Unit 2
5	STG area Structure & platform & railing	MS GRILL	M.S. GRILLS DULY HOT DEEP GALVANISED, OUTER FRAME-32X5MM MS FLAT, HORIZONTAL-32X5MM MS FLAT, VERTICLE-6X6MM MS BAR, MS SECTION CONFIRMING TO IS-2062, ZINC COATED THICKNESS MIN.90 MICRONS AND MAX.150 MICRONS	Sq mtr	130.00	Unit 1 and Unit 2
6	STG area Structure & platform & railing	MS FLAT	SIZE : 100MM X 8 MM THICK	Mtr	60.00	Unit 1 and Unit 2
7	STG area Structure & platform & railing	MS FLAT	SIZE : 50MM X 5 MM THICK	Mtr	60.00	Unit 1 and Unit 2
8	STG area Structure &	C. CHANNEL	SIZE : 200 X 75	Mtr	30.00	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	platform & railing					
9	STG area Structure & platform & railing	CHANNEL, MOC: M.S.	SIZE: 100 X 55 MM	Mtr	18.00	Unit 1 and Unit 2
10	STG area Structure & platform & railing	CHANNEL, MOC: M.S.	SIZE: 125 X 65 MM	Mtr	164.00	Unit 1 and Unit 2
11	STG area Structure & platform & railing	MS ROD	20MM	Mtr	96.00	Unit 1 and Unit 2
12	STG area Structure & platform & railing	GI PIPE	SIZE OD 33.4 ,C CLASS,THICKNESS 3.38, MATERIAL GI	Mtr	524.00	Unit 1 and Unit 2

### **Plan 6: Steam Extraction System**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Main steam drain MOV-112	IBR valve	2",2500 class, Make: BHEL	Nos	4.00	Unit 1 and Unit 2
2	Main steam drain MOV-102	IBR valve	1",2500 class, Make: BHEL	Nos	6.00	Unit 1 and Unit 2
3	HRH drain MOV	Valve	2",1500 class, Make: BHEL	Nos	4.00	Unit 1 and Unit 2
4	CRH drain MOV	Valve	2",1500 class, Make: BHEL	Nos	4.00	Unit 1 and Unit 2

**Plan 7: Condensate System**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Condenser 1 and 2	Condenser tubes	Tube Outer Diameter - 28.575 Tube Thickness - 0.6 mm and 0.8 mm Tube Length - 7000 mm Material Specification - Titanium - ASTM B 338 GR 2 longitudinally welded.	Nos	0.6 mm tubes – 1700. 0.8 mm tubes - 220	Unit 1
2	Condenser 1	Condenser CW inlet & outlet	Piping with hanger support and rubber bellow up to 1500NB BFV	Set	4.00	Unit 1
3	Condenser 2	Condenser CW inlet & outlet	Piping with hanger support and rubber bellow up to 1500NB BFV	Set	4.00	Unit 2
4	CW Interconnection	Assembly of 1500 NB Butterfly Valve for CW interconnection	Make:KBL, DRG NO. TC 266.02.074.0	Nos	2.00	Unit 1 and Unit 2
5	Condensor 1	Complete assembly of 1500 NB Butterfly Valve for Condenser 1	Make:KBL, DRG NO. TC 266.02.074.0	Nos	4.00	Unit 1
6	Condensor 2	Complete assembly of 1500 NB Butterfly Valve for Condenser 2	Make:KBL, DRG NO. TC 266.02.074.1	Nos	4.00	Unit 2
7	CW interconnection pit	Rubber bellow	RUBBER EXPANSION BELLOW, Size - 1500mm, Make - D. Wren Industries Pvt. Ltd., Drg No. - DW/EJ/3023/01-Rev-2,	Nos	2.00	Common

### **Plan 8: CCW System**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Main PHE-A,B,C	Eccentric reducer with block	Mke - IDMC Ltd., Model - S188, Drg No.- M02-S188-459-A00 (OES - M/s Weldark Engg)	Nos	3 blocks (4 reducers per block)	Common

### **Plan 9: Compressors**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	IAC-A	Instrument Air Compressor	Make - Elgi Equipment Ltd., Model - OF 300 8.8, Capacity - 1653 CFM, Pressure - 8.8bar	Nos	1.00	Common
2	SAC-A,B	Instrument Air Compressor	Make - Elgi Equipment Ltd., Model - OF 300 8.8, Capacity - 1653 CFM, Pressure - 8.8bar	Nos	2.00	Common
3	SAC-E,IAC-C	Instrument Air Compressor	Make - Elgi Equipment Ltd., Model - OF 300 8.8, Capacity - 1653 CFM, Pressure - 8.8bar	Nos	2.00	Common
4	Service/Instrument air line,MS Pipe	Pipe	1",MOC:M.S,SCH:40	Mtr	200.00	Common
5	Service/Instrument air line,MS Pipe	Pipe	2",MOC:M.S,SCH:40	Mtr	200.00	Common
6	Service/Instrument air line,MS Pipe	Pipe	1.5",MOC:M.S,SCH:40	Mtr	200.00	Common
7	Fire Air compressor spares	Spares of air compressor	Model no:2BC26,Type:Reciprocating "V" arrangement,Motor rating:7.5 HP,Disch pr:15 kg/cm^2,Cap of air receiver tank:250 ltrs.Make:M/s K G Khosla enterprise ltd.	Nos	1.00	Common

### Plan 10: CW System

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	U#2 CT fan#1,2,9 U#1 CT fan#1,2,5	Assembly of gearbox	Type:Bevel Helical Gear box,Model no:B2SV 6,Nominal reduction ratio:13.54:1,Effi:97.5,service factor:2.48,Drg no:8 990 988,Make:Flender.M/s Siemens/M/s Akshar trading-Ahemedabad	Nos	6.00	Unit 1 and Unit 2
2	U#2 CT fan#1,2,9 U#1 CT fan#1,2,5	FRP blades	Model no:Parag-Map-10000-6HV-P33,Effi:82%,Drg no:PFCSL/BDT/GA/48-6 Rev-1,Make:M/s parag fans.	Set	6.00	Unit 1 and Unit 2
3	U#2 CT fan#1,2,9 U#1 CT fan#1,2,5	Assembly of driving shaft	Type:Hollow double span shaft,length:5000 mm long,MOC:SS 316L,Dia of shaft:88.9 mm(OD),Model no:SB 1906 in double span,Wt:90 KGs,Max torque:1080 Nm,Make:M/s Unique Transmission India Pvt Ltd. / M/s Vijay Engineer-Ahemedabad	Set	6.00	Unit 1 and Unit 2
4	750NB butterfly valve with gear box	Butterfly Valve	size:750 NB,MOC:Cast Iron,Type:Double Flanged ebonite lined,PN rating:PN 6.0,Design:BS:5155,Drg no:B-30138-M Rev 1,Make:Fouress Engineering.	Nos	18.00	Unit 1 and Unit 2
5	supply fills material for one cells	Fills material	PVC Film Fills for BDT make Cooling Tower Size 16.2 M (L) x 16.2 M (W) x 1.8 M (H) Sheet thickness – 0.30 to 0.40 mm Flute size – 27 mm.,Make:M.M Aqua Technologies Ltd.	Nos	18.00	Unit 1 and Unit 2
6	supply Drift eliminator for one cell	Drift eliminator	PVC Honeycomb type Drift Eliminators for BDT make Cooling Tower Size 16.2 M (L) x 16.2 M (W).	Nos	18.00	Unit 1 and Unit 2
7	Spray nozzles	Spray nozzles	Type:Down ward spray,MOC:Polypropylene,Dia of nozzle:32 mm,Drg no:WCT-I-020-PE-114 Rev 0,Wt:400 grams(approx),Make:BDT Ltd.	Nos	6,000.00	Unit 1 and Unit 2
8	CT riser	Riser Header Piping	750NB MS pipe,Type-ERW,Thickness-8 mm,(12 mtr pipe & 01 nos 90 degree bend)	Mtr	216.00	Unit 1 and Unit 2
9	CT riser	Riser Header Bend	750NB MS bend,Type-ERW,Thickness-8 mm, 01 nos 90 degree bend)	Nos	18.00	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
10	CT riser	Riser Header Piping and Bend	Service charges Exsting pipe removal & new piping replacement	Mtr	216.00	Unit 1 and Unit 2
11	CT blowdown line	CT Blowdown Line	300NB pipe MS internal corrocoat & out side painting	Mtr	180.00	Unit 1
12	Isolation Gate	Isolation stop log gate	Make:Macmet india limited,Drg no:JN1876-001 Rev 5 & JN1876-003 Rev 3	Set	1.00	Common
13	I beam and railing	I beam and pipes for railing	"I" beam size:410 mm Ht x 120 mm,Railing pipe 2" M.S "I" beam length: 10 m	Nos	18 beams	Unit 1 and Unit 2
14	Internal distribution pipe	Pipe	Pipe with 250mm with tail end,Pipe with eccentric reducer end,Pipe 200 mm,MOC:FRP	Mtr	4,507.00	Unit 1 and Unit 2

### **Plan 11: Desalination System**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	MED	Pipe	Size:250NB, Moc:SS316L,Th:6 mm,Type:ERW	mtr	18.00	Common
2	MED	Pipe	Size:150NB, MOC:SS316L,Th:6 mm,Type:ERW	mtr	18.00	Common
3	MED	Pipe	Size:300 NB, MOC:SS316L,Th:6 mm,Type:ERW	mtr	12.00	Common
4	MED	Pipe	Size:350 NB, MOC:SS316L,Th:6 mm,Type:ERW	mtr	12.00	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
5	MED	Elbow	Size:250 NB, MOC:SS316L,Th:6 mm,Type:ERW	Nos	4.00	Common
6	MED	Elbow	Size:350 NB, MOC:SS316L,Th:6 mm,Type:ERW	Nos	2.00	Common
7	MED	Pipe with fittings	Supply of MED spray header piping with fittings( Size-100NB,80NB,50NB pipe)Total 12 nos header containing as per below qty.piping with fittings	Set (as defined below)	1	Common
8	MED	Pipe	PIPE,SIZE:4",MOC:SS 316L,SCH:40	mtr	72.00	Common
9	MED	Pipe	PIPE:3",MOC:SS 316L,SCH:40	mtr	36.00	Common
10	MED	Pipe	PIPE,SIZE:2",MOC:SS 316L,SCH:40	mtr	24.00	Common
11	MED	Bend	BEND(45 DEGREE),SIZE:4",MOC:SS 316L,SCH:40	Nos	24.00	Common
12	MED	Bend	BEND(90 DEGREE),SIZE:4",MOC:SS 316L,SCH:40	Nos	24.00	Common
13	MED	Bend	BEND,SIZE:4",MOC:SS 316L,SCH:40(45 DEGREE- FOR FEED LINE)	Nos	12.00	Common
14	MED	Tee	TEE(REDUCING),SIZE:4"X3",MOC:SS 316L,SCH:40	Nos	24.00	Common
15	MED	Tee	TEE(REDUCING),SIZE:3"X2",MOC:SS 316L,SCH:40	Nos	96.00	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
16	MED	Tee	TEE(EQUAL),SIZE:3",MOC:SS 316L,SCH:40	Nos	24.00	Common
17	MED	Dummy Cap	DUMMY CAP,SIZE:4",MOC:SS 316L,SCH:40	Nos	12.00	Common
18	MED	Dummy Cap	DUMMY CAP,SIZE:3",MOC:SS 316L,SCH:40	Nos	48.00	Common
19	MED	Flange	FLANGE WITH SS ADAPTOR,SIZE:4",MOC:SS 304	Nos	36.00	Common
20	MED	Flange	FLANGE,SIZE:2",CLASS:150,MOC:SS 304	Nos	96.00	Common
21	MED	Flange	FLANGE,SIZE:4",MOC:SS 304(FOR DISTANCE PIECE)	Nos	24.00	Common
22	MED Structure & platform & railing/support	I BEAM	ISMB-150MM	Mtr	150.00	Common
23	MED Structure & platform & railing/support	ANGLE, MOC: M.S.	SIZE: 75 X 75 X 6 MM, LENGTH: 6.1 MTR	Mtr	125.00	Common
24	MED Structure & platform & railing/support	MS GRILL	M.S. GRILLS DULY HOT DEEP GALVANISED, OUTER FRAME-32X5MM MS FLAT, HORIZONTAL-32X5MM MS FLAT, VERTICLE-6X6MM MS BAR, MS SECTION CONFIRMING TO IS-2062, ZINC COATED THICKNESS MIN.90 MICRONS AND MAX.150 MICRONS	sq mtr	65.00	Common
25	MED Structure & platform &	MS FLAT	SIZE : 100MM X 8 MM THICK	mtr	60.00	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	railing/support					
26	MED Structure & platform & railing/support	MS FLAT	SIZE : 50MM X 5 MM THICK	mtr	60.00	Common
27	MED Structure & platform & railing/support	C. CHANNEL	SIZE : 200 X 75	mtr	50.00	Common
28	MED Structure & platform & railing/support	CHANNEL, MOC: M.S.	SIZE: 100 X 55 MM	mtr	30.00	Common
29	MED Structure & platform & railing/support	CHANNEL, MOC: M.S.	SIZE: 125 X 65 MM	mtr	82.00	Common
30	MED Structure & platform & railing/support	MS ROD	20MM	mtr	80.00	Common
31	MED Structure & platform & railing/support	GI PIPE	SIZE OD 33.4 ,C CLASS,THICKNESS 3.38, MATERIAL GI	mtr	200.00	Common

### **Plan 12: SWTP**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Gravity Sand filter	Pipe line	Size:450NB,Th:6 mm,MOC:SS 316L,Type:ERW	Mtr	72.00	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
2	Gravity Sand filter	Pipe line	Size:350NB,Th:6 mm,MOC:SS 316L,Type:ERW	Mtr	18.00	Common
3	Gravity Sand filter	Pipe line	Size:500NB,Th:6 mm,MOC:SS 316L,Type:ERW	Mtr	36.00	Common
4	Gravity Sand filter	Reducer	Size:350NB X 500NB reducer,MOC:SS 316L,Type:ERW	Nos	12.00	Common
5	Gravity Sand filter	Pipe	Size:100NB,Th:6 mm,MOC:SS 316L,Type:ERW	Nos	12.00	Common
6	Gravity Sand filter	Elbow	Size:100NB,Th:6 mm,MOC:SS 316L,Type:ERW	Nos	14.00	Common
7	Flash mixture	Assembly of flash mixture	Gear box ratio:12.6:1,model no:GM074/2,Rating:7.5 HP,1400 rpm,Drg no:210-474Make:Ceecons,Chennai,india.	Nos	3.00	Common
8	Flocculator	Gear box	Gear box,Ratio-60:1,Make:Greaves,Model no:A 337,Drg no:P039-D0030-102 Rev1	Nos	4.00	Common
9	Flocculator	Gear set-Bevel gear & pinion	Moc:C.I,Pinion gear no of teeth:13 nos,Bevel gear no of teeth:78 nos.Gear Ratio:6:1.	Set	4.00	Common
10	Thickner mechanisam	Spares and consumables	Motor power:1.5 KW,gear box ratio:60:1,Drive head unit type:W 48,Torque:3600 kg-m,rack arm rpm:0.13,Dia:14 m	Nos	1.00	Common
11	Travelling water screen-A,B,C	Spares required for servicing	Type:Through flow,Cap:2160 m <sup>3</sup> /hr,Speed:3 m/min,No of baskets:50 nos,Drg no:GMW-J.1029-TWS-01 Rev 2,Make:General Mechanical works.	Nos	3.00	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
12	1500NB & 2200NB sea water line (Unit#1)	Corrocoating material	kirlosker corrocoat make vinyl ester glass Flake filled Coating "Polyglass VEF/VEHA average @ 1mm DFT	Sq mtr	2200NB – 3603 m2 1500NB – 19 m2	Unit 1
13	1500NB & 2200NB sea water line (Unit#2)	Corrocoating material	kirlosker corrocoat make vinyl ester glass Flake filled Coating "Polyglass VEF/VEHA average @ 1mm DFT	Sq mtr	2200NB – 3603 m2 1500NB – 19 m2	Unit 2
14	Main Acid storage tank	Main Acid Storage Tank	Main Acid storage tank,Size:2400 x 3600 LG,Type:Horizontal cylindrical tank,Drg no:P039-D0005-302 Rev 1,	Nos	1.00	Common
15	Main Alkali storage tank	Main Alkali Storage Tank	Main Alkali storage tank,Size:2400 x 3600 LG,type:Horizontal cylindrical tank,Drg no:P039-D0005-303 Rev 1,	Nos	1.00	Common
16	Acid & Alkali Measuring tank	Acid & Alkali Measuring Tank	Size:500 x 800 HT,Type:vertical cylindrical with top cover plate,Cap:100 ltrs,drg no:P039-D0005-304.	Nos	4.00	Common
17	Acid & Alkali measuring tank	CPVC piping with support	1/2-to-1 inch pipes,couplers,adaprtor,Tee	Lot	-	Common
18	PTP & DM Plant	CPVC Piping & Fitting	1-to-6-inch pipes, couplers, adaptors	Lot	1.00	Common
19	GSF Service & Backwash valve	Gearbox with valves	Size:350NB,flanged BFV(Pneumatically operated)Drg no:B-14201-P Rev 2 & Size:450NB,flanged BFV(Pneumatically operated)Drg no:B-18197-P Rev 2	Nos	14.00	Common
20	Electro Chlorination Plant cell	Cell	Type:H8.150,Drg no:6.A.AA81A.FO.A.02 Rev 0,Make:De Nora Technologie elettrochimiche S.P.A.	Cell	2.00	Common
21	Intake chanel	Isolation gate	Spares for repair	Set	1.00	Common
22	PTP Stream	Isolation gate	C.I Shutter (channel grove with manual operation-rising spindle,size:850 x 1200 & 1100 x 900,Drg no:MTI/WT-02-03-168.	Nos	2.00	Common
23	PTP Structure	G.I. GRATINGS	Size-5.5 mtr X 1 mtr MOC-GI	Mtr2	89.00	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	& platform & railing/support					
24	PTP Structure & platform & railing/support	HAND RAILING-PIPE	40 NB	Mtr	382.00	Common
25	PTP Structure & platform & railing/support	ISMC	Size-100mm C channel	Mtr	316.00	Common
26	PTP Structure & platform & railing/support	MS FLAT	8 MM thickness	Mtr	150.00	Common
27	PTP dosing piping & support	PTP Dosing Piping and supports	1/2 to 6 inch pipes,couplers,adaptors	Lot	1.00	Common

### **Plan 13: Crane and hoist**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Sea water intake pump crane (Inside)	5 TR gantry crane	Servicing with spare, Make M/s Reva Crane	Nos	1.00	Common
2	Main turbine WMI make crane	70 TR & 20TR crane	Servicing with spare, Make: M/s WMI	Nos	1.00	Unit 1 and Unit 2
3	CW pump house crane	25 TR gantry crane	Servicing with spare. Make M/S Anupam	Nos	1.00	Common

### **Plan 14: RO Plant**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
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S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Polyelectrolyte dosing station	Tank	MOC Head:HDPE/CPVC,Capacity:1500 ltrs,Level indicator:Provided	Nos	1.00	Common
2	Polyelectrolyte dosing station	Pumps	Make:Milton roy,Type:Diaphragm,Model:V13,cap:12 ltr/hr,Pr:2 kg/cm <sup>2</sup> ,Moc:PP	Nos	2.00	Common
3	Polyelectrolyte dosing station	Motors		Nos	2.00	Common
4	Polyelectrolyte dosing station	Air blower-B	Make:Everest,Type:Roots type blower,Model:710,Op,Pr:0.5 kg/cm <sup>2</sup> ,Op.Speed:1400 RPM,Air flow:1000 m <sup>3</sup> .	Nos	1.00	Common
5	Nutrient dosing station	Tank	MOC Head:HDPE/PVC,Capacity:2000 ltrs,Level indicator:Provided	Nos	1.00	Common
6	Nutrient dosing station	Agitator	Make:Bonfiglioly,Type:Worm gear,Model no:80.2/4,Cap:200 m <sup>3</sup> /hr,RPM:70	Nos	1.00	Common
7	Nutrient dosing station	Agitator motors		Nos	1.00	Common
8	Hypo dosing system	Dosing tank	MOC Head:FRP/HDPE/PVC,Capacity:500 ltrs,Level indicator:Provided	Nos	1.00	Common
9	Hypo dosing system	Pumps	Make:Milton roy,Type:Diaphragm,Model:V13,cap:30 ltr/hr,Pr:10 kg/cm <sup>2</sup> ,Moc:PP	Nos	2.00	Common
10	Hypo dosing system	Agitator	Make:Bonfiglioly,Type:Worm gear,Model no:80.2/4,Cap:200 m <sup>3</sup> /hr,RPM:70	Nos	1.00	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
11	Filter Feed Pump	Pump-A Motor	Make:Becon weir,Type:Horizontal centrifugal semi closed imeppler,Model no:CNX 125/200,Cap:180 m <sup>3</sup> /hr,head:45 mtr,Speed:3000 rpm,Moc:Aisi 316L	Nos	2.00	Common
12	Pressure sand filters	Filter Tank	Type:Air scouring down flow,MOC:FRP/MSRL,Flow:47.8 m <sup>3</sup> /hr,Dia:2600 mm,height on straight:1500 mm,Bed depth:1000 mm	Nos	4.00	Common
13	Activated carbon filters	Filter Tank	Type:Air scouring down flow,MOC:FRP/MSRL,Flow:47.8 m <sup>3</sup> /hr,Dia:2600 mm,height on straight:1500 mm,Bed depth:1000 mm	Nos	2.00	Common
14	Sludge recycling (System) pumps	Sludge Recycle System Pumps	Make:Becon weir,Type:Horizontal centrifugal semi closed imeppler,Model no:CNO 65/100,Cap:10 m <sup>3</sup> /hr,Head:10 mtr,Speed:1500 rpm,Moc:Aisi 316L	Nos	1.00	Common
15	Secondry clarifier System	Gearbox	Type:Periferal,Motor:1.5 KW,Gear box:Single reduction unit adaptable type,Ratio:70:1	Nos	1.00	Common
16	Bisulphite dosing system	Tank	MOC Head:FRP/HDPE/PVC,Capacity:500 ltrs,Level indicator:Provided	Nos	2.00	Common
17	Bisulphite dosing system	Pumps	Make:Milton roy,Type:Diaphragm,Model:A 93,cap:12 ltr/hr,Pr:2 kg/cm <sup>2</sup> ,Moc:PP	Nos	2.00	Common
18	Bisulphite dosing system	Agitator	Make:Bonfiglioly,Type:Worm gear,Model no:80.2/4,Cap:200 m <sup>3</sup> /hr,RPM:70	Nos	2.00	Common
19	Filter backwash blower	Air blower-A	Make:Everest,Type:Twin lob positive displacement rotary blower,Model:5075,Op,Pr:0.5,Op.Speed:1400 RPM,Air flow:207 m <sup>3</sup> .	Nos	1.00	Common
20	Filter backwash blower	Air blower-B	Make:Everest,Type:Twin lob positive displacement rotary blower,Model:5075,Op,Pr:0.5,Op.Speed:1400 RPM,Air flow:207 m <sup>3</sup> .	Nos	1.00	Common
21	Acid dosing station	Tank	MOC Head:FRP/HDPE/PVC,Capacity:200 ltrs,Level indicator:Provided	Nos	2.00	Common
22	Acid dosing station	Pumps	Make:Milton roy,Type:Diaphragm,Model:B 72,cap:12 ltr/hr,Pr:2 kg/cm <sup>2</sup> ,Moc:PP	Nos	2.00	Common
23	Antiscalent dosing station	Tank	MOC Head:FRP/HDPE/PVC,Capacity:300 ltrs,	Nos	2.00	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
24	Antiscalent dosing station	Pumps	Make:Milton roy,Type:Diaphragm,Model:M11,cap:17 ltr/hr,Pr:2 kg/cm <sup>2</sup> ,Moc:PP	Nos	2.00	Common
25	Antiscalent dosing station	Agitator	Make:Bonfiglioly,Type:Worm gear,Model no:80.2/4,Cap:200 m <sup>3</sup> /hr,RPM:70	Nos	2.00	Common
26	Filter backwash pump	Pump-A	Make:Becon weir,Type:Horizontal centrifugal semi closed imeppler,Model no:CNX 100/160,Cap:120 m <sup>3</sup> /hr,Head:25 mtr,Speed:2900 rpm,Moc:Aisi 316L	Nos	1.00	Common
27	Filter backwash pump	HP Feed Pump-B	Make:Ingersolrand,Model no:CS9-4x11,Type:Multi stage,flow:167 m <sup>3</sup> /hr,Head:67.5 mtr,Moc:AISI 316L Duplex,Max flow:180 m <sup>3</sup> /hr,Max Pr:70 bar,Power:450KW.	Nos	1.00	Common
28	Filter backwash pump	Energy Recovery Turbine-B	Type:Multi stage centrifugal pump,flow:117 m <sup>3</sup> /hr,Head:66 bar,Moc:SS 316L duplex,Model no:CS 9-3x9,RPM:3000,	Nos	1.00	Common
29	R.O Cleaning unit	Tank	MOC Head:PVDF/PVC,Capacity:5000 ltrs,Level indicator:Provided	Nos	1.00	Common
30	R.O Cleaning unit	Agitator	Make:Bonfiglioly,Type:Worm gear,Model no:80.2/4,Cap:200 m <sup>3</sup> /hr,RPM:70	Nos	1.00	Common
31	R.O Cleaning unit	Cleaning pump-B	Type:Horizontal centrifugal,Moc:SS 316L,Disch:150 m <sup>3</sup> /hr,head:50 mtr	Nos	1.00	Common
32	Post treatment	Caustic dosing tank		Nos	1.00	Common
33	Post treatment	Dosing pump	Make:Milton roy,Type:Diaphragm,Model:A93,cap:12 ltr/hr,Pr:2 kg/cm <sup>2</sup> ,Moc:PP	Nos	1.00	Common
34	Draw back tank	Tank	3000 litres	Nos	1.00	Common
35	RO plant membrane	New membrane Replacement required	Make - Nitto Hydranautics, Model - SWC80-40	Nos	132.00	Common
36	Cartridge Filter	Filter	CARTRIDGE FILTER, MATERIAL - POLYPROPYLENE, DIAMETER - 70MM, HIGHT - 40" (1016MM), RETENTION : ABSOLUTE 5 MICRON, SUITABLE FOR RO MEMBRANE SWC 8040(MAKE : HYDRANAUTICS)	Nos	200.00	Common
37	Membrane Adaptor	Adaptor	MEMBRANE ADAPTOR FOR RO HYDRANAUTICS MEMBRANE,MODEL NO:SWC5-LD	Nos	200.00	Common

### **Plan 15: Valves**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Kinematic Air release valve of CW system with isolation valve	Assembly of ARV	Make - KBL, Size - 200mm, Drg No. - TC.2K2.22.0310.0	Nos	6.00	Unit 1 and Unit 2

### **Plan 16: Air Conditioning and Air Handling**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Air Conditioning System	Air Conditioning System	Revival of AC system	Nos	3.00	Common
2	Air Conditioning System	AC for control room		Nos	8.00	Common

## **Electrical**

### **Plan 1: CT/CVT**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	CT/CVT	Switchyard lines and bus-bays	SY CT/CVT replacement for 220 kV switchyard Line & GT/Bus- bays (detailed below)	Lot (detailed below)	1	Common
1.1	CT/CVT	Current Transformer	Current Transformer : 245KV CT: Type: IOSK-245/460/1050, I.L-460/1050KV, Spec: IS 2705-92, S.O No: EPDG0628/50, STR: 40KA,/3Sec, Idyn-100KAp, 50Hz, Rated Primary current-2000Amp, Rated Cont.Current: 2400Amp, Ref.Sr.No: 18625, Mfg.Year-2002, Core:6 [ Core 1, 2 &5 PS CI, Core 3& 4 0.2 CL & Core 6 0.5C] CT Ratio: 2000-1000-500/1Amp Make CGL.	Nos	3	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1.2	CT/CVT	Current Transformer	Current Transformer : 245KV CT: Type: IOSK-245/460/1050, I.L-460/1050KV, Spec: IS 2705-92, S.O No: EPDG0628/30, STR: 40KA,/3Sec,, Idyn-100KAp, 50Hz, Rated Primary current-2000Amp, Rated Cont. Current: 2400Amp, Mfg.Year-2002, Core:5 [ Core 1, 2,4 &5 PS Cl, Core 3 0.2 CL ] CT Ratio: 2000-1000-500/1Amp Make CGL.	Nos	3	Common
1.3	CT/CVT	CVT	CVT:245KV CVT, Type: 245/1050/50, HSV:245Kv, Equi.Capacitance: 5500+10%-5%pF,Capacitor Oil: 60kg, STD: IS: 3156-92, IS: 9348-98, 50Hz, S.O: EPDG 0628/20, INS.LEVEL: 460KV/1050Kvp, Ref.Sr.NO: 18154, Year: 2002, CF: 1.2count/1.5-30Sec.Total Sim.Burden/Cl: 60VA/0.5	Nos	6	Common

### Plan 2: Switchyard

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Line & GT ABT energy meter	ABT Meters	Supply & installation with all type of tools & tackels, consumable items, manpower etc...APEX ABT Smart energy meter: APEX SMB00002 Type SDZ 049 - 513, 240/220VDC with summary meter, Type MAX 100-361, ABT Line Meter Details: Type: R3M021-234, 3-phase 4wire, 110/1.732, Class 0.2, 160Imps, MVA, MVARH, MVAH,MWH, SR.NOAPM03993, CT: 500/1A, for Main rack & check rack with totalization sum and MRI data downloading type with one number MRI meter with softwar as per Transmission billing block type ABT meter Ref.Make: Secure ABT smart meter[Existing secure ABT smart meter ] with time block of 6,15 minutes/ adjustable	Nos	8	Common
2	220kv insulators RTV COAT	SY RTV coating on all porcelain insulators	Supply of RTV coating compound and application of the same on porcelain insulator surface of Breakers, CT, PT, CVT, PI, LA, GT bushings, etc of all 8 bays of 245KV Switchyard (excluding SRI)	Lot	1	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
3	Isolators & spares	3 phase isolating rods sets	As per below details:	Lot (detailed below)	1	Common
3.1	Isolators & spares	Isolator Phase to Phase Connecting Adjustable Pipe Set	ISOLATOR PHASE TO PHASE CONNECTING ADJUSTABLE PIPE SET : A set of 2 No. Adjustable Phase Coupling pipes (R-Y, Y-B) FOR,220 KV, CURRENT : 1600 A, SHORT TIME WITHD STAND CURRENT : 40 KA FOR 3 SEC, LIGHTNING IMPULSE VOLTAGE : 1050 KVP, MAKE : STERLING ISOLATOR, BARODA.	Set	42	Common
3.2	Isolators & spares	Isolator Phase to Phase Connecting Adjustable Pipe Set	ISOLATOR POLE INTER CONNECTING ADJUSTABLE PIPE SET : A set of 3 Nos. Adjustable Interstack Coupling pipes (For R,Y and B Ph) FOR, 220 KV, CURRENT : 1600 A, SHORT TIME WITHD STAND CURRENT : 40 KA FOR 3 SEC, LIGHTNING IMPULSE VOLTAGE : 1050 KVP, MAKE : STERLING ISOLATOR, BARODA.	Set	42	Common
3.3	Isolators & spares	Isolator Vertical Operating Pipe with flane	ISOLATOR VERTICAL OPERATING PIPE WITH FLANGE DOUBLE SET: FOR 220 KV, CURRENT : 1600 A, SHORT TIME WITHD STAND CURRENT : 40 KA FOR 3 SEC, LIGHTNING IMPULSE VOLTAGE : 1050 KVP, MAKE : STERLING ISOLATOR, BARODA.	Set	42	Common
3.4	Isolators & spares	Isolator Male and Female Arm Assembly	Isolator Male and Female Arm Full assembly with contact & TOP TERMINAL PAD, GUN METAL BEARING PAD, 75 X 15 MM. : For 220 KV, Current : 1600 A, Short Time Withd Stand Current : 40 KA for 3 Sec, Lightning Impulse Voltage : 1050 KVp, ISOLATOR TOP TERMINAL PAD, GUN METAL BEARING PAD, 75 X 15 MM. For, 220kV/1600A HCB Isolator, Make: STERLING ISOLATORS PVT. LTD.	Set	14	Common
5	Isolators & spares	Isolator sets with both end porcelein insulator and male - female arms and contacts	As per below details:	Lot (detailed below)	1	

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
5.1	Isolators & spares	Isolator Male and Female Arm Assembly	Isolator Male and Female Arm Full assembly with contact& terminal pad : for 220 KV, Current : 1600 A, Short Time Withd Stand Current : 40 KA for 3 Sec, Lightning Impulse Voltage : 1050 KVp, Make : Sterling Isolator, Baroda.	Set	10	Common
5.2	Isolators & spares	Isolator Male contact set	Isolator Male contact set: for 220 KV, Current : 1600 A, Short Time Withd Stand Current : 40 KA for 3 Sec, Lightning Impulse Voltage : 1050 KVp, Make : Sterling Isolator, Baroda.	Set	40	Common
5.3	Isolators & spares	Isolator Female contact set	Isolator Female contact set: for 220 KV, Current : 1600 A, Short Time Withd Stand Current : 40 KA for 3 Sec, Lightning Impulse Voltage : 1050 KVp, Make : Sterling Isolator, Baroda.	Set	40	Common
5.4	Isolators & spares	220KV Isolator Male Main contact set	220KV Isolator Male Main contact set, Drg No.- 4.SM.115404, ,make GR power	Set	10	Common
5.5	Isolators & spares	220KV Isolator Female contact set	220KV Isolator Female contact set, Drg No.- 4.SM.115404, ,make GR power	Set	10	Common
5.6	Isolators & spares	Both side Porcelain insulators of Isolators	Both side Porcelain insulators of Isolators: PI Hight 2300mm, For suitable to AREVA -GR Power Drawing No: 3GS 1154 02 for 220KV 1600A Tripple Pole HCB Isolator	Set	10	Common
6	220KV Breaker pole	220KV lines breaker pole	Supply and replacement of Complete pole unit assembly Without (W/O) housing For, 245KV, 40KA, 1600Amp, SF6 Type GCB. Complete Pole Assembly Unit of 220Kv SP-PN Breaker (SF6 Gas Breaker), Rating: 1600Amp, Type: 200-SFM-40A, Make: CGL, Ref.Sr.no: 16199C.	Nos	3	Common
7	220Kv wave trap	220Kv wave trap	Supply and replacement of :- Line wave trape with wide band tuning :- Type Fixed wide band line trape, Reference L2 : 0.23 Mh, R1 : 600 Ω, C1 : 600 pf, C2 : 2600 pf, Ref.make: ABB & BPL for suitable tor single sideband Carrier Frequency range :- 40Khz TO 500 kHz for 245KV/1000A Line & PLC PF 40 to 1000Khz.	Nos	2	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
8	220kv SRI	220KV Bays S R Insulators	As per below details:	Lot	1	Common
8.1	220kv SRI	245KV Composite Long Rod Polymer Silicon rubber Insulator	245KV Composite Long Rod Polymer Silicon rubber Insulator with hardware,lock pin and good packing : 120KN , Creepage Distance 8000mm/ARC2300mm, Coupling designation as per IEC-60120, total length 2610mm, withstand Dry/WET 575KV,1080KVp, conforming to Grade BM 320 of IS: 14329 & SG 450/10 of IS 1865.shall be Standard Tes as per Specification: 60383&61109 for suitable to 245KV Ref.make BHEL OR any standard make suitable to 245KV	Nos	125	Common
8.2	220kv SRI	245KV Composite Long Rod Polymer Silicon rubber Insulator	245KV Composite Long Rod Polymer Silicon rubber Insulator with hardware,Lock pin and good packing : 90KN , Creepage Distance 8000mm/ARC2300mm, Coupling designation as per IEC-60120, total length 2610mm, withstand Dry/WET 575KV,1080KVp, conforming to Grade BM 320 of IS: 14329 & SG 450/10 of IS 1865.shall be Standard Tes as per Specification: 60383&61109 for suitable to 245KV Ref.make BHEL OR any standard make suitable to 245KV	Nos	75	Common
9	220kv support insulators	220KV bays support insulators	Supply & replacement of Support Insulator-Cylindrical Post Insulator with RTV Coated, Rated Voltage : 245 Kv, Creepage Distance min.: 7600 Mm, Cantiliver Strength: 6 Kn,Tests & Tolerance: As Per Ies 168 & Ies 273, Reference Drawing No : 5.6195Oq	Nos	80	Common
10	220KV all bays Connectors	220KV all bays connectors	As per below details:	Nos	110	Common
10.1	220KV all bays Connectors	Rigid/Through Type Connector for Isolator Stud	RIGID /THROUGH TYPE CONNECTOR FOR ISOLATOR STUD (Ø40) TO 4" IPS TUBE : CONNECTOR FOR ISOLATOR STUD (Ø40) TO 4" IPS TUBE with bimetalic sheet, System volatage : 220Kv, 40KA for 3Sec, DRG NO.: 2110/ISORT(S-40)/01, REF. 4.SM 1154 04 R-A, Ref.ISS: IS 1561 -70, IS 1285, IS 617, IS 2633 AND 2629. MAX.TEMP RISE 45c Over ambient temp.of 40C at 1700Amp,	Nos.	20	Common
10.2	220KV all	Rigid type connector	Rigid type connector for CT stud (Ø30) to 4" IPS	Nos.	20	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	bays Connectors	for CT stud	Alluminium tube,Drawing no.-1011/CTR(S-40)/01 Ref.Drg.No. 4277 RD of M/S.HEPL. Ref.ISS: IS 1561 - 70, IS 1285, IS 617, IS 2633 AND 2629. MAX.TEMP RISE 45c Over ambient temp.of 40C at 1700Amp.			
10.3	220KV all bays Connectors	Rigid type connector for Isolator stud	Rigid type connector for ISO stud (Ø40) to 4" IPS Alluminium tube,Drawing no.-1011/ISOR(S-40)/01, Ref.DRG No.4.SM 1154 04 R-A DRG NO. 1011/ISOR (S-40)/01 OF M/S GRPSL. Ref.ISS: IS 1561 -70, IS 1285, IS 617, IS 2633 AND 2629. MAX.TEMP RISE 45c Over ambient temp.of 40C at 1700Amp.	Nos.	20	Common
10.4	220KV all bays Connectors	Terminal connector on circuit breaker	220KV Switchyard Terminal connector : Expansion type terminal connector on circuit breaker to suit 4" IPS alluminium tube (SCH-80) , ( Identification/document no.- CGL/134/034 ; Sr no.-19), Ref.IS: 5561-1970, AS per IS For 220Kv Switchyard, Rated System voltage: 198KV, Rated Current: 1600Amp. REF.KLEMMEN DRG. NO.: 18189, Make -Klemenn	Nos.	30	Common
10.5	220KV all bays Connectors	Expansion type terminal connector	220KV Switchyard Terminal connector : Expansion type terminal connector on isolator to suit 4" IPS Alluminium tube (SCH-80) (Identification / Document no.- CGL/134/034 ; Sr no.-20), REF.KLEMMEN DRG. NO.: -18190, Make-Klemenn	Nos.	30	Common
10.6	220KV all bays Connectors	Rigid Type Terminal connector	Rigid Type Terminal connector : For,ON ISOLATOR to Suit 4" IPS Aluminum Tube, Suitable to Accommodate Welding sleeve, REF.KLEMMEN DRG. NO.: 18192, Ref.IS: 5561-1970, AS per IS For 220Kv Switchyard, Rated System voltage: 198KV, Rated Current: 1600Amp. [CGL Ref.CGL/134/034 ].(Sch.-80) (Identification no.- CGL/134/034 this sheet sr. no.- 21)	Nos.	20	Common
10.7	220KV all bays Connectors	220KV Switchyard Terminal connector : For, ON Tandom Isolator To Suit TWIN MOOSE ACSR	220KV Switchyard Terminal connector : For, ON Tandom Isolator To Suit TWIN MOOSE ACSR, {Terminal Connector to suit twin moose ACSR on isolator (HA),} Ref.IS: 5561-1970, AS per IS For 220Kv Switchyard, Rated System voltage: 198KV, Rated Current: 1600Amp. REF.KLEMMEN DRG. NO.: 18201, [CGL Ref.DRG No : CGL/134/034 ]. ( Idenification/document no.- CGL/134/034 ; Sheet description sr. no.- 39),Make-Klemenn	Nos.	60	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
10.8	220KV all bays Connectors	220KV Switchyard Terminal connector : Suit 4" IPS Aluminum Tube To CT	220KV Switchyard Terminal connector : Suit 4" IPS Aluminum Tube To CT Primery P1.REF.KLEMMEN DRG. NO.: 18193, Ref.IS: 5561-1970, AS per IS For 220Kv Switchyard, Rated System voltage: 198KV, Rated Current: 1600Amp. [CGL Ref.DRG No : CGL/134/034 ].( Identification/document no.- CGL/134/034 ; Sheet ), Make-Klemenn	Nos.	15	Common
10.9	220KV all bays Connectors	220KV Switchyard Terminal connector : CT Primery P2 to Suit Twin Moose ACSR Conductor	220KV Switchyard Terminal connector : CT Primery P2 to Suit Twin Moose ACSR Conductor, REF.KLEMMEN DRG. NO.: 18202, Ref.IS: 5561-1970, AS per IS For 220Kv Switchyard, Rated System voltage: 198KV, Rated Current: 1600Amp. [CGL Ref.DRG No : CGL/134/034 ]. ( Identification/document no.- CGL/134/034 ; Sheet ), Make-Klemenn	Nos.	15	Common
10.10	220KV all bays Connectors	220KV Switchyard Terminal connector : Suit 4" IPS Aluminum Tube To GT Bushing	220KV Switchyard Terminal connector : Suit 4" IPS Aluminum Tube To GT Bushing. REF.KLEMMEN DRG. NO.: 18455, Ref.IS: 5561-1970, AS per IS For 220Kv Switchyard, Rated System voltage: 198KV, Rated Current: 1600Amp. [CGL Ref.DRG No : CGL/134/034 ]. ( Identification/document no.- CGL/134/034 ; Sheet ), Make-Klemenn	Nos.	15	Common
10.11	220KV all bays Connectors	220KV Switchyard Terminal connector : CONNECTOR,RIGID SOLIDING TYPE CONNECTOR TO SUIT 4"IPS	220KV Switchyard Terminal connector : CONNECTOR,RIGID SOLIDING TYPE CONNECTOR TO SUIT 4"IPS AL TUBE ON Tandem isolator, DWG. NO. 25145 REV.0 [CGL Ref.DRG No : CGL/134/034 ]. ( Identification / document no.- CGL/134/034 ; Sheet ), Make-Klemenn	Nos.	15	Common
10.12	220KV all bays Connectors	220KV Switchyard Terminal connector : Suit 4" IPS Aluminum Tube To CT	220KV Switchyard Terminal connector : Suit 4" IPS Aluminum Tube To CT . REF.KLEMMEN DRG. NO.: 18194, Ref.IS: 5561-1970, AS per IS For 220Kv Switchyard, Rated System voltage: 198KV, Rated Current: 1600Amp.[CGL Ref.DRG No : CGL/134/034 ]. ( Identification/document no.- CGL/134/034 ; Sheet ), Make-Klemenn	Nos.	15	Common
10.13	220KV all bays Connectors	220KV Switchyard Terminal connector : For, ON Tandem Isolator To Suit TWIN	220KV Switchyard Terminal connector : For, ON Tandem Isolator To Suit TWIN MOOSE ACSR, {Terminal Connector to suit twin moose ACSR on isolator (HA),} Ref.IS: 5561-1970, AS per IS For 220Kv Switchyard,	Nos.	15	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
		MOOSE ACSR,	Rated System voltage: 198KV, Rated Current: 1600Amp. REF.KLEMMEN DRG. NO.: 18200, [CGL Ref.DRG No : CGL/134/034 ].			
10.14	220KV all bays Connectors	WEJTAP CONNECTOR	WEJTAP CONNECTOR: Wejtap connector to suit Twin ACSR on main way and moose ACSR on branch way; WEJTAP :11025, FOR Wedges 103-112, Ref.Cat No: WCY103 & Item No.: 123092 (Burndy products ltd) [CGL Ref.DRG No : CGL/134/034 ]	Nos.	15	Common
10.15	220KV all bays Connectors	220KV Switchyard Terminal connector : For Twin Moose ACSR Conductor [For Wave Trap ].	220KV Switchyard Terminal connector : For Twin Moose ACSR Conductor [For Wave Trap ]. Identification/DOC. No.: 427 000 002, Ref.IS: 5561-1970, AS per IS For 220Kv Switchyard, Rated System voltage: 198KV, Rated Current: 1600Amp. REF.KLEMMEN DRG. NO.: 42672, [CGL Ref.DRG No : CGL/134/034 ].	Nos.	15	Common
10.16	220KV all bays Connectors	TERMINAL CONNECTOR TO SUIT TWIN MOOSE ACSR ON CB (HA)	TERMINAL CONNECTOR TO SUIT TWIN MOOSE ACSR ON CB (HA), Ref.IS: 5561-1970, AS per IS For 220Kv Switchyard, Rated System voltage: 198KV, Rated Current: 1600Amp. REF.KLEMMEN DRG NO: 18199, RIV:0 , [CGL Ref.DRG No : CGL/134/034 , ].	Nos.	15	Common
10.17	220KV all bays Connectors	PLCC Cable	Supply & Replacement PLCC Cable :- TypeRG-75, 75 ohm unbalanced armoured HF co-axial cable. For suitable to ABB & BPL Make Panel PF 100Khz to 1000khz for 220KV Line.	Mtr	500	Common
11	220KV Bkr AR Switch	220KV Bkr AR switch	As per below details:	Lot	2	Common
11.1	220KV Bkr AR Switch	AIR COMRESSURE GOVERNOR SWITCH	AIR COMRESSURE GOVERNOR SWITCH : RT 18 17 5270, , RATING 0.05 A AT 220 V DC,ON 14.8 KG/SQCM, OFF:14. 3 KG/SQCM , REF.sR.nO:463658, MAKE: INDfos. (23-B). FOR 245 KV SF6 CGL BREAKER.	Nos.	4	Common
11.2	220KV Bkr AR Switch	Air pressure switch for AR	Air switch (AR) : Air pressure switch for AR: RATING 0.05 A AT 220 V DC,ON 14.8 KG/SQCM, OFF:14. 3 KG/SQCM , indfos make, FOR 245 KV SF6 CGL BREAKER.	Nos.	4	Common
12	220KV Bkr Gas density switch	220KV lines gas switch	As per below details:	Nos	2	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
12.1	220KV Bkr Gas density switch	Gas density switch : LOW GAS ALARM PRESSURE SWITCH	Gas density switch : LOW GAS ALARM PRESSURE SWITCH, TYPE: KNS-C204Q,-078, RATING 0.05 A AT 220 V DC, ON 5.5 KG/SQCM, OFF: 6 KG/SQCM, AT 20 DEG. CENT. FOR 245 KV SF6 BREAKER., Make: SAGINAMIYA, NS-43.	Nos.	3	Common
12.2	220KV Bkr Gas density switch	LOW GAS PRESSURE LOCKout SWITCH	LOW GAS PRESSURE LOCKout SWITCH, RATING 0.05 A AT 220 V DC, ON 5.5 KG/SQCM, OFF: 5 KG/SQCM, AT 20 DEG. CENT. Make: SAGINAMIYA, FOR 245 KV SF6 CGL BREAKER.	Nos.	2	Common
13	220kV protection relays	220 KV relays D60	Distance protection relay (D-60) suitable for 220KV transmission line, Model No.- D60-H00-HKH-F8L-H6-UM-6U-P6-TU-XXWXX, Wiring Dia No : 837712, Instruction Sr.No : AABC10000954. Control Power : 125 - 250 V DC, 0.7 Amp / 100 - 240 V AC , 50/60 HZ, 0.7 Amp, Contact Input : 300 V DC, max. 100 ma., Make-GE	Nos	4	Common
14	220kV protection relays	220 KV relays B90	BUS BAR PROTECTION RELAY, B90 (FOR PHASE), CONTROL POWER : 125-250 V DC, 0.7 A / 100-240 V AC, 50/60 HZ, 0.7 A, CONTACT INPUTS : 300 V DC MAX. 100 ma, REF: MODEL-B90D01HCHF8CH67L8AN67SXXUXXW7H, MODES : NONE, WIRING DIAGRAM : 836750, INST. MANUAL : 1601 - 0115, SERIAL NO : A3CC03002270, FIRMWARE : B90302.000, MFG. DATE : MAY 22, 2003, MAKE : GE	Nos	2	Common
15	220 KV Switchyard RTU Channel	RTU Channels	As per below details:	Lot	1	Common
15.1	220 KV Switchyard RTU Channel	Fiber Channel Switch	Fiber Channel Switch : Magnum Fiber Switch, Channel mounting, Front input supply : 24V DC, 50/60Hz, Type: Magnum 6K25, [10/100 FO port (8nos) and RJ45(8nos)], With LK/ACT & F/H indication, 10mb. Ref.Sr.No. 5502029, Make: Garrettcom and its equivalent.	Nos.	6	Common
15.2	220 KV Switchyard RTU Channel	Power Model unit: Power Model No: ECM60US05,	Power Model unit: Power Model No: ECM60US05, Input : 100-240V AC 50/60Hz., 1.5Amp, Out put -1: 5V DC / 12Amp, 60W, S/N.: K10320347, P/N.: 10003544 J, Make: XP Power.	Nos.	1	Common
15.3	220 KV	GPS time synchro	GPS time synchro server with antenna & signal modal	set	1	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	Switchyard RTU Channel	server with antenna & signal modal with IRIG-B output signal	with IRIG-B output signal 6nos port-eachType of DCLS/unmodulated IRIG-B /Amplitude modulated signal port & DC shift time signal port- setting as per require, Aux. 24V Dc & 230V AC. Ref.Make : sertel India ltd.			
16	Buchhloz relay	GT& UAT Buchhloz relay	Transformer Main Buchholz relay : For, 170MVA GT, 15.75/230kv, oil capacity:53KL, FOR, 170 MVA POWER TRANSFORMER, ALSTOM make, SR. NO : TNDE 6515/B-29674,	Nos	2	Unit 1 and Unit 2
17	Height Ladder	FRP ladder	As per below details:	Lot	1	Common
17.1	Height Ladder	Heavy duty FRP Stap ladder 8Meter & Extendable type ladder 8Meter	Heavy duty FRP Stap ladder 8Meter & Extendable type ladder 8Meter suitable to heavy load support and hight duty work for 220KV Switchyard any stanadard make.	Nos	1	Common
17.2	Height Ladder	Heavy duty FRP Stap ladder 10Meter & Extendable type ladder 8Meter	Heavy duty FRP Stap ladder 10Meter & Extendable type ladder 8Meter suitable to heavy load support and hight duty work for 220KV Switchyard any stanadard make.	Nos	1	Common
17.3	Height Ladder	Heavy duty Expandable gear operating ladder Suitable to 24Mter gantry height work	Heavy duty Expandable gear operating ladder Suitable to 24Mter gantry height work at switchyard and easy to movable & easy to down-tilt operatable at 220kv switchyard, good quality and standard make & suitable to 220KV Switchyard work and easy movable & light-weight.	Nos	1	Common
18	CR panel Aux. relay & spares	SWITCHYARD panel Aux. contact relay spares	As per below details:	Lot (detailed below)	1	Common
18.1	CR panel Aux. relay & spares	Aux Relay Mounting Base Connection Wire Removing Strip	ABB Make Aux relay mounting base connection wire removing strip: for suiatable to ALL High speed & heavy duty Auxuiliary (RXMA1 / RXMVB2..etc) relay mounint base wire connection.	Nos	10	Common
18.2	CR panel Aux. relay & spares	Heavy Duty Auxiliary Relay	ABB MAKE HEAVY DUTYAUXILIARY RELAY,2 NO S/R CONTACTS,H/R TARGET-RXME18 220-250 V DC,ORDERING NUMBERLIN RK 221 825-AS	Nos	10	Common
18.3	CR panel Aux. relay & spares	Heavy Duty Auxiliary Relay	ABB MAKE HEAVY DUTY AUILIARY RELAY, 2 NO CONTACTS-RXME1 220-250 V DC,ORDERING NO:IN RK221 025-AS	Nos	10	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
18.4	CR panel Aux. relay & spares	High Speed Tripping Relay	ABB MAKE HIGH SPEED TRIPPING RELAY,6 NO S/R CONTACTS-RXMS1 (P030273), 220 V DC,ORDERING NUMBER: IN RK 216 263-AS	Nos	10	Common
18.5	CR panel Aux. relay & spares	Trip Circuit Supervision Relay	ABB MAKE TRIP CIRCUIT SUPERVISION RELAY: TSR: (PO30157,P030170 OR S078641), 220 V DC,ORDERING NO: IN 352 001-AS, [U1: 220V DC & U2 : 110V DC.]	Nos	10	Common
18.6	CR panel Aux. relay & spares	Signaling Relay	ABB MAKE SIGNALING RELAY,6 NO CONTACTS-RXMA1 220-250 VDC ,ORDERING NO:INRK 211 063-AS, REF :SJ022223, MAKE: ABB	Nos	10	Common
18.7	CR panel Aux. relay & spares	Heavy Duty Latching Combiflex Relay	ABB MAKE HEAVY DUTY LATCHING Combiflex RELAY, RXMVB2, ORDERING CODE: INRK 251 -204 -AS, 4 NO AND 4NC CONTACTS, 220 V -250V DC, FOR, 75A/75B	Nos	10	Common
18.8	CR panel Aux. relay & spares	Heavy Duty Auxiliary Relay	ABB MAKE HEAVY DUTY Auxiliary RELAY, 11 NO+3NC CONTACTS [CONTACTS ; A: 2NO+2NC+2NO+1NC & B: 7NO] -RXMVB 4 (P0300048), Supply DC48V to 55V DC, 50-60Hz/220v, system voltage: 220-250 V DC,ORDERING NO:IN RK251 403-AH	Nos	3	Common
18.9	CR panel Aux. relay & spares	Heavy Duty Auxiliary Relay	ABB MAKE HEAVY DUTY Auxiliary RELAY, 7 NO+7NC CONTACTS-RXMVB 4 ,220V DC, system voltage: 220-250 V DC,ORDERING NO:IN RK251 401-AS	Nos	1	Common
18.10	CR panel Aux. relay & spares	Heavy Duty Auxiliary Relay	ABB MAKE HEAVY DUTY Auxiliary RELAY, 4 NO+4NC CONTACTS-RXMVB 4 ,220V DC, system voltage: 220-250 V DC,ORDERING NO:IN RK251 204-AS	Nos	6	Common
18.11	CR panel Aux. relay & spares	Heavy Duty Auxiliary Relay	ABB MAKE HEAVY DUTY Auxiliary RELAY(COMBIFLEX): Main 1 dc Fail and Main 2 DC fail Relay for, System voltage 220V-250 DC, RXSF1, Ordering code: RK 271 019-AS.	Nos	6	Common
19	PLCC System	New panel procurement	PLCC System with 04LINE both end operating ststem including with PLCC panel, cables, wave trap, distribution board, isoalating switches. <b>Technical Data</b> :- 95 MODEM (9505 PLC) AF Selectin /if /hf selection / hf line selection , Operating mode :- Amplitude Modulation, Single sideband Carrier Frequency range :- 40Khz TO 500 kHz in steps of .5kHz.	Set	4	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			MODEM,Channel band with 4Khz, Impedance 75ohms,125 ohms & 150 ohms, out put Power (PEP) :- 20W for 9505 -HP,Frequency Stabilty - 5ppm SYNCHRONIZER can be optionally provided , Reciever Sensitivty :- -45 DB, Spacing between Speech & Piolet channel :- Factory set to 14 dB., 1 set is for 1 line.			
20	220KV Bkr PLCC Cable	220KV Switchyard lines PLCC Cable	Supply & Replacement PLCC Cable :- TypeRG-75, 75 ohm unbalanced armoured HF co-axial cable. For suitable to ABB & BPL Make Panel PF 100Khz to 1000khz for 220KV Line.	Mtr	300	Common

### **Plan 3: Cables**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	HT/LT Cables	HT/LT Cables	HT 11 KV Al 3Cx 300 sq mm armoured XLPE	Mtr	4500	Common
2	HT/LT Cables	HT/LT Cables	HT 11KV Al 3Cx 400 sq mm armoured XLPE	Mtr	500	Common
3	HT/LT Cables	HT/LT Cables	LT 1.1 KV Al 3Cx 300 sq mm armoured XLPE	Mtr	500	Common
4	HT/LT Cables	HT/LT Cables	LT 1.1 KV Al 3Cx 240 sq mm armoured XLPE	Mtr	2000	Common
5	HT/LT Cables	HT/LT Cables	LT 1.1 KV Al 3Cx 185 sq mm armoured XLPE	Mtr	1000	Common
6	HT/LT Cables	HT/LT Cables	LT 1.1 KV Al 3.5 Cx 70 sq mm armoured XLPE	Mtr	500	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
7	HT/LT Cables	HT/LT Cables	LT 1.1 KVAI 3.5 Cx 35 sq mm armoured XLPE	Mtr	3000	Common
8	HT/LT Cables	HT/LT Cables	LT 1.1 KVAI 3.5 Cx 16 sq mm armoured XLPE	Mtr	2000	Common
9	HT/LT Cables	HT/LT Cables	LT 1.1 KV Cu 1 Cx 95 sq mm armoured XLPE	Mtr	1000	Common
10	Cables	Lan Cable	CAT-6 CABLE FOR LAN COMMUNICATION	Nos	100	Common

#### **Plan 4: Battery Bank**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Battery bank	UPS-1,2, Main DC-1, 2, SY battery bank-2, Battery bank of each area of plant	As per below details:	Lot (detailed below)	1	
1.1	Battery bank	HBL Make Ni-Cd fiber plate battery model	Supply and replacement of HBL Make Ni-Cd fiber plate battery model 170 KFM 1300 along with Rack & Accessories Bank (Set) of 170 cells	Set	1	Unit 2
1.2	Battery bank	HBL Make VRLA battery model HP400P	HBL Make VRLA battery model HP400P along with Rack & Accessories Bank (Set) of 180 cells.	Set	2	Unit 1
1.3	Battery bank	Switchyard 410AH Battery Bank	Battery Cell: Details ; cell voltage: 1.2V to 1.4V,Max 1.7V, 410AH, (Type: KPL 410P), For, 410AH, 220V DC battery bank (Set) system (Total cell 170Nos). Make: AMCO colloberation with SAFT france.	Set	1	Common

**Plan 5: TG**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Auto bus transfer system.	6.6 kV Board Auto Bus transfer system	Turnkey Supply-erection-commissioning of Six nos. Microprocessor based Fast Bus Transfer Schemes (comprising in 3 nos. BTS panels) AARTECH Make, BTS2000 (TOR 300) Single Panel Double Schemes; Including Erection and commissioning	Lot	1	Unit 1 and Unit 2
1.1	Auto bus transfer system.		UAT I I/C to Station A I/C	Nos	1	Unit 1 and Unit 2
1.2	Auto bus transfer system.		UAT II I/C to Station A I/C	Nos	1	Unit 1 and Unit 2
1.3	Auto bus transfer system.		UAT I I/C to Station B I/C	Nos	1	Unit 1 and Unit 2
1.4	Auto bus transfer system.		UAT II I/C to Station B I/C	Nos	1	Unit 1 and Unit 2
1.5	Auto bus transfer system.		UAT 1A to 2A	Nos	1	Unit 1 and Unit 2
1.6	Auto bus transfer system.		UAT 1B to 2B	Nos	1	Unit 1 and Unit 2
2	ALL HT & LT MCC Relay & Transducers	Generator transducers (triad make)	1). AC Voltage Transducer,AC I/P voltage range- 0 to 110 Volt AC,Dual Output- 4 to 20 mA ,Both O/P same range,load -(0 to 500) ohm,Aux. supply- 85 to 265 Volt AC/DC,with 0 & span adjustable type output,Mounting-Din rail ,Make-TRIAD,MECO or any reputed 2). Frequency Transducer, Connection :TD 011, Input:110 V, Frequency:50 ,Two channel out put Measurement:45 -55 HZ & out put 4 to 20 mA DC, All O/P same range Aux. supply- 80 to 230 Volt AC, Make:TRIAD,Ref sr. no:050110488T. 3). Current Transducer,I/P current range- 0 to 5 AmpThree	Nos	6	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			Output- 4 to 20 mA ,All O/P same range,Aux. supply- 80 to 230 Volt AC,Munting-C type channel ,Make-TRIAD,MECO or any reputed			
3	ALL HT & LT MCC Relay & Transducers	Relay	Siemens relay 7SJ61	Nos	2	Unit 2
4	ALL HT & LT MCC Relay & Transducers	Relay	Siemens relay 7SJ62	Nos	7	Unit 1 and Unit 2
5	ALL HT & LT MCC Relay & Transducers	Relay	HT 7SJ64	Nos	2	Unit 1 and Unit 2
6	ALL HT & LT MCC Relay & Transducers	Excitations cards	1). PLUG IN PCB MODULE EAA 20T0698#21ALIDI (Card no-1) 2). PLUG IN PCB MODULE EAA 20T0684#21ANSBI (Card no-2) 3). PLUG IN PCB MODULE EAA 20T0700#21MCGD1 (Card no-3) 4). PLUG IN PCB MODULE EAA 20T0683#21IOMC2 (Card no-4)	Lot	8	Unit 1 and Unit 2
7	Excitation x'mer relay	Excitation x'mer protection relay	Protection Relay:Make:ALSTOM,Type:MX3AM30A.12,Ref.sr no:100003066.002,In:5A,Ion:1A,Fr:50HZ,Uaux:64-300 V DC/64-275 V AC,IN DIG:64-264 V AC,L1:ph A,L2:ph B,L3:ph C,L4:l start to start,L5:l>,L6:l>>/l>>>,L7:la>,L8:la>>/la>>>	Nos	1	Unit 1
8	Generator bellow & filters	Generator bellow and filters	1). Generator slipring duct filter,Pocket Type Filters size-595X590X25+600 MM, Type: Fine Filter, MOC Of Casing: ALU Box, Efficiency: 99%, Down to 5micron Air flow, Ref. Sr.NO.: 30152 & Job order No: 862 For, Generator Slip ring duct,Dyna filters PVT. Limited ,Pune 2). Synthetic rubber bellow for 136 MW Generator,Slip on type circular rubber bellow ; Size-ID 795mm x Length-585mm including SS belt and Hardware as per our attached drwaing no.-C-224-1101-03952 sheet 08 of 12	Set	6	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
9	Generator duct bellow	Rubber bellows	Location - Generator 15.75 kV Bellow shape - Round OD1 - 2946.4 Gap between ducts - 609.6 Material, curved length and thickness as per standard	Nos	6	Unit 1 and Unit 2
10	Generator duct bellow	Rubber bellows	Location - NGT 15.75 kV Bellow shape - Round OD1 - 2311.1 Gap between ducts - 254 Material, curved length and thickness as per standard	Nos	2	Unit 1 and Unit 2
11	Generator duct bellow	Rubber bellows	Location - After 15.75 kV GCB Bellow shape - Round tapered OD1 - 2540 OD2 - 2641.6 Outer length - 228.6 mm Gap between ducts - 228.6 Material, curved length and thickness as per standard	Nos	6	Unit 1 and Unit 2
12	Generator duct bellow	Rubber bellows	Location - GT 15.75 kV Bellow shape - Round OD1 - 2870 Material, curved length and thickness as per standard	Nos	6	Unit 1 and Unit 2
13	Generator duct bellow	Rubber bellows	Location - UAT 15.75 kV Bellow shape - Round OD1 - 2260 Material, curved length and thickness as per standard	Nos	6	Unit 1 and Unit 2
14	Generator duct bellow	Rubber bellows	Location - UAT 6.6 kV Bellow shape - Rectangle Outer length - 1450 Outer breadth - 550 Material, curved length and thickness as per standard	Nos	2	Unit 1 and Unit 2
15	Generator duct bellow	Rubber bellows	Location - Excitation transformer 15.75 kV Bellow shape - Round OD1 - 2286 Gap between ducts - 228.6 Material, curved length and thickness as per standard	Nos	6	Unit 1 and Unit 2
16	Generator duct bellow	Rubber bellows	Location - PT Cubicle 15.75 kV Bellow shape - Round OD1 - 2286	Nos	12	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			Gap between ducts - 254 Material, curved length and thickness as per standard			
17	Cathodic Protection system	BOP/TG Cathodic protection system	Cathodic protection system revivel: electrical panel conditon healthy condition: supply voltage: 230V AC, DC Out put: 50V DC, 60Amp, LC filter, Ref.Cell Copper sulphate, Operation mode: CVCC & Auto mode with 3/4 ref., Cathodic company p ltd, bangalore-560-058, CW/cooling tower to TG Sea water line	Nos	1	Common
18	TG	Battery Room - 0.37Kw	Exhaust fan:W:80,Size:300 MM,Speed:1400 RPM,Amp:0.36,Make:Khaitan Exhaust fan,ref sr no:K8037094	Nos	4	Common
19	TG	Plant Toilet area - 0.25Kw	<b>EXHAUST FAN</b> fan:Kw:2.2,Frame:ND112M,Volt:415,Amp:5.3,RPM:935,Motor sr no:1752j/DAAN11176,Make:CG,Bearing:6306 ZZ/6205 ZZ, with Exhaust fan/Blade	Nos	15	Common
20	GCB System	GCB MIMIC diagram PCB card (Control print PCB)	card ref:-10-Y3A 203/LAQ 1888A,3.2 9e W &E,ABB Hochspannungstechnik AG, STL1/STL2/STL3/STL4 for 17.5KV, ABB make	Nos	2	Unit 1 and Unit 2
21	GRP System	Voltage Balance Relay	Type :7RE2800-OCA00,F.no. LB/N9/000891667-00010-002,Fn 50 60 Hz,Un 100-110...50/60HZ, Make Siemens	Nos	1	Common
22	GRP System	AC Voltage Transducer	AC I/P voltage range- 0 to 110 Volt AC,Dual Output- 4 to 20 mA ,Both O/P same range,load -(0 to 500) ohm,Aux. supply- 85 to 265 Volt AC/DC,with 0 & span adjustable type output,Mounting-Din rail ,Make-TRIAD,MECO or any reputed	Nos	1	Common
23	GRP System	Frequency Transducer	Connection :TD 011, Input:110 V, Frequency: 50, Two Output channel, Measurement:45 -55 HZ & out put 4 to 20 mA DC, All O/P same range, Aux. supply- 80 to 230 Volt AC Make:TRIAD,Ref sr. no:050110488T	Nos	1	Common
24	GRP System	AC Current Transducer	SR NO 9/03/121181/0, INPUT 0-110V , RANGE 0-415V, PTR 415V / $\sqrt{3}$ -110V / $\sqrt{3}$ , OUT PUT 4-20mA DC at 500 ohm,Aux supply 110v AC, Make AUTOMATIC ELECTRIC LTD	Nos	1	Common

### **Plan 6: Lighting**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
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S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	DC Lightng system	Spares for revival		Lot	1	Common
1.1	DC Lightng system	CFI/LED Light with Glass Fixter	CFL/LED LIGHT with glass fixter : WATT :60 W, V:240,HZ:50,COLOUR TEMP:6500 K,LUMEN:1350,BASE:E 27,SCREW TYPE	Nos	100	Common
1.2	DC Lightng system	Power Cable	Power Cable : 6 Sq.mm X 3 Core, Copper, armored cable any standard make. 1000m.	Mtr	1000	Common
1.3	DC Lightng system	Power Cable	Power cable :- 2.5 sqmm x3 core copper flexible cable : 3000 MTR.	Mtr	3000	Common
2	DC Lightng system	Outdoor LP	Outdoor LP 8Way with change over contactor & DC MCB :- DC Busbar, Wiring, incoming & out going terminal bar, Incoming & out goind MCB, ON/OFF SFU Handle, Auto changeover contactor scheme, Dimension H*W*D 200*100*40 CM WITH 08nos ON/OFF SFU, TB etc	Nos	7	Common
3	DC Lightng system	Sheathed flexible copper cable	1C 2.5 Sq.mm PVC Sheathed flexible copper cable(The wire shall be coloured Red For phase& Black for Neutral	Mtr	500	Common
4	DC Lightng system	GI conduit	GI conduit size:- 25mm (16 SWG) with 100nos elbow turn connector & 1000Nos wall mounted C clamp & screw for concealed installation	Mtr	1000	Common
5	DC Lightng system	DC Lamp	DC Lamp 100watt Lighting fixture with 100W almp with glass & wire guard protected & 1.13 Mtr 3core cable.	Nos	300	Common
6	Plant Area ( Boiler, TG, SY,BOP. MHP-AHP) Lighting system design and	150W Led	150W LED Fixture with cable & accessories : Boiler, TG, SY,BOP. MHP-AHP Area Lighting system design and replacement job.	Nos	180	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	replacement job.					
7	Plant Area ( Boiler, TG, SY,BOP. MHP-AHP) Lighting system design and replacement job.	90W LED	90W LED Fixture with cable & accessories : Boiler, TG, SY,BOP. MHP-AHP Area Lighting system design and replacement job.	Nos	2364	Common
8	Plant Area ( Boiler, TG, SY,BOP. MHP-AHP) Lighting system design and replacement job.	LP	M.S Color coated Lighting panel with MCB & accessories : Dimension H*W*D 50*45*13 CM with all accessories like Channel, MCB, Timer, Contactor, TB, etc , 12Way 16Amp MCB & Main 63Amp MCB, Power input & output TB with wiring & numbering LP For, 415V/3Phase +N input & single phase lighting ckt output.	Nos	46	Common
9	Plant Area ( Boiler, TG, SY,BOP. MHP-AHP) Lighting system design and replacement job.	Flexible 1C 2.5Sq mm cable	Power cable :- 2.5 sqmm x3 core copper flexible cable Make Finolax & standard.	Mtr	22600	Common
10	Plant Area ( Boiler, TG, SY,BOP. MHP-AHP) Lighting system design and	GI Conduit, L clamp, etc	Galvanised Iron GI Conduit pipe: Type Heavy (HMS) Size 20mm with L type & T type turning clamp connectors For industry outdoor lighting system	Nos	10220	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	replacement job.					
11	Plant Area ( Boiler, TG, SY,BOP. MHP-AHP) Lighting system design and replacement job.	GI Pole-1.5 mtr	FRP Lighting pole full assembly set : Size : 6 to 8Foot. For suitable to 70W fixtrure & LED Light fixture.	Nos	2544	Common
12	Plant Area ( Boiler, TG, SY,BOP. MHP-AHP) Lighting system design and replacement job.	BOP 100 LED	100 W LED FLOOD LIGHT LUMINARIES FITTINGS,Make:OREVA/ Bajaj/ philips/ Crompton	Nos	50	Common
13	Plant Area ( Boiler, TG, SY,BOP. MHP-AHP) Lighting system design and replacement job.	LP	BOP LP:M.S Color coated Lighting panel with MCB & accessories : Dimension H*W*D 50*45*13 CM with all accessories like Channel, MCB, Timer, Contactor, TB, etc , 12Way 16Amp MCB & Main 63Amp MCB, Power input & output TB with wiring & numbering LP For, 415V/3Phase +N iput & single phase lighting ckt output.	Nos	10	Common
14	Plant Area ( Boiler, TG, SY,BOP. MHP-AHP) Lighting system design and	TG 100 LED	100 W LED FLOOD LIGHT LUMINARIES FITTINGS,Make:OREVA/ Bajaj/ philips/ Crompton	Nos	50	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	replacement job.					
15	Plant Area ( Boiler, TG, SY,BOP. MHP-AHP) Lighting system design and replacement job.	LP	M.S Color coated Lighting panel with MCB & accessories : Dimension H*W*D 50*45*13 CM with all accessories like Channel, MCB, Timer, Contactor, TB, etc , 12Way 16Amp MCB & Main 63Amp MCB, Power input & output TB with wiring & numbering LP For, 415V/3Phase +N input & single phase lighting ckt output.	Nos	10	Common
16	Plant Area ( Boiler, TG, SY,BOP. MHP-AHP) Lighting system design and replacement job.	MHP 100 LED	100 W LED FLOOD LIGHT LUMINARIES FITTINGS,Make:OREVA/ Bajaj/ philips/ Crompton	Nos	50	Common
17	Plant Area ( Boiler, TG, SY,BOP. MHP-AHP) Lighting system design and replacement job.	LP	M.S Color coated Lighting panel with MCB & accessories : Dimension H*W*D 50*45*13 CM with all accessories like Channel, MCB, Timer, Contactor, TB, etc , 12Way 16Amp MCB & Main 63Amp MCB, Power input & output TB with wiring & numbering LP For, 415V/3Phase +N input & single phase lighting ckt output.	Nos	10	Common
18	Plant Area ( Boiler, TG, SY,BOP. MHP-AHP) Lighting system design and replacement	12mtr High mast with civil works and incoming Power cable	12MTR X 12nos fixture steel high mast with 300w LED fixture lighting : high mast including supply and replacement, Rope size: 6 mm dia- SS wire rope with standard locking & motorise operation with operation panle, cables 300W LED lights etc.	Nos	2	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	job.					
19	Plant Boundary lighting	Flood light poles with 250W 2 Nos of fitting each	12 mtr height Flood light pole with 250W 2 Nos LED lighting fixture mounting with clamp, Jb , accessories and cables from Jb to pole and Civil foundation erection & commissioning.	Nos	55	Common
20	Plant Boundary lighting	LP	Outdoor LP 12 Way :-Dimension H*W*D 50*45*13 CM with all accessories like Channel, MCB, Timer, Contactor, TB, etc for incoming and outgoing supply	Nos	2	Common
21	Plant Boundary lighting	3.5Cx16 sq mm Al	ARMOURED POWER CABLE (AI) : 16SQ.MM X 4CORE PVC INSULATION ARMOURE aluminum CABLE, 1.1KV VOLTAGE RATING. : LT 1.1 KV Al 3.5 Cx 16 sq mm armoured XLPE cable	Mtr	2500	Common
22	Plant Boundary lighting	12 mtr high mast	12 high mast pole with 12 nos 350Watt LED lighting fittings, cables, Incomer panel consisting with MCB, Contractor, Timer wiring and 35 Sq mm, 3.5 Core Al armoured XLPE main incomming cable to panel of 50 mtr length with civil foundation, irrection and commisioning as per ISO Stanadard	Nos	1	Common

### **Plan 7: Actuators**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	CW MOVS TBG	CW pump Auma make actuator	SA25E180 TBG assembly For Auma Make SA25 actuator	Nos	4	Common
2	Auma make Actuator spares	Clutch Ring:- For Auma Make actuator	Type:- SA3 A16 & SA6 A22 [Commissioning No.: 696 01 1497-3 'OR' 696 01 1490-3,]	Nos	10	Unit 1 and Unit 2
3	Auma make Actuator spares	Declutch Tripping ARM:- For Auma MakeActuator,	Type: SA3 A16 / SA6 A22 [Commissioning No.: 696 01 1497-3 'OR' 696 01 1490-3,]	Nos	10	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
4	Auma make Actuator spares	Clutch Fork Assembly:- For Auma MakeActuator,	Type: SA3 A16 & SA6 A22 [Commissioning No.: 696 01 1497-3 'OR' 696 01 1490-3,]	Nos	5	Unit 1 and Unit 2
5	Auma make Actuator spares	Hand Wheal Retainer Ring (Lock Wire) : For Auma MakeActuator,	Type: SA3/SA6 [Commissioning No.: 696 01 1497-3 'OR' 696 01 1490-3,]	Nos	5	Unit 1 and Unit 2
6	Auma make Actuator spares	Pinion Gear :- For Auma Make Actuator,	Type: SA3 A16 / SA6 A22 [Commissioning No.: 696 01 1497-3 'OR' 696 01 1490-3,]	Nos	10	Unit 1 and Unit 2
7	Auma make Actuator spares	Limit Switch Drive Assembly :- For Auma make Actuator,	Type: SA3 A16. [Commissioning No.: 696 01 1497-3 'OR' 696 01 1490-3,]	Nos	5	Unit 1 and Unit 2
8	Auma make Actuator spares	Counter gear:- For Auma MakeActuator,	Type: SA3 A16 / SA6 A22 [Commissioning No.: 696 01 1497-3 'OR' 696 01 1490-3,]	Nos	30	Unit 1 and Unit 2
9	Auma make Actuator spares	Torque Tandom Assembly:--For Auma MakeActuator,	Type: SA3 A16 / SA6 A22 [Commissioning No.: 696 01 1497-3 'OR' 696 01 1490-3,]	Nos	5	Unit 1 and Unit 2
10	Auma make Actuator spares	Hollow Drive assembly:-For Auma MakeActuator,	Type: SA3 A16 / SA6 A22 [Commissioning No.: 696 01 1497-3 'OR' 696 01 1490-3,]	Nos	3	Unit 1 and Unit 2
11	Auma make Actuator spares	Mounting flange assembly:-For Auma MakeActuator,	Type: SA3 A16 / SA6 A22 [Commissioning No.: 696 01 1497-3 'OR' 696 01 1490-3,]	Nos	3	Unit 1 and Unit 2
12	Auma make Actuator spares	Clutch Fork Assembly:- For Auma Make actuator	Type:- SAR12 A5-12-32, [Commissioning No.: 6160 11 359-1 ]	Nos	5	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
13	Auma make Actuator spares	Clutch Ring:- For Auma Make actuator	Type:- SAR12 A5-12-32, [Commissioning No.: 6160 11 359-1 ]	Nos	10	Unit 1 and Unit 2
14	Auma make Actuator spares	Reduction gear assembly:-For Auma Make actuator	Type:- SAR12 A5-12-32, [Commissioning No.: 6160 11 359-1 ]	Nos	5	Unit 1 and Unit 2
15	Auma make Actuator spares	Hand Wheal Retainer Ring (Lock Wire) : For Auma Make actuator	Type:- SAR12 A5-12-32, [Commissioning No.: 6160 11 359-1 ]	Nos	5	Unit 1 and Unit 2
16	Auma make Actuator spares	Limit Switch Drive Assembly :- For Auma make Actuator,	Type: SAR12 A5-12-32. [Commissioning No.: 6160 11 359-1 ]	Nos	5	Unit 1 and Unit 2
17	Auma make Actuator spares	Hollow drive assembly:-For Auma make Actuator,	Type: SAR12 A5-12-32. [Commissioning No.: 6160 11 359-1 ]	Nos	5	Unit 1 and Unit 2
18	Auma make Actuator spares	Torque Tandom Assembly:-For Auma make Actuator,	Type: SAR12 A5-12-32. [Commissioning No.: 6160 11 359-1 ]	Nos	5	Unit 1 and Unit 2
19	Auma make Actuator spares	Mounting flange assembly:-For Auma make Actuator,	Type: SAR12 A5-12-32. [Commissioning No.: 6160 11 359-1 ]	Nos	5	Unit 1 and Unit 2
20	Auma make Actuator spares	Space heater:- For Auma make Actuator,	Type: SAR12 A5-12-32. [Commissioning No.: 6160 11 359-1 ]	Nos	10	Unit 1 and Unit 2
21	Auma make Actuator spares	Clutch Ring :- For Auma make Actuator,	Type: SA12 E22. [Commissioning No.: 822 03 1812-4]	Nos	5	Unit 1 and Unit 2
22	Auma make Actuator spares	Clutch Fork Assembly:- For Auma make	Type: SA12 E22. [Commissioning No.: 822 03 1812-4]	Nos	5	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
		Actuator,				
23	Auma make Actuator spares	Hand Wheel Retainer Ring (Lock Wire) : For Auma MakeActuator,	Type: SA12 E22. [Commissioning No.: 822 03 1812-4]	Nos	5	Unit 1 and Unit 2
24	Auma make Actuator spares	Pinion Gear :- For Auma MakeActuator,	Type: SA12 E22 [Commissioning No.: 822 03 1812-4]	Nos	10	Unit 1 and Unit 2
25	Auma make Actuator spares	Limit Switch Drive Assembly :- For Auma make Actuator,	Type: SA12 E22. [Commissioning No.: 822 03 1812-4]	Nos	5	Unit 1 and Unit 2
26	Auma make Actuator spares	Torque Tandom Assembly:-For Auma make Actuator,	Type: SA12 E22. [Commissioning No.: 822 03 1812-4]	Nos	5	Unit 1 and Unit 2
27	Auma make Actuator spares	Hollow Drive assembly:-For Auma make Actuator,	Type: SA12 E22. [Commissioning No.: 822 03 1812-4]	Nos	5	Unit 1 and Unit 2
28	Auma make Actuator spares	Mounting Flange Assembly:-For Auma make Actuator,	Type: SA12 E22. [Commissioning No.: 822 03 1812-4]	Nos	5	Unit 1 and Unit 2
29	Auma make Actuator spares	Space heater :- For Auma make Actuator,	Type: SA12 E22. [Commissioning No.: 822 03 1812-4]	Nos	5	Unit 1 and Unit 2
30	Auma make Actuator spares	Clutch Ring :- For Auma make Actuator,	Type: SA25 A32 [ Commissioning No.: 696 01 1509-4]	Nos	5	Unit 1 and Unit 2
31	Auma make Actuator spares	Clutch Fork Assembly:- For Auma make Actuator,	Type:SA25 A32 [Commissioning No.: 696 01 1509-4]	Nos	5	Unit 1 and Unit 2
32	Auma make Actuator	Hand Wheel Retainer Ring	Type: SA25 A32 [ Commissioning No.: 696 01 1509-4]	Nos	5	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	spares	(Lock Wire) : For Auma MakeActuator,				
33	Auma make Actuator spares	Pinion Gear :- For Auma MakeActuator,	Type: SA25 A32. [ Commissioning No.: 696 01 1509-4]	Nos	10	Unit 1 and Unit 2
34	Auma make Actuator spares	Limit switch drive assembly:- For Auma MakeActuator,	Type: SA25 A32. [ Commissioning No.: 696 01 1509-4]	Nos	5	Unit 1 and Unit 2
35	Auma make Actuator spares	Torque tandom assembly:- For Auma MakeActuator,	Type: SA25 A32. [ Commissioning No.: 696 01 1509-4]	Nos	5	Unit 1 and Unit 2
36	Auma make Actuator spares	Hollow Drive Assembly:-For Auma MakeActuator,	Type: SA25 A32. [ Commissioning No.: 696 01 1509-4]	Nos	2	Unit 1 and Unit 2
37	Auma make Actuator spares	Mounting Flange Assembly:-For Auma MakeActuator,	Type: SA25 A32. [ Commissioning No.: 696 01 1509-4]	Nos	5	Unit 1 and Unit 2
38	Auma make Actuator spares	Clutch Ring :- For Auma make Actuator,	Type: SA60 E90 [Commissioning No.: 696 01 1523-2,]	Nos	5	Unit 1 and Unit 2
39	Auma make Actuator spares	Clutch Fork Assembly:- For Auma make Actuator,	Type:SA60 E90. [Commissioning No.: 696 01 1523-2,]	Nos	5	Unit 1 and Unit 2
40	Auma make Actuator spares	Hand Wheal Retainer Ring (Lock Wire) : For Auma MakeActuator,	Type: SA60 E90. [Commissioning No.: 696 01 1523-2,]	Nos	10	Unit 1 and Unit 2
41	Auma make Actuator spares	Pinion Gear :- For Auma MakeActuator,	Type: SA60 E90. [Commissioning No.: 696 01 1523-2,]	Nos	10	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
42	Auma make Actuator spares	Limit Switch Drive Assembly :- For Auma make Actuator,	Type: SA60 E90. [Commissioning No.: 696 01 1523-2,]	Nos	5	Unit 1 and Unit 2
43	Auma make Actuator spares	Torque Tandom Assembly:-For Auma make Actuator,	Type: SA60 E90. [Commissioning No.: 696 01 1523-2,]	Nos	5	Unit 1 and Unit 2
44	Auma make Actuator spares	Hollow Drive assembly:- For Auma make Actuator,	Type: SA60 E90. [Commissioning No.: 696 01 1523-2,]	Nos	3	Unit 1 and Unit 2
45	Auma make Actuator spares	Mounting Flange Assembly:- For Auma make Actuator,	Type: SA60 E90. [Commissioning No.: 696 01 1523-2,]	Nos	3	Unit 1 and Unit 2
46	Auma make Actuator spares	Clutch Ring :- For Auma make Actuator,	Type: SA25 DD 180,Commissioning. No.-150020331	Nos	4	Common
47	Auma make Actuator spares	Clutch Fork Assembly:- For Auma make Actuator,	Type: SA025 DD 180,Commissioning No.-150020331	Nos	4	Common
48	Auma make Actuator spares	Hand Wheel Retainer Ring (Lock Wire) : For Auma MakeActuator,	Type: SA25DD 180,Commissioning no.-150020331	Nos	4	Common
49	Auma make Actuator spares	Pinion Gear :- For Auma MakeActuator,	Type: SA25 DD 180,Commissioning no.-150020331	Nos	10	Common
50	Auma make Actuator spares	Limit Switch Drive Assembly :- For Auma make Actuator,	Type: SA25 DD 180,Commissioning no.-150020331	Nos	3	Common
51	Auma make Actuator	Torque Tandom Assembly:-For	Type: SA25 DD 180,Commissisioning no.-150020331	Nos	3	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	spares	Auma make Actuator,				
52	Auma make Actuator spares	Hollow Drive assembly:- For Auma make Actuator,	Type: SA25 DD 180,Commissioning no.-150020331	Nos	3	Common
53	Auma make Actuator spares	Mounting Flange Assembly:- For Auma make Actuator,	Type: SA25 DD 180,Commissioning no.-150020331	Nos	3	Common
54	Auma make Actuator spares	Hand Wheel Retainer Ring (Lock Wire) : For Auma make Actuator,	Type: SA25 E180. [Commissioning No.: 258020551-5 ] Ref.W.O.NO: 8819-9213.	Nos	5	Common
55	Auma make Actuator spares	Hand Wheel with TBG assembly :- For Auma make Actuator,	Type: SA25 E180. [Commissioning No.: 258020551-5 ] Ref.W.O.NO: 8819-9213.	Nos	3	Common
56	Auma make Actuator spares	Clutch Fork Assembly:- For Auma make Actuator,	Type: SA25 E180. [Commissioning No.: 258020551-5 ] Ref.W.O.NO: 8819-9213.	Nos	3	Common
57	Auma make Actuator spares	Clutch Ring :- For Auma make Actuator,	Type : SA25 E180. [Commissioning No.: 258020551-5 ] Ref.W.O.NO: 8819-9213.	Nos	3	Common
58	Auma make Actuator spares	Limit Switch Drive Assembly :- For Auma make Actuator,	Type: SA25 E180. [Commissioning No.: 258020551-5 ] Ref.W.O.NO: 8819-9213.	Nos	3	Common
59	Auma make Actuator spares	Limit switch	,2NO+2NC,For auma make actuator	Nos	50	Common
60	Auma make Actuator spares	Torque switch	,2NO+2NC,For auma make actuator	Nos	15	Common
61	Rotork make	All Area rotork	As per below details:	Lot	1	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	actuator	make actuator				
61.01	Rotork make actuator	Yoke assembly	YOKE ASSY ; Part number 72013 For K30/K60 Rotork make actuator	Nos.	3	Unit 1 and Unit 2
61.02	Rotork make actuator	Clutchring	CLUTCHRING 24194 For K30/K60 Rotork make actuator	Nos.	3	Unit 1 and Unit 2
61.03	Rotork make actuator	Wormwheel & Wormshaft	WORMWHEEL & WORMSHAFT 20:1 71043 For K30/K60 Rotork make actuator	Nos.	3	Unit 1 and Unit 2
61.04	Rotork make actuator	Wormwheel & Wormshaft	WORMWHEEL & WORMSHAFT 40:1 71044 For K30/K60 Rotork make actuator	Nos.	3	Unit 1 and Unit 2
61.05	Rotork make actuator	Hand Auto Assembly	HAND AUTO ASSY 71012 For K30/K60 Rotork make actuator	Nos.	3	Unit 1 and Unit 2
61.06	Rotork make actuator	Centre Column	CENTRE COLUMN 71041 For K30/K60 Rotork make actuator	Nos.	3	Unit 1 and Unit 2
61.07	Rotork make actuator	Thurst Base Assembly	THRUST BASE ASSY ISO 71031 For K30/K60 Rotork make actuator	Nos.	3	Unit 1 and Unit 2
61.08	Rotork make actuator	Drive Bush 'A' Bsembly	DRIVE BUSH 'A' TYPE * For K30/K60 Rotork make actuator	Nos.	3	Unit 1 and Unit 2
61.09	Rotork make actuator	Thrust Bearing with Washer Set	THRUST BEARING WITH WASHER SET (2 BEARINGS WITH 4 WASHERS) 71037 For K30/K60 Rotork make actuator	Nos.	4	Unit 1 and Unit 2
61.10	Rotork make actuator	Thurst Bearing Sssembly	COMPLETE BEARING SET- K30/60 75409/75410 For K30/K60 Rotork make actuator	Nos.	6	Unit 1 and Unit 2
61.11	Rotork make actuator	Disc Spring Set	DISC SPRING SET - K30/60 75401/75402 For K30/K60 Rotork make actuator	Nos.	6	Unit 1 and Unit 2
61.12	Rotork make actuator	Oil Seal and O'Ring Kit	OIL SEAL & O'RING KIT 71001 For K30/K60 Rotork make actuator	Nos.	8	Unit 1 and Unit 2
61.13	Rotork make actuator	Handwheel Retainer Rsembly	HANDWHEEL RETAINER 21872 I For K30/K60 Rotork make actuator	Nos.	7	Unit 1 and Unit 2
61.14	Rotork make actuator	Lsd Shaft	LSD SHAFT 71042 For K30/K60 Rotork make actuator	Nos.	7	Unit 1 and Unit 2
61.15	Rotork make actuator	Lsd Retainer B Rsembly	LSD RETAINER B0094-S For K30/K60 Rotork make actuator	Nos.	7	Unit 1 and Unit 2
61.16	Rotork make actuator	Felt Seal Sssembly	FELT SEAL KIT 71005 For K30/K60 Rotork make actuator	Nos.	7	Unit 1 and Unit 2
61.17	Rotork make	Screwed Collar	SCREWED COLLAR B0044 For K30/K60 Rotork make	Nos.	5	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	actuator		actuator			
61.18	Rotork make actuator	Yoke Return Spring Set	YOKE RETURN SPRING SET 21869-S For K30/K60 Rotork make actuator	Nos.	7	Unit 1 and Unit 2
61.19	Rotork make actuator	Hand Wheel Retainer Plug	HAND WHEEL RETAINER PLUG(M10) B1710-S For K30/K60 Rotork make actuator	Nos.	7	Unit 1 and Unit 2
61.20	Rotork make actuator	Limit / Torque Switch	LIMIT / TORQUE SWITCH 1NO/1NC POTENTIAL FREE 76020 For K30/K60 Rotork make actuator	Nos.	7	Unit 1 and Unit 2
61.21	Rotork make actuator	Limit / Torque Switch	LIMIT / TORQUE SWITCH 2NO+2NC 76018 For K30/K60 Rotork make actuator	Nos.	7	Unit 1 and Unit 2
61.22	Rotork make actuator	Syncropak Assembly	SYNCRO PAK ASSY WITHOUT HOUSING (WT) WITH 12 A CONTACTOR ASSY. Part No. 77001	Nos.	4	Common
61.23	Rotork make actuator	Syncropak Assembly	SYNCRO PAK ASSY WITHOUT HOUSING (WT) WITH 23 A CONTACTOR ASSY. Part No. 77002	Nos.	4	Common
61.24	Rotork make actuator	PB Cover Assembly	P.B COVER ASSY WT Part No.75016, For K30/K60 Rotork make actuator	Nos.	4	Common
61.25	Rotork make actuator	Switch Mechanism	SWITCH MECHANISM WD1667Z00 S/M WD 1667Z00	Nos.	4	Common
61.26	Rotork make actuator	Power Module Assembly	POWER MODULE ASSY Part No. 31400	Nos.	4	Common
61.27	Rotork make actuator	Indication Lamp Set	INDICATION LAMP SET (25 Nos) Part No. 75417	Nos.	3	Common
61.28	Rotork make actuator	Main PCV	MAIN PCB (MK V) Part No.50902	Nos.	3	Common
61.29	Rotork make actuator	Contactor Assembly	CONTACTOR ASSY ( 12 A ) Part No.75014	Nos.	3	Common
61.30	Rotork make actuator	Contactor Assembly	CONTACTOR ASSY (23 A ) Part No.75015	Nos.	3	Common
61.31	Rotork make actuator	Local/remote knob assembly	LOCAL / REMOTE KNOB ASSLY (ISOLATOR SPINDLE) Part No. 77003	Nos.	3	Common
61.32	Rotork make actuator	Open/stop/close knob assembly	OPEN / STOP / CLOSE KNOB ASSLY (CONTROL SPINDLE) Part No.77004	Nos.	3	Common
61.33	Rotork make actuator	Fuse Kit	FUSE KIT (3 off 250mA,1 off 500mA) Part NO. 75416	Nos.	3	Common

### **Plan 8: Motors**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	CT Fan motors	CT Fan motors	55KW ABB Make Motor : 55KW, 3-Phase, 415v, 1475RMP, 96FLC, Frame: HX+250MC4, Ins.Cl-F, S1 duty, Bearing DE/NDE : 6315-C3/6313-C3, make: ABB. Ref.Sr.no: 079893	Nos	10	Unit 1 and Unit 2
2	Centrifuge feed pump motor	Centrifuge feed pump motor (water treatment plant)	3-Phase squirrel cage induction motor,KW/HP-5.5/7.5, 415Volt, 50HZ, FLC-10.5Amp.,RPM-2865,Frame size-ND-132 S, Mounting-Foot mounted, Insulation Class-F,Duty-S1,IP 55, Make; CGL.	Nos	3	Common
3	PE dosing motor	Chemical house PE dosing motor	PE Dosing Motor : 0.75Kw, Frame : AD80, 1.75-Amp, DE/NDE bearing; 6204 zz,1 410rpm, Ins. Class-F, S1 duty, Ref.Sr.no: ADD24JQ/BJN0525, Make CGL.,.	Nos	2	Common
4	PE Dosing AGT Motor	Chemical house PE dosing AGT motor	PE DOSING AGITATOR Motor : 0.75Kw, Frame : AD80D, 2.1Amp, DE/NDE bearing; 6204 zz, 1400rpm, Ins.Class-F, S1 duty, Ref.Sr.no: ADD24JBKN027, Make CGL.	Nos	2	Common
5	Antiform dosing	MED Antiform dosing motor	Antiform Dosing Motor : 0.37 Kw, Frame : AD80, 0.9-Amp, DE/NDE bearing; 6204 zz, 1400rpm, Ins. Class-F, S1 duty, Ref.Sr.No. ADD24JQ/BJNO541, Make CGL.	Nos	3	Common
6	Antiscallent dosing	MED Antiscallent dosing motor	Antiscallent Dosing Motor : 0.37 Kw, Frame : AD80, 0.9-Amp, DE/NDE bearing; 6204 zz, 1400rpm, Ins. Class-F, S1 duty, Ref.Sr.No. ADD24JQ/BJNO541, Make CGL.	Nos	3	Common
7	Acid cleaning motor	MED Acid cleaning motor	Acid cleaning Motor : 3.7 Kw, Frame : ND112M, 7.5-Amp, DE/NDE bearing; 6306/6205 ZZ, 1440rpm, Ins. Class-F, S1 duty, Ref.Sr.No. NDH54JQ/BJN 0576, Make CGL.	Nos	2	Common
8	Distilate motor	MED Distilate pump motor	MOTOR: 5.5kw, 415V, 3PHASE, 10.5AMP, 50HZ, FRAME: ND132S, 2865RPM, BEARING DE/NDE: 6308ZZ/6208ZZ, S1 DUTY, INS.CL-F, MAKE CGI.	Nos	3	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
9	Motive water motor	MED Motive water pump motor	MOTOR: 30kw, 415V, 3PHASE, 52AMP, 50HZ, FRAME: ND200L, 2955RPM, BEARING DE/NDE: 6312 2RS/6312 2RS, S1 DUTY, INS.CL-F, MAKE CGI.	Nos	2	Common
10	BFP LOP motor	BFP LOP motor-9.3KW	3-phase squirrel cage induction motor: KW/HP-11/15,415Volt,50HZ,FLC-22Amp.,RPM-1460,Frame size-A4C 160 L4V1,Mounting-Vertical flange mounted, Insulation Class-F,Duty-S1,IP 55,Bearing DE/NDE-6310 ZZ/6209 ZZ 2RS,Make-Marelli Motorri.	Nos	1	Unit 1
11	BFP OVEF motor	BFP OVEF motor-0.37KW	1-phase squirrel cage induction motor:Kw:0.25,Amp:2.2,RPM:2815,Volt:216-264,Type:AMM63Z BA2IEC60034,Mot No:32599,IN CL:F,IP:54,HZ:50,Make:AEG	Nos	1	Unit 1
12	UDT motor (Unit Drain Tank)	UDT pit dewatering P/P motor 3.5 KW	3 Phase 415v 3.5KW Induction Motor	Nos	1	Unit 1
13	UBF motor (Unbalanced belt feeder)	Lignite UBF motors	UNBALANCED VIBRO MOTOR : Make- NAGPUR MOTORS, KW:2.74, FRAME SIZE : VBM-52-H6, VOLTAGE : 415, FLC : 6AMP, RPM :970, INSULATION CLASS : F, DE/NDE SIDE BEARING : NJ2313C3, AMB. TEMP : 50°C,	Nos	4	Common
14	Vibro feeder motor	Vibro feeder motor for stacker and reclaimers 3.87KW	MOTOR : MAKE : ELECTROMEG DEVICE, TYPE : U71W, SR. NO : 21256, KW - 3.87, FLC- 9.6AMP	Nos	1	Common
15	Apron feeder Motor	Apron feeder, 90KW apron feeder motor spare	3 PHASE INDUCTION MOTOR : MAKE : ALSTOM, VOLTAGE : 415, KW : 90, FLC : 170AMP, INSULATION CLASS : F, DUTY : S1, FRAME : VK 355M, BREARING DE/NDE : NU319C3/6319C3, REF SR NO : 131579-1	Lot	1	Common
16	Sizer motor	MHP Sizer motor	150KW Induction Motor: FRAME SIZE=D315LB,,KW=150,AMP=261,VOLT=415. SR.NO=245631320001, MAKE=ALSTOM.	Nos	1	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
17	Stacker travels motor	MHP Stacker spare stacker travels motor - 5.5KW	3 PHASE INDUCTION MOTOR : KW:5.5, FRAME : VD 132 M, VOLTAGE : 415V, FLC : 10.7AMP, RPM : 1440, INSULATION CLASS : F, DUTY :S4, BREAING DE/NDE : 6208ZZ/6207ZZ, IS SPECIFICATION: 325, MAKE : ALSTOM	Nos	1	Common
18	Stacker CCRD and PCRD	MHP Stacker spare motor for stacker CCRD and PCRD	SLIP RING INDUCTION MOTOR, 4.8NM, FLC - 3.2AMP, STALL TORQUE SLIP RING, IP55, 100% CDF, MAKE - DEMAG	Nos	1	Common
19	LT Motor spares	All area LT Motors spares motor TB, TB cover, fan and fan cover, end cover etc.	As per below details:	Lot	1	Common
19.1	LT Motor spares	DE End Shield Cover	DE END SHIELD COVER : FOR 55KW, FRAME SIZE-HX 250 +MC4, BEARING DE-6315 C3 / NDE 6313 C3, MAKE-ABB	Nos	4	Common
19.2	LT Motor spares	NDE End Shield Cover	NDE END SHIELD COVER FOR 55KW, FRAME SIZE-HX 250 +MC4, DE-6315 C3 / NDE 6313 C3, MAKE-ABB	Nos	4	Common
19.3	LT Motor spares	Inner Collar Ring DE Side	INNER COLLAR RING DE SIDE : FOR 55KW MOTOR ,FRAME SIZE-HX 250 +MC4,DE-6315 C3 / NDE 6313 C3, MAKE-ABB	Nos	4	Common
19.4	LT Motor spares	PVC Cooling Fan	PVC cooling fan ; suitable for 55KW motor,Frame size-HX+250MC4, 415Volt, RPM-1475, FCL-96 Amp.,Bearing -DE-6315 C3 / NDE-6313 C3, Make ABB.	Nos	5	Common
19.5	LT Motor spares	Cooling Fan Cover	cooling fan Cover ; suitable for 55KW motor,Frame size-HX+250MC4, 415Volt, RPM-1475, FCL-96 Amp.,Bearing -DE-6315 C3 / NDE-6313 C3, Make ABB.	Nos	4	Common
19.6	LT Motor	PVC	PVC Cooling Fan : Size : Fan Inner Dia: 40mm, Fan full outer	Nos	4	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	spares	Cooling Fan	Dia: 230 mm, Suitable For; 5.5Kw,Frame Size : ND132S, Make: CGL. [Any standard make].			
19.7	LT Motor spares	PVC Cooling Fan	PVC Cooling Fan : Size : Fan Inner Dia: 15 mm, Fan full outer Dia:125 mm, Suitable For; 0.37 Kw,Frame Size : AD71, Make:CGL .	Nos	5	Common
19.8	LT Motor spares	Fan Cover	Fan cover Suitable For 5.5Kw motor,Frame Size : ND132S, Make: CGL. [Any standard make].	Nos	5	Common
19.9	LT Motor spares	Fan Cover	Fan cover Suitable For 0.37 Kw,Frame Size : AD71, Make:CGL .	Nos	15	Common
19.10	LT Motor spares	PVC Cooling Fan	PVC cooling fan ; suitable for 110KW motor,Frame size-ND 3159,415Volt,RPM-1485,FCL-180amp.,Bearing -6319 C3, Make CGL	Nos	4	Common
19.11	LT Motor spares	Fan Cover	Fan cover ; for 110KW motor,Frame size-ND 3159,415Volt,RPM-1485,FCL-180amp.,Bearing -6319 C3, Make CGL	Nos	4	Common
19.12	LT Motor spares	Terminal Block	Terminal block ; for 110KW motor,Frame size-ND 3159,415Volt,RPM-1485,FCL-180amp.,Bearing -6319 C3, Make CGL	Nos	4	Common
19.13	LT Motor spares	PVC Cooling Fan	PVC cooling fan ; suitable for 30KW motor,Frame size-ND200L ,415Volt,RPM-2955,FCL-52Amp.,Bearing -6312 2RS, Make CGL	Nos	5	Common
19.14	LT Motor spares	PVC Cooling Fan	PVC cooling fan ; suitable for 5.5KW motor,Frame size-ND132 S,415Volt,RPM-2865,FCL-10.5Amp.,Bearing -DE-6308 2RS/ NDE-6208 ZZ, Make CGL	Nos	5	Common
19.15	LT Motor spares	Cooling Fan Cover	cooling fan Cover ; suitable for 5.5KW motor,Frame size-ND132 S,415Volt,RPM-2865,FCL-10.5Amp.,Bearing -DE-6308 2RS/ NDE-6208 ZZ, Make CGL	Nos	4	Common
19.16	LT Motor spares	PVC Cooling Fan	PVC cooling fan ; suitable for 30KW motor,Frame size-ND200L,415Volt,RPM-1475, FCL-51Amp.,Bearing -DE-6312 2RS/ NDE-6312 ZZ, Make CGL	Nos	5	Common
19.17	LT Motor spares	Terminal Block	Terminal block ; suitable for 30KW motor,Frame size-ND200L,415Volt,RPM-1475, FCL-51Amp.,Bearing -DE-6312 2RS/ NDE-6312 ZZ, Make CGL.	Nos	4	Common
19.18	LT Motor spares	PVC Cooling Fan	PVC cooling fan ; suitable for 15KW motor,Frame size-ND160M, 415Volt,RPM-2920, FCL-26Amp.,Bearing -DE-6309 2RS/ NDE-6309 ZZ, Make CGL	Nos	5	Common
19.19	LT Motor spares	Terminal Block	Terminal block ; suitable for 15KW motor,Frame size-ND160M, 415Volt,RPM-2920, FCL-26Amp.,Bearing -DE-6309 2RS/ NDE-	Nos	4	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			6309 ZZ, Make CGL			
19.20	LT Motor spares	PVC Cooling Fan	PVC cooling fan ; suitable for 7.5KW motor,Frame size-ND132 S, 415Volt,RPM-2865, FCL-14Amp.,Bearing -DE-6308 2RS/ NDE-6208 ZZ, Make CGL	Nos	5	Common
19.21	LT Motor spares	Cooling Fan Cover	cooling fan Cover ; suitable for 7.5KW motor,Frame size-ND132 S, 415Volt,RPM-2865, FCL-14Amp.,Bearing -DE-6308 2RS/ NDE-6208 ZZ, Make CGL	Nos	4	Common
19.22	LT Motor spares	PVC Cooling Fan	PVC cooling fan ; suitable for 22KW motor,Frame size-ND180L, 415Volt,RPM-1475, FCL-39 Amp.,Bearing -DE-6310 2RS/ NDE-6210 ZZ, Make CGL	Nos	5	Common
19.23	LT Motor spares	Terminal Block	Terminal block ; suitable for 22KW motor,Frame size-ND180L, 415Volt,RPM-1475, FCL-39 Amp.,Bearing -DE-6310 2RS/ NDE-6210 ZZ, Make CGL	Nos	4	Common
19.24	LT Motor spares	PVC Cooling Fan	PVC cooling fan ; suitable for 90KW motor,Frame size-ND280 M, 415Volt,RPM-1480, FCL-147 Amp.,Bearing -DE-6318 C3 / NDE-6318 C3, Make CGL	Nos	5	Common
19.25	LT Motor spares	Terminal Block	Terminal block ; suitable for 90KW motor,Frame size-ND280 M, 415Volt,RPM-1480, FCL-147 Amp.,Bearing -DE-6318 C3 / NDE-6318 C3, Make CGL	Nos	4	Common
19.26	LT Motor spares	PVC Cooling Fan	PVC cooling fan ; suitable for 160KW motor,Frame size-ND315L, 415Volt, RPM-1490, FCL-260 Amp.,Bearing -DE-6319 C3 / NDE-6319 C3, Make CGL	Nos	5	Common
19.27	LT Motor spares	Terminal Block	Terminal block ; for 55KW motor,Frame size- HX+250MC4, 415Volt, RPM-1475, FCL-96 Amp.,Bearing -DE-6315 C3 / NDE-6313 C3, Make ABB.	Nos	4	Common
19.28	LT Motor spares	TB for 15KW motor	TB for 15KW motor :- 3Phase,Voltage 415v,Kw 15,Amp 30,Frame size 256TC,Make LINCON	Nos	4	Common
19.29	LT Motor spares	TB for 9.2 KW motor	TB for 9.2KW motor:- 3Phase,Voltage 415v,Kw 9.2,Frame size KF77DV132ML4,Amp 17.5, Make SED	Nos	4	Common
19.30	LT Motor spares	TB for 3.5KW motor	TB for 3.5KW motor:-3 phase induction motor,Type – FA 97 G R57 DT90L4/TF,Rpm 1720 /3.5 , KW 1.1 ,VOLTAGE 240/415 ,Amp 4.20/2.45A	Nos	4	Common
19.31	LT Motor spares	TB for .37 KW motor	TB for .37KW motor:-3Phase,Voltage 415v,Kw 0.37,Frame size AD71 , Make CGL	Nos	4	Common
19.32	LT Motor spares	TB for 160KW	TB for 160KW motor:-Ash cooler Fan Motor, ABB make,3 Phase, 415V, 160KW, 265 A FLC, Sr No:DM2BA315MLA2.	Nos	4	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
		motor				
19.33	LT Motor spares	TB for 69KW motor	TB for 69KW motor:- 3-phase squirrel cage induction motor,KW-69,415Volt,50HZ,Full Load Current-112Amp.,RPM-2975,Frame size-1LA6 280 - 2AC90 Z 280S,Mounting-Foot mounted,COS Phi-0.90,IP 55,Make-SIEMENS CE	Nos	4	Common
19.34	LT Motor spares	TB for 5.5KW motor	TB for 5.5KW motor:- Sr No:-NDJ42JQ-BDN0285,Frame Size:-ND1325,KW/HP:-5.5/7.5,Voltage;-415V,Amp:- 10.5A,rpm ;-2865,Make CG	Nos	4	Common
19.35	LT Motor spares	TB for .25KW motor	TB for .25KW motor:-Sr noK5117282,Frame MA071437,Voltage 415,Rpm1380,KW 0.25,Amp 0.5,Make Bharat Bijlee	Nos	4	Common
19.36	LT Motor spares	TB for 1.1KW motor	TB for 1.1KW motor:- Sr No. N2120510,KW/HP 1.1/1.5,Voltage 415 SATR , Amp 2.45,3 Ph Sq. Cage.Ind .Motor,Make IC BAURE	Nos	4	Common
19.37	LT Motor spares	Fan guard for 1.1KW motor	Fan gaurd for 1.1KW motor:-Sr noK5117282,Frame 90L,Voltage 415,Rpm1416,KW 1.1,Amp 2.5,Make Bharat Bijlee	Nos	4	Common
19.38	LT Motor spares	Fan guard for 0.25KW motor	Fan gaurd for 0.25KW:-Sr noK5117282,Frame MA071437,Voltage 415,Rpm1380,KW 0.25,Amp 0.5,Make Bharat Bijlee	Nos	4	Common
19.39	LT Motor spares	Fan guard for 7.5KW	Fan guard for 7.5KW :- 3Phase,Voltage 415v,Kw 7.5,Frame size ,Amp 17,Make SED	Nos	4	Common
19.40	LT Motor spares	Fan guard for 9.2KW	Fan guard for 9.2KW;-3Phase,Voltage 415v,Kw 9.2,Frame size KF77DV132ML4,Amp 17.5, Make SED	Nos	4	Common
19.41	LT Motor spares	Fan guard for 1.1 KW	Fan guard for coc 1.1KW:-3 phase induction motor,Type – FA 97 G R57 DT90L4/TF,Rpm 1720 /3.5 , KW 1.1 ,VOLTAGE 240/415 ,Amp 4.20/2.45A	Nos	4	Common
19.42	LT Motor spares	Fan guard for .37 KW	Fan guard for .37KW:-Sr no 25268,Frame Size G43G04-20/DK74-178,Voltage 415,3 phase,rpm 2.2,motor rpm 1330,S1, Cos phi, 0.72,Insl Class F IP65,kw 0.37,Amp 1.1, Star 415v/50hz, V1, mtg, oil isolvg 220 qty 4.5/0 L 38,Make IC BAURE	Nos	4	Common
19.43	LT Motor spares	Fan guard for .37 KW	Fan guard for .37KW:-Sr no 25255,Frame Size:- G43G01-10/DK74-178,Voltage 415,3 phase ,motor rpm 1330,S1, Cos phi, 0.72,Insl Class F IP65,kw 0.37,rpm 1.10,Amp 1.1, Star 415v/50hz, V1, mtg, oil isolvg 220 qty 2.7/0 L 38,Make IC BAURE	Nos	4	Common
19.44	LT Motor	Fan guard	Fan guard for hot water p/p:- 3-phase squirrel cage induction	Nos	4	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	spares	for hot water p/p	motor,KW-69,415Volt,50HZ,Full Load Current-112Amp.,RPM-2975,Frame size-1LA6 280 - 2AC90 Z 280S,Mounting-Foot mounted,COS Phi-0.90,IP 55,Make-SIEMENS CE			
19.45	LT Motor spares	Cooling fan for hot water p/p	cooling fan for hot water p/p :- 3-phase squirrel cage induction motor,KW-69,415Volt,50HZ,Full Load Current-112Amp.,RPM-2975,Frame size-1LA6 280 - 2AC90 Z 280S,Mounting-Foot mounted,COS Phi-0.90,IP 55,Make-SIEMENS CE	Nos	4	Common
19.46	LT Motor spares	Motor cooling fan for ash cooler fan	Motor cooling fan for ash cooler fan:-Ash cooler Fan Motor, ABB make,3 Phase, 415V, 160KW, 265 A FLC, Sr No:DM2BA315MLA2 (Code: 2000609),	Nos	4	Common
19.47	LT Motor spares	Motor cooling fan for lignite draglink	Motor fan cooling fan for Lignite Draglink :- 3Phase,Voltage 415v,Kw 7.5,Frame size ,Amp 17,Make SED	Nos	4	Common
19.48	LT Motor spares	Cooling fan for 9.2KW motor	Cooling fan for 9.2kw Motor;-3Phase,Voltage 415v,Kw 9.2,Frame size KF77DV132ML4,Amp 17.5, Make SED	Nos	4	Common
19.49	LT Motor spares	Cooling fan for 3.5KW motor	Cooling fan for 3.5kw motor:-3 phase induction motor,Type – FA 97 G R57 DT90L4/TF,Rpm 1720 /3.5 , KW 1.1 ,VOLTAGE 240/415 ,Amp 4.20/2.45A	Nos	4	Common
19.50	LT Motor spares	Cooling fan for .37KW motor	Cooling fan for .37kw motor :-3Phase,Voltage 415v,Kw.37 ,Frame size SD80, Make CGL	Nos	4	Common
19.51	LT Motor spares	TB cover for 7.5KW motor	TB cover for 7.5kw motor:- 3Phase,Voltage 415v,Kw 7.5,Frame size ,Amp 17,Make SED	Nos	4	Common
19.52	LT Motor spares	TB cover for 9.2KW motor	TB cover for 9.2kw Motor ;-3Phase,Voltage 415v,Kw 9.2,Frame size KF77DV132ML4,Amp 17.5, Make SED	Nos	4	Common
19.53	LT Motor spares	TB for sizer motor 1,2,3	TB FOR SIZER MOTOR =1,2 &3, SR.NO=245631320001,FRAME SIZE=D315LB,MAKE=ALSTOM,KW=150,AMP=261,VOLT=415.	Nos	4	Common
19.54	LT Motor spares	Cooling fan for sizer motor 1,2,3	COOLING FAN FOR SIZER MOTOR =1,2 &3, SR.NO=245631320001, FRAME SIZE=D315LB, MAKE=ALSTOM, KW=150, AMP=261, VOLT=415.	Nos	4	Common
19.55	LT Motor	Cooling fan	COOLING FAN FOR SIZER LUB PUMP MOTOR,	SR Nos	4	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	spares	for sizer lub pump motor	NO=0152822001010HFRAME SIZE=K21R71G4,MAKE=VEM MOTOR,KW=0.37,AMP=1.06,VOLT=415.			
19.56	LT Motor spares	Terminal block for sizer lub pump motor	TERMINAL BLOCK FOR SIZER LUB PUMP MOTOR SR NO=0152822001010H, FRAME SIZE=K21R71G4, MAKE=VEM MOTOR, KW=0.37, AMP=1.06, VOLT=415.	Nos	4	Common
19.57	LT Motor spares	Fan guard for sizer lub pump motor	FAN GAURD FOR SIZER LUB PUMP MOTOR SR NO=0152822001010HFRAME SIZE=K21R71G4,MAKE=VEM MOTOR,KW=0.37,AMP=1.06,VOLT=415.	Nos	4	Common
19.58	LT Motor spares	Motor end cover de side for sizer lub pump motor	MOTOR END COVER DE SIDE FOR SIZER LUB PUMP MOTOR, SR NO=0152822001010H FRAME SIZE=K21R71G4, MAKE=VEM MOTOR ,KW=0.37, AMP=1.06, VOLT=415.	Nos	4	Common
19.59	LT Motor spares	Motor end cover NDE side for sizer lub pump motor	MOTOR END COVER NDE SIDE FOR SIZER LUB PUMP MOTOR, SR NO=0152822001010H FRAME SIZE=K21R71G4, MAKE=VEM MOTOR, KW=0.37, AMP=1.06, VOLT=415.	Nos	4	Common
19.60	LT Motor spares	Cooling fan for sump pump motor	COOLING FAN FOR SUMP PUMP MOTOR SR NO=245651510001, FRAME SIZE=D160M, MAKE=ALSTOME, KW=9.3, AMP=17, VOLT=415.	Nos	4	Common
19.61	LT Motor spares	Terminal block for sump pump motor	TERMINAL BLOCK FOR SUMP PUMP MOTOR SR NO=245651510001, FRAME SIZE=D160M, MAKE=ALSTOME, KW=9.3, AMP=17, VOLT=415.	Nos	4	Common
19.62	LT Motor spares	Cooling fan for Conv-1A motor	COOLING FAN FOR CONV=1A MOTOR, SR NO=245631110002, FRAME SIZE=D280SB, MAKE=ALSTOM, KW=75, AMP=128, VOLT=415.	Nos	4	Common
19.63	LT Motor spares	Cooling fan for Conv-2A motor	COOLING FAN FOR CONV=2A MOTOR SR NO=245631150001, FRAME SIZE=K280M, MAKE=ALSTOM, KW=90, AMP=154, VOLT=415.	Nos	4	Common
19.64	LT Motor spares	Fan guard for UFF-2 motor	FAN GUARD FOR UFF - 2 MOTOR, SR NO=245631060002, FRAME SIZE=VD280S, MAKE=ALSTOM KW=22, AMP=46.5 VOLT=415.	Nos	4	Common
19.65	LT Motor spares	Cooling fan for UFF-2	COOLING FAN FOR UFF - 2 MOTOR, SR NO=245631060002, FRAME SIZE=VD280S,	Nos	4	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
		motor	MAKE=ALSTOM,KW=22,AMP=46.5VOLT=415.			
19.66	LT Motor spares	Terminal block for CR-1 motor	TERMINAL BLOCK FOR CR-1 MOTOR, SR NO=245631060002, FRAME SIZE=D180M, MAKE=ALSTOM, KW=18.5, AMP=33.5, VOLT=415	Nos	4	Common
19.67	LT Motor spares	Motor end cover DE side for CR-1 motor	MOTOR END COVER DE SIDE FOR CR-1 MOTOR, SR NO=245631060002,FRAME SIZE=D180M,MAKE=ALSTOM,KW=18.5,AMP=33.5,VOLT=415	Nos	4	Common
19.68	LT Motor spares	Motor end cover NDE side for CR-1 motor	MOTOR END COVER NDE SIDE FOR CR-1 MOTOR, SR NO=245631060002,FRAME SIZE=D180M,MAKE=ALSTOM,KW=18.5,AMP=33.5,VOLT=415	Nos	4	Common
19.69	LT Motor spares	Cooling Fan for Belt Feeders Motor	COOLING FAN FOR BELF FEEDERS MOTOR SR NO=245651510001, FRAME SIZE=D160M, MAKE=ALSTOME ,KW=9.3, AMP=17, VOLT=415.	Nos	4	Common
19.70	LT Motor spares	Cooling Fan Guard for belt feeder	COOLING FAN GAURD FOR BELT FEEDER SR NO=245651380005 FRAME SIZE=D132S, MAKE=ALSTOM, KW=5.5, AMP=10.7, VOLT=415.	Nos	4	Common
19.71	LT Motor spares	Terminal block for belt feeders	TERMINAL BLOCK FOR BELT FEEDERS MOTORS, SR NO=245651510001,FRAME SIZE=D132S,MAKE=ALSTOME,KW=5.5,AMP=10.7,VOLT=415.	Nos	4	Common
19.72	LT Motor spares	Motor end cover DE side for belt feeder SR	MOTOR END COVER DE SIDE FOR BELT FEEDER SR NO=245651380005FRAME SIZE=D132S,MAKE=ALSTOM,KW=5.5,AMP=10.7,VOLT=415.	Nos	4	Common
19.73	LT Motor spares	Motor end cover NDE side for belt feeder SR	MOTOR END COVER NDE SIDE FOR BELT FEEDER SR NO=245651380005FRAME SIZE=D132S,MAKE=ALSTOM,KW=5.5,AMP=10.7,VOLT=415.	Nos	4	Common
19.74	LT Motor spares	Cooling Fan for Screen motor	COOLING FAN FOR SCREEN MOTOR , SR NO=245631080006, FRAME SIZE=D200L, MAKE=ALSTOM, KW=25, AMP=44.3 VOLT=415.	Nos	4	Common
19.75	LT Motor spares	Cooling fan guard for	COOLING FAN GUARD FOR SCREEN MOTOR , SR NO=245631080006,FRAME	Nos	4	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
		screen motor	SIZE=D200L,MAKE=ALSTOM,KW=25,AMP=44.3VOLT=415.			
19.76	LT Motor spares	Terminal block for screen motor	TERMINAL BLOCK FOR SCREEN MOTOR , SR NO=245631080006,FRAME SIZE=D200L,MAKE=ALSTOM,KW=25,AMP=44.3VOLT=415.	Nos	4	Common
19.77	LT Motor spares	Motor DE side end cover for screen motor	MOTOR DE SIDE END COVER FOR SCREEN MOTOR , SR NO=245631080006,FRAME SIZE=D200L,MAKE=ALSTOM,KW=25,AMP=44.3VOLT=415.	Nos	4	Common
19.78	LT Motor spares	Motor NDE side end cover for screen motor	MOTOR NDE SIDE END COVER FOR SCREEN MOTOR , SR NO=245631080006,FRAME SIZE=D200L,MAKE=ALSTOM,KW=25,AMP=44.3VOLT=415.	Nos	4	Common
19.79	LT Motor spares	Cooling fan for RSC motor	COOLING FAN FOR RSC MOTOR SR NO=245631050002, FRAME SIZE=CD180L, MAKE=ALSTOM, KW=18.5, AMP=33.5, VOLT=415.	Nos	4	Common
19.80	LT Motor spares	Cooling fan guard for RSC motor	COOLING FAN GUARD FOR RSC MOTOR SR NO=245631050002, FRAME SIZE=CD180L, MAKE=ALSTOM, KW=18.5, AMP=33.5, VOLT=415.	Nos	4	Common
19.81	LT Motor spares	Cooling fan for Conv-3A motor	COOLING FAN FOR CONV=3A MOTOR, FRAME SIZE = D315SB, MAKE=ALSTOM, KW=110, AMP=192, VOLT=415.	Nos	4	Common
19.82	LT Motor spares	Cooling fan guard for Conv-3A motor	COOLING FAN GAURD FOR CONV=3A MOTOR, FRAME IZE = D315SB, MAKE=ALSTOM, KW=110, AMP=192, VOLT=415.	Nos	4	Common
19.83	LT Motor spares	Terminal block for Conv-3A motor	TERMINAL BLOCK FOR CONV=3A MOTOR, FRAME IZE = D315SB, MAKE=ALSTOM, KW=110, AMP=192, VOLT=415.	Nos	4	Common
19.84	LT Motor spares	Cooling fan for Conv-4A motor	COOLING FAN FOR CONV=4A MOTOR, FRAME SIZE=D315L MAKE=ALSTOM, KW=160, AMP=272, VOLT=415.	Nos	4	Common
19.85	LT Motor	Cooling fan	COOLING FAN GAURD FOR CONV=4A MOTOR, FRAME	Nos	4	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	spares	guard for Conv-4A motor	SIZE=D315L MAKE=ALSTOM, KW=160, AMP=272, VOLT=415.			
19.86	LT Motor spares	Terminal block for Conv-4A motor	TERMINAL BLOCK FOR CONV=4A MOTOR, FRAME SIZE=D315L MAKE=ALSTOM, KW=160, AMP=272, VOLT=415.	Nos	4	Common
19.87	LT Motor spares	Cooling fan for Conv-5A motor	COOLING FAN FOR CONV=5A MOTOR SR NO=245631130004 FRAME SIZE=D250M,MAKE=ALSTOM,KW=55,AMP=96,VOLT 415.	Nos	4	Common
19.88	LT Motor spares	Cooling fan guard for Conv-5A motor	COOLING FAN GAURD FOR CONV=5A MOTOR SR NO=245631130004 FRAME SIZE=D250M,MAKE=ALSTOM,KW=55,AMP=96,VOLT 415.	Nos	4	Common
19.89	LT Motor spares	Motor end cover DE side for Conv-5A motor	MOTOR END COVER DE SIDE FOR CONV=5A MOTOR SR NO=245631130004 FRAME SIZE=D250M,MAKE=ALSTOM,KW=55,AMP=96,VOLT 415.	Nos	4	Common
19.90	LT Motor spares	Motor end cover NDE side for Conv-5A motor	MOTOR END COVER NDE SIDE FOR CONV=5A MOTOR SR NO=245631130004 FRAME SIZE=D250M,MAKE=ALSTOM,KW=55,AMP=96,VOLT 415.	Nos	4	Common
19.91	LT Motor spares	Cooling fan DWP motor	COOLING FAN DWP MOTOR, SR NO=24565144003, FRAME SIZE= D160M ,MAKEE=ALSTOM, KW=15, AMP=27.6, VOLT=415.	Nos	4	Common
19.92	LT Motor spares	Fan guard for DWP motor	FAN GUARD FOR DWP MOTOR SR NO=24565144003, FRAME SIZE=D160M, MAKEE=ALSTOM ,KW=15, AMP=27.6, VOLT=415.	Nos	4	Common
19.93	LT Motor spares	Cooling fan for motor	COOLING FAN FOR MOTOR SR NO=176977, FRAME SIZE=HXF112MA4K, MAKE=ABB,KW=3.7,AMP=7.6,VOLT=415.	Nos	4	Common
19.94	LT Motor spares	Cooling fan guard for motor	COOLING FAN GUARD FOR MOTOR SR NO=176977, FRAME SIZE=HXF112MA4K, MAKE=ABB,KW=3.7,AMP=7.6,VOLT=415.	Nos	4	Common
19.95	LT Motor	Terminal	Terminal insulator for 1250KW,6.6KV CW pump motor,RPM-	Set	5	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	spares	insulator	498, Motor make-CGL, Frame size-VTV 1700			
19.96	LT Motor spares	Cooling fan for 1250KW, 6.6KV CW pump motor	Cooling fan For : 250KW, 6.6KV CW pump motor, RPM-498, Motor make-CGL, Frame size-VTV 1700	Nos	2	Common
19.97	LT Motor spares	Fan Cover box with net and accessories	Fan cover Box with net and accessories : For, 1250KW, 6.6KV CW pump motor, RPM-498, Motor make-CGL, Frame size-VTV 1700	Nos	4	Common
20	LT motors bearing	LT motors bearing	As per below details:	Lot (detailed below)	1	Common
20.1	LT motors bearing	Bearings	Bearing, 6005 ZZ, Make-SKF, FAG , NTN	Nos	50	Common
20.2	LT motors bearing	Bearings	Bearing, 6201 ZZ, Make-SKF, FAG , NTN	Nos	30	Common
20.3	LT motors bearing	Bearings	Bearing, 6202 ZZ, Make-SKF, FAG , NTN	Nos	100	Common
20.4	LT motors bearing	Bearings	Bearing, 6203 ZZ, Make-SKF, FAG , NTN	Nos	50	Common
20.5	LT motors bearing	Bearings	Bearing, 6204 ZZ, Make-SKF, FAG , NTN	Nos	100	Common
20.6	LT motors bearing	Bearings	Bearing, 6205 2RS, Make-SKF, FAG , NTN	Nos	50	Common
20.7	LT motors bearing	Bearings	Bearing, 6206 zz, Make-SKF, FAG , NTN	Nos	50	Common
20.8	LT motors bearing	Bearings	Bearing, 6207 zz, Make-SKF, FAG , NTN	Nos	10	Common
20.9	LT motors bearing	Bearings	Bearing, 6208 2RS/zz, Make-SKF, FAG , NTN	Nos	50	Common
20.10	LT motors bearing	Bearings	Bearing, 6209 2RS, Make-SKF, FAG , NTN	Nos	50	Common
20.11	LT motors bearing	Bearings	Bearing, 6210 2RS, Make-SKF, FAG , NTN	Nos	50	Common
20.12	LT motors bearing	Bearings	Bearing, 6305 ZZ /2RS, Make-SKF, FAG , NTN	Nos	50	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
20.13	LT motors bearing	Bearings	Bearing,6308 ZZ /2RS,Make-SKF,FAG ,NTN	Nos	50	Common
20.14	LT motors bearing	Bearings	Bearing,6309 2RS,Make-SKF,FAG ,NTN	Nos	50	Common
20.15	LT motors bearing	Bearings	Bearing,6310 2RS,Make-SKF,FAG ,NTN	Nos	50	Common
20.16	LT motors bearing	Bearings	Bearing,6312 2RS,Make-SKF	Nos	10	Common
20.17	LT motors bearing	Bearings	Bearing,6313 C3,Make-SKF	Nos	20	Common
20.18	LT motors bearing	Bearings	Bearing,6315 c3,Make-SKF	Nos	20	Common
20.19	LT motors bearing	Bearings	Bearing,6316 C3,Make-SKF	Nos	10	Common
20.20	LT motors bearing	Bearings	Bearing,6318 C3,Make-SKF	Nos	10	Common
20.21	LT motors bearing	Bearings	Bearing,6319 C3,Make-SKF	Nos	10	Common
20.22	LT motors bearing	Bearings	BEARING,TYPE NJ 2313 ECP-C3, Make SKF	Nos	4	Common
21	HT Motors	Bearings	As per below details:	Lot	1	Common
21.1	HT Motors	SKF make HT motors bearing	7322BG	Nos	6	Common
21.2	HT Motors	SKF make HT motors bearing	7320B	Nos	2	Common
21.3	HT Motors	SKF make HT motors bearing	6324 C3	Nos	1	Common
21.4	HT Motors	SKF make HT motors bearing	6232MC3	Nos	2	Common
21.5	HT Motors	SKF make HT motors bearing	6230/C3	Nos	2	Common
21.6	HT Motors	SKF make	6224C3	Nos	1	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
		HT motors bearing				
21.7	HT Motors	SKF make HT motors bearing	NU 324	Nos	1	Common
21.8	HT Motors	SKF make HT motors bearing	NU240C3	Nos	4	Common
21.9	HT Motors	SKF make HT motors bearing	NU 232M	Nos	2	Common
21.10	HT Motors	SKF make HT motors bearing	NU 230M	Nos	4	Common
21.11	HT Motors	SKF make HT motors bearing	NU 228M	Nos	5	Common
21.12	HT Motors	SKF make HT motors bearing	NU 226M	Nos	2	Common
21.13	HT Motors	SKF make HT motors bearing	NU 224M	Nos	1	Common
21.14	HT Motors	SKF make HT motors bearing	NU 221C3	Nos	1	Common
21.15	HT Motors	SKF make HT motors bearing	NU 220-C3	Nos	2	Common
21.16	HT Motors	SKF make HT motors bearing	NU319E	Nos	1	Common
22	Intake pump	Axial exhaust fan and motor - 0.37Kw	Axial exhaust fan:- 3-ø,KW .37, 4Pole, 50Hz, Make :- Crompton Greaves	Nos	4	Common
23	CW Pump	Motors for	Axial exhaust fan: 3-ø,KW 3.7,4Pole, 50Hz, Make :- Crompton	Nos	6	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
		force axial fan - 3.7KW	Greaves			
24	Force axial fan	Motors for force axial fan - 3.7KW	Axial exhaust fan: 3-ø,KW 3.7, 50Hz, Make :- Crompton Greaves	Nos	3	Common
25	Force axial fan	Motors for force axial fan - 1.5KW	Axial exhaust fan: 3-ø,KW 1.5, 50Hz, Make :- Crompton Greaves	Nos	3	Common
26	CW Pump	HT motor	Overhauling of HT motor of CW motors (A, B, C, E) along with bearings	Nos	4	Common
27	Lignite impactor	Lignite impactor motor	3-ph sq.cage Induction HT Motor; Make-Bharat Heavy Electricals Ltd; 1100KW, 6.6KV, 3Ph, 50Hz, 1480 rpm, 114.5Amps, Duty-S1, Frame-1LA7714-4P, Ins.CL-F, Amb-50 C, RT Type-Sq Cage, Deg of protection-IPW55; (Ref Sr. No.- 44009A-401-11-02)	Nos	2	Common

### **Plan 9: Exhaust Fans**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	TG Roof Exhaust Fan	TG floor roof exhaust fan	3-ø Squirrel Motor, KW 2.2,415Volt,RPM 935,Frame Size ND112N,Amp 5.3A, Insulation Class F,Duty S1, IP 55, Bearing DE/NDE-6306 ZZ/6205 ZZ, Make:- Crompton Greaves	Nos	2	Common
2	SWTP Exhaust Fan	Axial exhaust fan - 0.37Kw	Axial exhaust fan:- 3-ø,KW .37, 4Pole,50Hz, Make :- Crompton Greaves	Nos	2	Common
3	SY Exhaust Fan	Axial exhaust fan - 0.37Kw	Axial exhaust fan :- 3-ø,KW .37, 4Pole,50Hz, Make :- Crompton Greaves	Nos	2	Common
4	DG Exhaust Fan	Axial exhaust fan - 0.37Kw	Axial exhaust fan:- 3-ø,KW .37, 4Pole,50Hz, Make :- Crompton Greaves	Nos	3	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
5	MHP Exhaust Fan	Axial exhaust fan - 3.7KW	Axial exhaust fan:- 3-ø,KW 3.7, 50Hz, 4 pole, Make :- Crompton Greaves	Nos	20	Common
6	MHP Exhaust Fan	Axial exhaust fan - .55KW	Axial exhaust fan:- 3-ø,KW .55, 50Hz, 4 pole, Make :- Crompton Greaves	Nos	25	Common

### **Plan 10: DG**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	DG set & panel spares	DG Equipment, DG set & MCC relay /Card-Spares.	As per below details:	Lot	1	Common
1.1	DG set & panel spares	Analogue Amp Meter	Analogue Amp meters: 0 to 25V DC , scall 1.5, 96Sq. Panel door mounting type. Ref.make: AE/Rushabh.	Nos	10	Common
1.2	DG set & panel spares	Analogue Volt Meter	Analogue Volt meters: 0 to 40V DC , scall 1.5, 96Sq. Panel door mounting type. Ref.make: AE/Rushabh.	Nos	10	Common
1.3	DG set & panel spares	Analogue Volt Meter	Analogue Voltmeter: 0 to 500V AC, scall 1.5, 96Sq. Panel door mounting type.Ref.make: AE/Rushabh.	Nos	10	Common
1.4	DG set & panel spares	Analog, Frequency Meter	Analog, Frequency meter: 0 to 55Hz, AC, scall 0.5, 96Sq. Panel door mounting type.Ref.make: AE/Rushabh.	Nos	10	Common
1.5	DG set & panel spares	Digital Speed Meter	Digital speed meter :0 to 3000 Rpm, size: 9 X 1117, Make: CAT For Stamford make caterpillar DG set.	Nos	10	Common
1.6	DG set & panel spares	Under Voltage/Over Voltage Relay	Under voltage/over voltage relay: VCT D2, U/V ; 75% To 95%, O/V: 105V To 120% with U/V/OV indication, Power on Delay & Tripp delay setting, Ref.product code: 0PO563, Make: Minilec	Nos	4	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1.7	DG set & panel spares	Reverse Power Relay	Reverse power Relay: Input voltage: 230V 5A CT sec, Output: 1NO+1NC, status: Relay energises for reverse power, Delay: ON delay, Contact rating: 5Amp at 230v Ac/24VDC & 2Amp At 415V Ac, Current setting: 5 to 20%, 0-15Sec On delay setting, Ref.Sr.No: 2101006, with main ON & Reverse power on indication, Important: R phase CT secondary only to be connected . Ref.Make: NAREN Electronics Co. Bangalore.	Nos	4	Common
1.8	DG set & panel spares	Temperature Scanner: Model	Temperature scanner: MODEL NO: TEMPSCAN4000, AUTO, MANUAL AND SETTING BUTTON, TOTAL 8 ZONE,REF.MAKE:IRA.	Nos	3	Common
1.9	DG set & panel spares	Energy Meter	Energy meter: 3 PHASE STATIC WATTHOUR METER, 3 PHASE-4WIRE SYSTEM, 0.1 TO 10k, PULSE o/P & REVERSE INDICATION, Model no: EM301F, 240V AC, 5Amp current, MF:1, Pulse rate: 1280/KWH, 50Hz, MULTIFACTOR: Kwh x 200, Make L&T.	Nos	2	Common
1.10	DG set & panel spares	Catterpillar 4W-8471	Catterpillar 4W-8471: with time delay relay, 2NO/NC & COM contact, on delay zerosec control-1, Off delay 9sec control-2, OFF delay: 70Seconds, 24V battery Pos+Neg terminal I/P, Control O/p: 1, 2. For, CATERPILLAR PART NO: 7W8001, SUPPLIER: REDCO.	Nos	2	Common
1.11	DG set & panel spares	Catterpillar 9733 - 5	Catterpillar 9733 -5, date code: NONEDD, Ref.Sr.No:16257, DG Engine start relay,. For, CATERPILLAR PART NO: 7W8001, SUPPLIER: REDCO.	Nos	1	Common
1.12	DG set & panel spares	24V Contactor : Aux	24V Contactor : aux. contactor with 2NO+2NC contact.	Nos	10	Common
1.13	DG set & panel spares	OEN Relay	OEN relay : 24v dc O/E/N relay 11pin.	Nos	10	Common
1.14	DG set & panel spares	Timers	Timers : 24V DC to 240V AC , 0 to 100sec on delay timer.	Nos	10	Common
1.15	DG set & panel spares	Relay	Relay: SPAM 150C, SPCJ4D34, 1MYN745605-A, Supply input voltage: 220V DC, Ref.Sr.no: MO2-4895, make ABB.	Nos	1	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1.16	DG set & panel spares	Reverse Power Relay	Reverse power relay : Electronic Type Reverse power relay: DIN rail mounting, 5A rating, with 240V AC Aux.supply, Input: 230VAC, 5Amp CT Sec, Out put: 1NO +1NC contact, CTR:-1000/5A, relay energise for reverse power, Ref.Sr.No:2101006, Ref.Make: NAREN Electronics Co.	Nos	3	Common
1.17	DG set & panel spares	12V Battery	12V battery : Amron make 27plate suitable to DG set Acid battery.	Nos	8	Common
1.18	DG set & panel spares	Portable charger	24V /20Amp rating portable charger with float cum bust charging mode.	Nos	2	Common
1.19	DG set & panel spares	Spring Charging Motor	SPRING CHARGING MOTOR,F.L.WATT-154,SUPPLY-220V, DC,F.L.AMP-0.7AMP.,TYPE-SPM-63, INSULATION CLASS-B, REF. SR.NO.-9031561,MAKE RALLIWOLF	Nos	3	Common
1.20	DG set & panel spares	Globe Motors with Gear	GLOBE MOTORS WITH GEAR : 24V-27V DC GEAR GLOBE MOTOR, Ref.MEKE :industrial componants and system ltd, FOR suitable to DG SET Type: HC544F2, 625KVA, 3PHASE, 50HZ, 1500 RPM, 415V, 870AMP, STAR.WDG:311, STAR.CON: S.STAR, PF:0.8, AVR: SX440 , AMBIENT TEMP: 40c, RATING: CONTINUE, EXC.VOLT:38V, 2.0AMP, INS.CL:H, ENCL: IP22, IS: 4722-1992, MAKE: STAMFORD.	Nos	4	Common
1.21	DG set & panel spares	Cat Relay	CAT Relay with base : Supply voltage: 24V DC, Type: 3E6477,Ref. Make: Mexico, For, 625 kva DG Set,Type: HC544F2, 415V, 1500Rpm, 870Amp, Ref. Sr.No. 01030489,Stamford make.	Nos	2	Common
1.22	DG set & panel spares	Starter With Full Assembly	Starter with full assembly : Caterpillar part no: 6N1889 CW, CONSIST 8C3644 24 I, Ref. 98L23 1993802, For suitable to 625 kva DG Set,Type: HC544F2, 415V, 1500Rpm, 870Amp, Ref. Sr.No. 01030489,Stamford make.	Nos	1	Common
1.23	DG set & panel spares	Alternator GP Charging Assembly	Alternator GP Charging ASSEMBLY : CAT Part No: 6T-1395: CONSIST VOLTAGE 24V DC, DATE 200034, AMP 34, FOR suitable to DG SET Type: HC544F2, 625KVA, 3PHASE, 50HZ, 1500 RPM, 415V, 870AMP, STAR.WDG:311, STAR.CON: S.STAR, PF:0.8, INS.CL:H, ENCL: IP22, IS: 4722-1992, MAKE: STAMFORD.	Nos	1	Common
1.24	DG set &	Closing/Tripping	Closing /Tripping Coil asembly HSN NO: 85389000, For,	Nos.	10	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	panel spares	Coil Assembly	CGL Make 11KV VCB, Type: 12VE40, 220V DC, Ref.sr.no: 12150VG Make: CGL.			
1.25	DG set & panel spares	Under Voltage Relay	Under voltage relay:40 to 80%, VHXM22A. Make: ABB. With builtin timer : VHXM22B , Make : ABB	Nos	3	Common
1.26	DG set & panel spares	IIDMT O/C Relay	IDMT O/C Relay: ICM21 bn , o/c; 50-200%, E/f: 10-40%, Input 1A, Make : ABB	Nos	3	Common
1.27	DG set & panel spares	Lockout Relay	Lockout relay with 4NO+3NC contact, hand reset type, Type: PQ8CH2J, ABB make	Nos	5	Common
1.28	DG set & panel spares	Aux.Contactor	Aux.contactor: with 2NO+2NC Contacts, 220v dc make ABB	Nos	10	Common
1.29	DG set & panel spares	Potential Transformer	potential transformer: 415v/110v,1-phase, insulation class: H, 25VA, as per IS: 3156, Ref.make:CANDS electricals pvt ltd, ref. sr.no: 0012010.	Nos	10	Common
1.30	DG set & panel spares	Spring Charging Motor	Spring charging Motor: 240V AC/DC Make L&T, For CN-CS 1600C ACB	Nos	10	Common
1.31	DG set & panel spares	Closing Coil Assembly	Closing coil assembly : 240V AC Make L&T, For CN-CS 1600C ACB	Nos	10	Common
1.32	DG set & panel spares	Shunt Tripp Coil	Shunt tripp coil assembly : 240V AC Make L&T, For CN-CS 1600C ACB	Nos	10	Common
1.33	DG set & panel spares	Closing Coil Assembly	Closing coil assembly : 220V DC:Make L&T, For CN-CS 1600C ACB	Nos	10	Common
1.34	DG set & panel spares	Shunt Tripp Coil	Shunt tripp coil assembly : 220V DC:Make L&T, For CN-CS 1600C ACB	Nos	10	Common
2	DG/11KV 220V DC FCB Charger	DG/11KV MCC Battery charger panel 220V DC FCB.	DG/11KV MCC Battery charger panel 220V DC FCB.	Set	1	Common
3	DG 1 & 2	Servicing with spares	625KVA/825A Stamford make DG Set servicing with include require aux.spares Sealing & small type of maintainance parts, wiring parts, Diod/carbon brush parts & Sealing spares.	Set	2	Common

### Plan 11: SWTP

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
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S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	GSF MOVs	PTP area GSF MOVs	Linear type Gate actuator : Motor Details: 0.37KW Motor, 1.12A, 1380RPM, Ref.Make:Pripec Make	Nos	14	Common
2	SWTP VFD	SWTP MCC micromaster 420 VFD	As per Below details:	Lot	1	Common
2.1	SWTP VFD	Micro master 420 with BOP & without filter 380-480V 3ph AC +/-10%47-63Hz, Constant torque 0.75kw overload150% VFD MLFB	Micro master 420 with BOP & without filter 380-480V 3ph AC +/-10%47-63Hz, Constant torque 0.75kw overload150% VFD MLFB: 6SE64202UD175AA1, make Siemens.	Nos	4	Common
2.2	SWTP VFD	Micro master 420 with BOP & without filter 380-480V 3ph AC +/-10%47-63Hz, Constant torque 0.37kw overload150% VFD MLFB	Micro master 420 with BOP & without filter 380-480V 3ph AC +/-10%47-63Hz, Constant torque 0.37kw overload150% VFD MLFB: 6SE64202UD137AA1, make Siemens.	Nos	10	Common

### **Plan 12: GT/UAT/ST**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Station Transformer	Spares for station transformer repair	All types of gasket supply and replacement of 30MVA, 220/6.6KV, Station transformer & RECP Scheme modification From VCB HT Breaker with connection & wiring.	Set	1	Common
2	WTI & OTI	WTI / OTI For GT/UAT	As per below details:	Lot (detailed below)	1.000	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
2.1	WTI	WINDING TEMPERATURE INDICATOR (WTI) WITH POTENTIOMETER, TYPE	WINDING TEMPERATURE INDICATOR (WTI) WITH POTENTIOMETER, TYPE : PC - 252, SIZE : 150 MM, SIZE : 150 MM, RANGE : 0-150 DEG. CENT, 4 nos heavy duty micro switch , CAPILARY : 10 MTRS, GRADIENT : 20 DEG. CENT, Make: Prerfect controlors ltd	Nos	7.000	Unit 1 and Unit 2
2.2	OTI	OIL TEMPERATURE INDICATOR (OTI) WITH POTENTIOMETER, TYPE	OIL TEMPERATURE INDICATOR (OTI) WITH POTENTIOMETER, TYPE : PC - 252, SIZE : 150 MM, RANGE : 0-150 DEG. CENT, 4 SWITCH, CAPILARY : 10 MTRS, Make: Prerfect controlors ltd	Nos	2.000	Unit 1
3	GT /UAT Cooling fan	Cooling fan with motors	As per below details:	Lot	1.000	Unit 1 and Unit 2
3.1	GT /UAT Cooling fan	COOLING FAN MOTOR with fan bled and mounting support strip with bolt	COOLING FAN MOTOR with fan bled and mounting support strip with bolt : THREE PHASE INDUCTION MOTOR Watt-372,RPM-1400,FLC-0.82amp.,Ins. Class-F,415 V AC,50 Hz,IP-55,Sweep-450mm,Ref. Cat. No.-GPN45043,Ref. Sr. No.-613010/1208, MAKE - ALSTOM	Nos	30.000	Unit 1 and Unit 2
3.2	GT /UAT Cooling fan	Cooling fan Motor	Cooling fan Motor : 0.700kw, 3-PH, 415V, 550RPM, FLC-1.5 AMP,SWEEP 915MM, CAT.NO: BVA915103, IS-2312,INS.CLASS B REF.SR.NO: 2712027/606, DE0216R8/2, MAKE : ALSTOM.	Nos	18.000	Unit 1 and Unit 2
4	GT#2 Bushing	Bushing	GT HV BUSHING, MAKE: BHEL,RATED VOLTAGE:245 KV,RATED CURRENT:800 AMP.,1 MIN.50 HZ DRY & WET WITHSTAND:460 KV , Suitable for 170MVA Alstom make Generator transformer, 230KV/15.75KV, Double Wound TYPE, Ref.Sr.NO: TNDE-6515/B - 29674. Costomer ref.no: 229495, Dtd. 1.06.01	Nos	1.000	Unit 2
5	GT/UAT Transducer & control panel	GT/UAT Transducer & Control equipments	As per below details:	Lot (detailed below)	1.000	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
5.1	GT/UAT Transducer & control panel	On delay transducer	Timer:Electronic timer: 7PU2240-2BG32-OZ, ON DELAY 6-60SEC, SUPPLY VOLTAGAGE: 110V AC/DC, CONTACT RATING 240/5A.	Nos	10	Unit 1 and Unit 2
5.2	GT/UAT Transducer & control panel	On delay transducer	Timer:Electronic timer: 7PU2240-2BN32-OZ, ON DELAY 6-60SEC, SUPPLY VOLTAGAGE: 240V AC/DC, CONTACT RATING 240/5A.	Nos	10	Unit 1 and Unit 2
5.3	GT/UAT Transducer & control panel	Off delay transducer	Timer:Electronic timer: 7PU2240-2BN32-OZ, 6-60SEC, SUPPLY VOLTAGAGE: 240V AC/DC, CONTACT RATING 240/5A.	Nos	40	Unit 1 and Unit 2
5.4	GT/UAT Transducer & control panel	3 phase power contactors	Power Contactor : K30-01, 16Amp, Coil voltage: 240V AC., Make: ABB	Nos	50	Common
5.5	GT/UAT Transducer & control panel	Aux contactor	Aux Contactor: Coil voltage: 240V AC, K22 E, MAKE : ABB	Nos	10	Common
5.6	GT/UAT Transducer & control panel	Power contactor	Power Contactor; 3TF44, coil volatage:230V AC, with 1No+1NC side L/R contact- 3TY7561-1A, , make: Siemens.	Nos	10	Common
5.7	GT/UAT Transducer & control panel	DC contactor	Siemens make 3TH2-22EB , 2NO+2NC, 220V DC contactor.	Nos	10	Common
5.8	GT/UAT Transducer & control panel	DC contactor	Siemens make 3TH2-31EB , 2NO+2NC, 220V DC contactor.	Nos	10	Common
5.9	GT/UAT Transducer & control panel	Power contactor	Power contactor :3TF2 , with top addon block 2NO+2NC, 220V DC , Siemens make	Nos	10	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
5.10	GT/UAT Transducer & control panel	AC contactor	Siemens make 3TH2-22EB , 2NO+2NC, 240V AC contactor.	Nos	10	Common
5.11	GT/UAT Transducer & control panel	Aux addon block	Aux.addon block : 3TX4411-2A, 1NO+1NC, 10a/240V Oen USE, FOR 3TH2/3TF CONTACTOR.	Nos	10	Common
5.12	GT/UAT Transducer & control panel	BMR	BIMETALIC RELAY : BMR RANGE : 6AMP to 10AMP Make Seimens. BMR : 1 to 2.5 Amp Range Make Seimens. For 3TF30 Contactor, make Seimens. BMR : 2.5 to 6 Amp Range Make Seimens. For 3TF32 Contactor, make Seimens. BMR : MAKE-ABB, TYPE: MS116, RANGE: 1-1.6AMP	Nos	40	Common
5.13	GT/UAT Transducer & control panel	Current transducer	Power Transducer Type-M24, 220V DC, PT:110V/ CT 1000/1 & 4 out put 4to20mA, with communication cable & CD software, Ref. Sr.No: 1410/01627, Rushabh make.	Nos	8	Common
5.14	GT/UAT Transducer & control panel	MCCB	1).MCCB 3 POLE, 100 A, MC103, MAKE:GE 2).MCCB: 3-Pole+N, 3-PH/415V/160Amp, Type: VL 160, In:63A, CAT:A, 0.8 To 1A T setting, O/C:5 to10, Temp:50C, make: Siemens.	Nos	1	Common
5.15	GT/UAT Transducer & control panel	Resistance thermometer	RTD: Resistance thermometer with built in heating element to simulate the measuring of winding temperatures within a power transformer. Providing an analog PT 100 output for remote indication and monitoring, Suitable for 170MVA, 15.75/230KV, Alstom make GT	Nos.	3	Unit 1
5.16	GT/UAT Transducer & control panel	Electronic timer	Timer:Electronic timer: 7PU2240-2BG32-OZ, ON DELAY 6-60SEC, SUPPLY VOLTAGAGE: 110V AC/DC, CONTACT RATING 240/5A.	Nos.	15	Unit 1 and Unit 2
5.17	GT/UAT Transducer & control panel	Electronic timer	Timer:Electronic timer: 7PU2240-2BN32-OZ, ON DELAY 6-60SEC, SUPPLY VOLTAGAGE: 240V AC/DC, CONTACT RATING 240/5A.	Nos.	15	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
5.18	GT/UAT Transducer & control panel	3P Fuse disconnecter-holder with 10Amp Fuse	3P Fuse disconnecter-holder with 10Amp Fuse: Built in Fuse base Disconnecter, DIN Rail mounting with 10Amp Fuse: Type: 3NW7 031, Size: 10 X 38, Max.20Amp, 3Pole. Ref.Make: Siemens.	Nos.	6	Common
5.19	GT/UAT Transducer & control panel	Power Contactor	Power Contactor; 3TF44, coil volatage:230V AC, with 1No+1NC side L/R contact- 3TY7561-1A, , make: Siemens.	Nos.	10	Common
5.20	GT/UAT Transducer & control panel	Control Transformer	Control Transformer: Double wound Transformer: Rating: 500VA, single phase 1-PH, Ratio: 240V/55-0-55V, 50Hz, Input: 240V AC, output; 55-0-55, make andy standard make, Ref.Make: AU electromagnes allahabad.	Nos.	2	Unit 1
5.21	GT/UAT Transducer & control panel	Side 1NO+1NC	SIEMENS MAKE SIDE 1NO+1NC CONTACT TYPE 3TY7561-1A FOR 3TF44	Nos.	10	Unit 2
5.22	GT/UAT Transducer & control panel	Timer	Timer : On Delay Timer: 5 to 100S, 3RP15T3-TAQ30, Make: Siemens.	Nos.	5	Common
5.23	GT/UAT Transducer & control panel	Timer	Timer: ON delay Timer: 0 to 30S, Model No: EA A1D-X, 2NO+2NC, Supply voltage: 24 TO 240V AC. MAKE: EAPL.	Nos.	10	Common
5.24	GT/UAT Transducer & control panel	Power Contactor	Power Contactor : K30-01, 16Amp, Coil voltage: 240V AC., Make: ABB	Nos.	6	Common
5.25	GT/UAT Transducer & control panel	Aux Contactor	Aux Contactor: Coil voltage: 240V AC, K22 E, MAKE : ABB	Nos.	10	Unit 1 and Unit 2
5.26	GT/UAT Transducer & control panel	LV Terminal Bushing	LV Terminal bushing with Top bottom fixing plate/bolt /bottom lock plate- nut set and mounting bolt full set assembly : CJI INDIA 2-2002, For, 25MVA Voltas make Transformer. Connection no: 3DRY-RD-5643/B	SET	3	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			Costomer Ref.NO: BRD/PHK/15.11/GMDC/1368/2000-01DT. 05.102.000, Transforemr Sr.No: JND: 5643, 1 set is for one phase			
5.27	GT/UAT Transducer & control panel	Self Priming Monoset Pump with motor	Self Priming monoset pump with motor : 0.37Kw,/0.50HP, Type: MINIMASTER-II, 230V AC, Size: 25-25mm, Speed: 2780 RPM, Ins class: F, Current: 2.8Amp, CAP: 10micro F/440V, Pump No: DGPMO3359, 1-PH, 50Hz, Head6 to 27mtr, Ref.IS: 8472-1998, Disc: 2480/900., Pump: N2G19., Motor CGL Make., Ref.make: CG,	SET	1	Common
6	GT/UAT Gasket	Gaskets	All types of gasket supply and replacement of 170MVA, 220/15.75 GT#1, 250MVA, 15-75/6.6 KV UAT#1 and 15-75/6.6 KV UAT#2	Lot	3	Unit 1 and Unit 2
7	Power oil	Transformer oil- 25 Barrels	POWER OIL for TRANSFORMER : New insulating power oil AS PER STANDARD IS- 335 1993 Good quality and suitable to 245KV/170MVA Transformer. Min.BDV 65Kv, Flash point min.160,non corrosive. Make: HP Ltd. [ 1barrel = 210]	Barrel	25	Unit 1 and Unit 2
8	Storage tank (on rental)	Storage tank	30 KL	Nos	4	Unit 1 and Unit 2

### **Plan 13: CW and CCW System**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Cooling Tower	Earthing Strip with earth pit for all CT fan motor	Earthing Strip: 6mm X 50mm GI earthing 250Mtr Strip with 4nos earth pit (new) for cooling tower Unit-1 & 2. X Set 02 Nos. Supply & installation with all Require toosl & tacker /Consumable , Manpower etc.	Set	1	Unit 1 and Unit 2
2	CW MOVS	CW Discharge Mov SA25 E180	Auma make actuator with motor full set : SA25 E180 with TBG assembly with wheel.	Nos	1	Common
3	CT Fan	CT Fan MCC Feeder	55KW Full Feeder with all equipment & assesories: Feeder DRG.No.type: 2022R Siemens Make, 55KW/250A Siemens make Feeder with SFU and all control and	Nos	2	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			protection device with wiring, including feeder sliding male & female plug socket assembly 9-plug socket assembly Normal & T-S. for suitable to existing Siemens make CT MCC feeder 55Kw/250A: SFU Details: Heavy duty switch disconnecter fuse 3KL25 30-1YA00, 250A 50Hz, IEC 60947-3,			

**Plan 14: MHP**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	MHP MD	Metal Detector	Matel ditector (MD) : Metal detactor system with surch coil , JB,cards & Cables etc. 2channel type for suitable to MHP Make: SSPL: SHIVA SYSTEMS PVT LTD.	Nos	4	Common
2	MHP Panel Protection relay	MHP HT Panel protective Relay's Differential protection-1, trip ckt supervision-2 / 86 master trip-2		Lot	1	Common
2.1	MHP Panel Protection relay	MHP HT Panel protective Relay's Differential protection-1, trip ckt supervision-2 / 86 master trip-2	Master Tripp Relay (86) : Tripping Relay Type : VAJ, Model No : VAJH23ZG8314 BCH, Operation Voltage : 220VDC, Make : Alstom,	Nos	1	Common
2.2	MHP Panel Protection relay	MHP HT Panel protective Relay's Differential protection-1, trip ckt supervision-2 / 86 master trip-2	Tripp Circuit Supervision Relay, Make : Alstom, Type : VAX MK.II, Model No : VAX312G8075 BCH, Operation Voltage : Vx(A): 220-250VDC, Vx(B): 220-250VDCVx(C): 220-250VDC	Nos	1	Common
2.3	MHP Panel Protection relay	MHP HT Panel protective Relay's Differential protection-1, trip	INSTANTNEOUS DIFFERENTIAL PROTECTION RELAY MAKE : ALSTOM, TYPE : CAG, MODEL NO. : CAG34AF71A, OPERATION SR.NO. : 33981292/02/17	Nos	1	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
		ckt supervision-2 / 86 master trip-2				
3	Chute vibrator panel spares	Chute vibrator panel spares	As per below details:	Lot (to be detailed)	1	Common
3.1	Chute vibrator panel spares	POWER CARD	POWER CARD: TYPE-SC/MI/UF03,MAKE-MAGNET INDUSTRIES PVT LTD,	Nos	10	Common
3.2	Chute vibrator panel spares	CONTROL TRANSFORMER	CONTROL TRANSFORMER : 0 TO 415 VOLT RANGE: INPUT - 0 -230-380-415 VOLT, OUTPUT –12- 0-12 (0.1 Amp), 12-0-12(0.35 Amp) VOLT.	Nos	12	Common
3.3	Chute vibrator panel spares	AMPLITUDE	AMPLITUDE : R.W-3, 1 Kohm , Switching Circuit 0 to 100. L&T make	Nos	10	Common
3.4	Chute vibrator panel spares	power Contactor	power Contactor : Type- MNX18, AC3 415V, 18 A, 9.3 KW, COIL VOLTAGE 230 VOLT AC.	Nos	10	Common
3.5	Chute vibrator panel spares	CONTROL TRANSFORMER	CONTROL TRANSFORMER : 200 VA, 415/230 VOLT FOR NUTRAL PURPOSE.	Nos	20	Common
3.6	Chute vibrator panel spares	MAGNET COIL	MAGNET COIL : COIL INPUT 415 VOLT	Nos	10	Common

### **Plan 15: Cranes and Hoists**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	5- ton Capacity CCW Crane Sea Side -	As detailed below		Lot (as defined below)	1.00	Common

	Spare supply and Servicing					
1.1		3 pole 32Aamp MCB		Nos	3.00	Common
1.2		2 pole 04amp MCB		Nos	3.00	Common
1.3						
1.4		Single pole 2amp MCB		Nos	3.00	Common
1.5		MPCB TCMS-32S 1.6 to 3.2 relay range make TC NO-NC		Nos	3.00	Common
1.6		MPCB TCMS-32S 05 to 08 relay range make TC NO-NC		Nos	3.00	Common
1.7		MPCB TCMS-32S 1.6 to 2.5 relay range make TC NO-NC		Nos	3.00	Common
1.8		power contctor hoist type- TC-1 D25-01, 110V AC coil voltage, make-TC		Nos	2.00	Common
1.9		Cros travel contactor make-TC, Type-TC-1, D0901 110V AC		Nos	2.00	Common
1.10		Long travel contactor make-TC, Type-D18-01 110V AC		Nos	2.00	Common
1.11		Main contactor type-TC-1 D40-11 110V AC Make-TC		Nos	2.00	Common
1.12		10core control cable		Mtr	15.00	Common
1.13		plastic roller		Nos	40.00	Common
2	3- ton capacity CCW Crane Sea Side - Spare supply and Servicing	As detailed below		Lot	1.00	Common
2.1		3 pole 32Aamp MCB		Nos	3.00	Common
2.2		2 pole 04amp MCB		Nos	3.00	Common
2.3		Single pole 2amp MCB		Nos	3.00	Common
2.4		MPCB TCMS-325 1.6 to 3.2 relay range make TC NO-NC		Nos	3.00	Common
2.5		MPCB TCMS-325 05 to 08 relay range make TC NO-NC		Nos	3.00	Common
2.6		MPCB TCMS-325 1.6 to 2.5 relay range make TC NO-NC		Nos	3.00	Common

2.7		power contctor hoist type- TC-1 D25-01, 110V AC coil voltage, make-TC		Nos		2.00	Common
2.8		Cros travel make-TC, Type-TC-1, D0901 110V AC		Nos		2.00	Common
2.9		Long travel make-TC, Type-D18-01 110V AC		Nos		2.00	Common
2.10		Main contactor type-TC-1 D40-11 110V AC Make-TC		Nos		2.00	Common
2.11		10core control cable		Mtr		15.00	Common
2.12		plastic roller		Nos		40.00	Common
3	10- ton capacity Workshop crane - Spare supply and Servicing	As detailed below		Lot		1.00	Common
3.1		Crane control panel with accessories		Nos		1.00	Common
3.2		Crane remote control		Nos		1.00	Common
3.3		Crane busbar RYB and neutral		Nos		200.00	Common
3.4		Crane brush with holder (RYB & Neutral)		Nos		4.00	Common
3.5		SFU Handle		Nos		1.00	Common
3.6		Busbar clamp		Nos		30.00	Common
3.7		Long travel and cross travel break		Nos		1.00	Common
3.8	5- ton capacity Workshop crane - Spare supply and Servicing	As detailed below		Lot		1.00	Common
3.9		5TON Crane lifting hoist motor		Nos		1.00	Common
3.10		Crane brush with holder (RYB & Neutral)		Nos		1.00	Common
3.11		Busbar claimp		Nos		30.00	Common
3.12		SFU Handle		Nos		1.00	Common
3.13		Crane brush with holder (RYB & Neutral)		Nos		1.00	Common
3.14		Long travel Motor		Nos		1.00	Common
3.15		Coss travel Motor		Nos		1.00	Common
4	5- ton capacity Compressor house crane - Spare supply	As detailed below		Lot		1.00	Common

	and Servicing					
4.1		3 pole 32Aamp MCB		Nos	3.00	Common
4.2		2 pole 04amp MCB		Nos	3.00	Common
4.3		Single pole 2amp MCB		Nos	3.00	Common
4.4		MPCB TCMS-325 1.6 to 3.2 relay range make TC NO-NC		Nos	3.00	Common
4.5		MPCB TCMS-325 05 to 08 relay range make TC NO-NC		Nos	3.00	Common
4.6		MPCB TCMS-325 1.6 to 2.5 relay range make TC NO-NC		Nos	3.00	Common
4.7		power contctor hoist type- TC-1 D25-01, 110V AC coil voltage, make-TC		Nos	2.00	Common
4.8		Cros travel make-TC, Type-TC-1, D0901 110V AC		Nos	2.00	Common
4.9		Long travel make-TC, Type-D18-01 110V AC		Nos	2.00	Common
4.10		Main contactor type-TC-1 D40-11 110V AC Make-TC		Nos	2.00	Common
4.11		10core control cable		Mtr	15.00	Common
4.12		plastic roller		Nos	40.00	Common
5	7.5- ton capacity 5HOIST AT LIGNITE DUMP HOPPER crane - Spare supply and Servicing	As detailed below		Lot	1.00	Common
5.1		4 POLE 63 AMP MCB		Nos	1.00	Common
5.2		Control Transformer 250VA, 415V/24V		Nos	1.00	Common
5.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
5.4		Break coil 415 volt ac		Nos	2.00	Common
5.5		Cut of End Limit switch 1no-1nc 415vac		Nos	2.00	Common
5.6		Main Power Contactor Type=CE15HN3, COIL VOLAGE=24VAC		Nos	1.00	Common
5.7		Hoist power contactor 32A-15KW AC3, COIL VOLTAGE 24VAC		Nos	2.00	Common

5.8		TRAVEL MOTOR CONTACTOR,9.1A-9KW AC3,COIL VOLTAGE=24VAC		Nos	2.00	Common
5.9		Hoist OLR Range : 8.9A -13A		Nos	1.00	Common
5.10		Travel OLR Range : 1.5Amp to 2.5 Amp		Nos	1.00	Common
5.11		Fuse : TIA 16Amp		Nos	3.00	Common
5.12		Fuse : TIA 32amp		Nos	3.00	Common
5.13		Fuse : TIA 63amp		Nos	3.00	Common
5.14		Fuse : HBC 63amp		Nos	3.00	Common
5.15		Gravity Limit Sitch 1no,1nc 415vac		Nos	2.00	Common
5.16		Power Cable : 3 Core X 10 Sq.mm CU		Mtr	40.00	Common
6	02- ton capacity TP-01 crane - Spare supply and Servicing	As detailed below		Lot	1.00	Common
6.1		4 POLE 63 AMP MCB		Nos	1.00	Common
6.2		Control Transformer 200VA, 415V/24V		Nos	1.00	Common
6.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
6.4		Cut of End Limit switch 1no-1nc 415vac		Nos	2.00	Common
6.5		Main power contactor 32A-15KW AC3, type-CE15EN3COIL VOLTAGE 24VAC		Nos	1.00	Common
6.6		Hoist power contactor 16A-7.5KW AC3,TYPE-CE15DEN3 COIL VOLTAGE 24VAC		Nos	2.00	Common
6.7		TRAVEL MOTOR CONTACTOR,9.1A-4.0 KW AC3,COIL VOLTAGE=24VAC		Nos	2.00	Common
6.8		Hoist motor OLR Range : 3.8A -10A		Nos	1.00	Common
6.9		Travel motor OLR Range : 2.2Amp to 6 Amp		Nos	1.00	Common
6.10		Fuse : Fuse HBC 63 Amp		Nos	3.00	Common
6.11		Fuse : TIA 16Amp		Nos	3.00	Common
6.12		Fuse : TIA 32amp		Nos	3.00	Common
6.13		Gravity Limit Sitch		Nos	2.00	Common
6.14		Break coil 415 volt ac		Nos	2.00	Common
7	02- ton capacity TP-012 crane - Spare supply and Servicing	As detailed below		Lot	1.00	Common
7.1		4 POLE 63 AMP MCB		Nos	1.00	Common

7.2		Control Transformer 200VA, 415V/24V		Nos	1.00	Common
7.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
7.4		Cut of End Limit switch 1no-1nc 415vac		Nos	2.00	Common
7.5		Main power contactor 32A-15KW AC3, type-CE15EN3COIL VOLTAGE 24VAC		Nos	1.00	Common
7.6		Hoist power contactor 16A-7.5KW AC3,TYPE-CE15DEN3 COIL VOLTAGE 24VAC		Nos	2.00	Common
7.7		TRAVEL MOTOR CONTACTOR,9.1A-4.0 KW AC3,COIL VOLTAGE=24VAC		Nos	2.00	Common
7.8		Hoist motor OLR Range : 3.8A -10A		Nos	1.00	Common
7.9		Travel motor OLR Range : 2.2Amp to 6 Amp		Nos	1.00	Common
7.10		Fuse : Fuse HBC 63 Amp		Nos	3.00	Common
7.11		Fuse : TIA 16Amp		Nos	3.00	Common
7.12		Fuse : TIA 32amp		Nos	3.00	Common
7.13		Gravity Limit Sitch		Nos	2.00	Common
7.14		Break coil 415 volt ac		Nos	2.00	Common
7.15		Power Cable : 3 Core X 6 Sq.mm CU		Mtr	35.00	Common
8	15- ton capacity HOIST PCH ILMS FLOOR crane - Spare supply and Servicing	As detailed below		Lot	1.00	Common
8.1		4 POLE 63 AMP MCB		Nos	1.00	Common
8.2		Control Transformer 250VA, 415V/24V		Nos	1.00	Common
8.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
8.4		Cut of End Limit switch 1no-1nc 415vac		Nos	2.00	Common
8.5		Main Power Contactor, 73A- 37KW-AC3 ,Type=CE15JN3, COIL VOLAGE=24VAC		Nos	1.00	Common
8.6		UP/DOWN CONTACTOR,38A-23KW-AC3,TYPE=CE15DN3,COIL Voltage =24VAC		Nos	2.00	Common

8.7		REV/FORW CONTACTOR,12A-5.5KW-AC3,TYPE=CE15KN3,COIL Voltage=24VAC		Nos	2.00	Common
8.8		UP/DOWN OLR 22AMP TO 30AMP		Nos	1.00	Common
8.9		Travel OLR Range : 3.8Amp to 6 Amp		Nos	1.00	Common
8.10		Fuse : TIA 16Amp		Nos	3.00	Common
8.11		Fuse : TIA 32amp		Nos	3.00	Common
8.12		Fuse : TIA 63amp		Nos	3.00	Common
8.13		Gravity Limit Switch		Nos	2.00	Common
8.14		Break coil 415 volt ac		Nos	2.00	Common
9	15- ton capacity HOIST SCH ILMS FLOOR crane - Spare supply and Servicing	As detailed below		Lot	1.00	Common
9.1		4 POLE 63 AMP MCB		Nos	1.00	Common
9.2		Control Transformer 250VA, 415V/24V		Nos	1.00	Common
9.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
9.4		Cut of End Limit switch 1no-1nc 415vac		Nos	2.00	Common
9.5		Main Power Contactor, 73A- 37KW-AC3 ,Type=CE15JN3, COIL VOLAGE=24VAC		Nos	1.00	Common
9.6		UP/DOWN CONTACTOR,38A-23KW- AC3,TYPE=CE15DN3,COIL Voltage =24VAC		Nos	2.00	Common
9.7		REV/FORW CONTACTOR,12A-5.5KW- AC3,TYPE=CE15KN3,COIL Voltage=24VAC		Nos	2.00	Common
9.8		UP/DOWN OLR 22AMP TO 30AMP		Nos	1.00	Common
9.9		Travel OLR Range : 3.8Amp to 6 Amp		Nos	1.00	Common
9.10		Fuse : TIA 16Amp		Nos	3.00	Common
9.11		Fuse : TIA 32amp		Nos	3.00	Common
9.12		Fuse : TIA 63amp		Nos	3.00	Common
9.13		Gravity Limit Switch		Nos	2.00	Common
9.14		Break coil 415 volt ac		Nos	2.00	Common
9.15		HBC FUSE 63 Amp		Nos	3.00	Common

10	02- ton capacity HOIST SCH CR1 HEAD crane - Spare supply and Servicing	As detailed below		Lot	1.00	Common
10.1		4 POLE 63 AMP MCB		Nos	1.00	Common
10.2		Control Transformer 200VA, 415V/24V		Nos	1.00	Common
10.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
10.4		Cut of End Limit switch 1no-1nc 415vac		Nos	2.00	Common
10.5		Main power contactor 32A-15KW AC3, type-CE15EN3COIL VOLTAGE 24VAC		Nos	1.00	Common
10.6		Hoist power contactor 16A-7.5KW AC3,TYPE-CE15DEN3 COIL VOLTAGE 24VAC		Nos	2.00	Common
10.7		TRAVEL MOTOR CONTACTOR,9.1A- 4.0 KW AC3,COIL VOLTAGE=24VAC		Nos	2.00	Common
10.8		Hoist motor OLR Range : 3.8A -10A		Nos	1.00	Common
10.9		Travel motor OLR Range : 2.2Amp to 6 Amp		Nos	1.00	Common
10.10		Fuse : Fuse HBC 63 Amp		Nos	3.00	Common
10.11		Fuse : TIA 16Amp		Nos	3.00	Common
10.12		Fuse : TIA 32amp		Nos	3.00	Common
10.13		Gravity Limit Sitch		Nos	2.00	Common
10.14		Break coil 415 volt ac		Nos	2.00	Common
10.15		Power Cable : 3 Core X 6 Sq.mm CU		Mtr	35.00	Common
11	15- ton capacity SCH IMPACTOR ROTOR HOIST crane - Spare supply and Servicing	As detailed below		Lot	1.00	Common
11.1		4 POLE 63 AMP MCB		Nos	1.00	Common
11.2		Control Transformer 250VA, 415V/24V		Nos	1.00	Common
11.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
11.4		Cut of End Limit switch 1no-1nc 415vac		Nos	2.00	Common
11.5		Main Power Contactor, 73A- 37KW-AC3 ,Type=CE15JN3, COIL		Nos	1.00	Common

		VOLAGE=24VAC				
11.6		UP/DOWN CONTACTOR,38A-23KW-AC3,TYPE=CE15DN3,COIL Voltage =24VAC		Nos	2.00	Common
11.7		REV/FORW CONTACTOR,12A-5.5KW-AC3,TYPE=CE15KN3,COIL Voltage=24VAC		Nos	2.00	Common
11.8		UP/DOWN OLR 22AMP TO 30AMP		Nos	1.00	Common
11.9		Travel OLR Range : 3.8Amp to 6 Amp		Nos	1.00	Common
11.10		Fuse : TIA 16Amp		Nos	3.00	Common
11.11		Fuse : TIA 32amp		Nos	3.00	Common
11.12		Fuse : TIA 63amp		Nos	3.00	Common
11.13		Gravity Limit Switch		Nos	2.00	Common
11.14		Break coil 415 volt ac		Nos	2.00	Common
11.15		HBC FUSE 63 Amp		Nos	3.00	Common
11.16		CONTROL CABLE 2.5 SQ MM , 6 CORE ,CU		Mtr	30.00	Common
12	7.5- ton capacity SCH IMPACTOR MOTOR HOIST crane - Spare supply and Servicing	As detailed below		Lot	1.00	Common
12.1		Control Transformer 250VA, 415V/24V		Nos	1.00	Common
12.2		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
12.3		Break coil 415 volt ac		Nos	2.00	Common
12.4		Cut of End Limit switch 1no-1nc 415vac		Nos	2.00	Common
12.5		Main Power Contactor Type=CE15HN3, COIL VOLAGE=24VAC		Nos	1.00	Common
12.6		Hoist power contactor 32A-15KW AC3,TYPE=CE15KN3 COIL VOLTAGE 24VAC		Nos	2.00	Common
12.7		TRAVEL MOTOR CONTACTOR,9.1A-9KW AC3,TYPE=CE15BN3COIL VOLTAGE=24VAC		Nos	2.00	Common
12.8		Hoist OLR Range : 8.9A -13A		Nos	1.00	Common

12.9		Travel OLR Range : 1.5Amp to 2.5 Amp		Nos	1.00	Common
12.10		Fuse : TIA 16Amp		Nos	3.00	Common
12.11		Fuse : TIA 32amp		Nos	3.00	Common
12.12		Fuse : TIA 63amp		Nos	3.00	Common
12.13		Fuse : HBC 63amp		Nos	3.00	Common
12.14		Gravity Limit Sitch 1no,1nc 415vac		Nos	2.00	Common
12.15		Power Cable : 3 Core X 10 Sq.mm CU		Mtr	40.00	Common
13	02- ton capacity HOIST AT BELT FEEDER 9 crane - Spare supply and Servicing	As detailed below		Lot	1.00	Common
13.1		4 POLE 63 AMP MCB		Nos	1.00	Common
13.2		Control Transformer 200VA, 415V/24V		Nos	1.00	Common
13.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
13.4		Cut of End Limit switch 1no-1nc 415vac		Nos	2.00	Common
13.5		Main power contactor 32A-15KW AC3, type-CE15EN3COIL VOLTAGE 24VAC		Nos	1.00	Common
13.6		Hoist power contactor 16A-7.5KW AC3,TYPE-CE15DEN3 COIL VOLTAGE 24VAC		Nos	2.00	Common
13.7		TRAVEL MOTOR CONTACTOR,9.1A- 4.0 KW AC3,COIL VOLTAGE=24VAC		Nos	2.00	Common
13.8		Hoist motor OLR Range : 3.8A -10A		Nos	1.00	Common
13.9		Travel motor OLR Range : 2.2Amp to 6 Amp		Nos	1.00	Common
13.10		Fuse : Fuse HBC 63 Amp		Nos	3.00	Common
13.11		Fuse : TIA 16Amp		Nos	3.00	Common
13.12		Fuse : TIA 32amp		Nos	3.00	Common
13.13		Gravity Limit Sitch		Nos	2.00	Common
13.14		Break coil 415 volt ac		Nos	2.00	Common
13.15		Power Cable : 3 Core X 6 Sq.mm CU		Mtr	50.00	Common
13.16		CONTROL CABLE 6 CORE X 2.5 SQ MM CU		Mtr	25.00	Common

14	02- ton capacity HOIST AT BELT FEEDER 10 crane - Spare supply and Servicing	As detailed below		Lot	1.00	Common
14.1		4 POLE 63 AMP MCB		Nos	1.00	Common
14.2		Control Transformer 200VA, 415V/24V		Nos	1.00	Common
14.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
14.4		Cut of End Limit switch 1no-1nc 415vac		Nos	2.00	Common
14.5		Main power contactor 32A-15KW AC3, type-CE15EN3COIL VOLTAGE 24VAC		Nos	1.00	Common
14.6		Hoist power contactor 16A-7.5KW AC3,TYPE-CE15DEN3 COIL VOLTAGE 24VAC		Nos	2.00	Common
14.7		TRAVEL MOTOR CONTACTOR,9.1A- 4.0 KW AC3,COIL VOLTAGE=24VAC		Nos	2.00	Common
14.8		Hoist motor OLR Range : 3.8A -10A		Nos	1.00	Common
14.9		Travel motor OLR Range : 2.2Amp to 6 Amp		Nos	1.00	Common
14.10		Fuse : Fuse HBC 63 Amp		Nos	3.00	Common
14.11		Fuse : TIA 16Amp		Nos	3.00	Common
14.12		Fuse : TIA 32amp		Nos	3.00	Common
14.13		Power Cable : 3 Core X 6 Sq.mm CU		Mtr	40.00	Common
15	02- ton capacity HOIST AT SCREEN FLOOR crane - Spare supply and Servicing	As detailed below		Lot	1.00	Common
15.1		4 POLE 63 AMP MCB		Nos	1.00	Common
15.2		Control Transformer 200VA, 415V/24V		Nos	1.00	Common
15.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
15.4		Main power contactor 32A-15KW AC3, type-CE15EN3COIL VOLTAGE 24VAC		Nos	1.00	Common
15.5		Hoist power contactor 16A-7.5KW AC3,TYPE-CE15DEN3 COIL VOLTAGE 24VAC		Nos	2.00	Common

15.6		TRAVEL MOTOR CONTACTOR,9.1A-4.0 KW AC3,COIL VOLTAGE=24VAC		Nos	2.00	Common
15.7		Hoist motor OLR Range : 3.8A -10A		Nos	1.00	Common
15.8		Travel motor OLR Range : 2.2Amp to 6 Amp		Nos	1.00	Common
15.9		Fuse : Fuse HBC 63 Amp		Nos	3.00	Common
15.10		Fuse : TIA 16Amp		Nos	3.00	Common
15.11		Fuse : TIA 32amp		Nos	3.00	Common
15.12		Break coil 415 volt ac		Nos	2.00	Common
15.13		Power Cable : 3 Core X 6 Sq.mm CU		Mtr	35.00	Common
16	10- ton capacity HOIST AT SCREEN TOP crane - Spare supply and Servicing	As detailed below		Lot	1.00	Common
16.1		4 POLE 63 AMP MCB		Nos	3.00	Common
16.2		Control Transformer 250VA, 415V/24V		Nos	3.00	Common
16.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	3.00	Common
16.4		Cut of End Limit switch		Nos	6.00	Common
16.5		Main Power Contactor Type=CE15HN3, COIL VOLAGE=24V,50A		Nos	3.00	Common
16.6		UP/DOWN CONTACTOR,TYPE=CE15GN3,COIL V=24VAC		Nos	6.00	Common
16.7		REV/FORW CONTACTOR,TYPE=CE15DN3,COIL V=24VAC.		Nos	6.00	Common
16.8		Hoist OLR Range : 17 TO 24AMP		Nos	3.00	Common
16.9		Travel OLR Range : 3.8Amp to 6 Amp		Nos	3.00	Common
16.10		Fuse : TIA 16Amp		Nos	3.00	Common
16.11		Fuse : TIA 32amp		Nos	3.00	Common
16.12		Fuse : TIA 63amp		Nos	3.00	Common
16.13		Gravity Limit Sitch		Nos	2.00	Common
16.14		Power Cable : 3 Core X 10 Sq.mm		Mtr	60.00	Common
16.15		Break coil 415 volt ac		Nos	2.00	Common
16.16		Fuse : Fuse HBC 63 Amp		Nos	3.00	Common

17	15- ton capacity HOIST AT SCREEN HOUSE ILMS FLOOR - Spare supply and Servicing	As detailed below		Lot	1.00	Common
17.1		4 POLE 63 AMP MCB		Nos	1.00	Common
17.2		Control Transformer 250VA, 415V/24V		Nos	1.00	Common
17.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
17.4		Cut of End Limit switch 1no-1nc 415vac		Nos	2.00	Common
17.5		Main Power Contactor, 73A- 37KW-AC3 ,Type=CE15JN3, COIL VOLAGE=24VAC		Nos	1.00	Common
17.6		UP/DOWN CONTACTOR,38A-23KW- AC3,TYPE=CE15DN3,COIL Voltage =24VAC		Nos	2.00	Common
17.7		REV/FORW CONTACTOR,12A-5.5KW- AC3,TYPE=CE15KN3,COIL Voltage=24VAC		Nos	2.00	Common
17.8		UP/DOWN OLR 22AMP TO 30AMP		Nos	1.00	Common
17.9		Travel OLR Range : 3.8Amp to 6 Amp		Nos	1.00	Common
17.10		Fuse : TIA 16Amp		Nos	3.00	Common
17.11		Fuse : TIA 32amp		Nos	3.00	Common
17.12		Fuse : TIA 63amp		Nos	3.00	Common
17.13		Gravity Limit Switch		Nos	2.00	Common
17.14		Break coil 415 volt ac		Nos	2.00	Common
17.15		HBC FUSE 63 Amp		Nos	3.00	Common
17.16		CONTROL CABLE 2.5 SQ MM , 6 CORE ,CU		Mtr	30.00	Common
18	02- ton capacity HOIST AT TP-3 4A- 4B FLOOR - Spare supply and Servicing	As detailed below		Lot	1.00	Common
18.1		4 POLE 63 AMP MCB		Nos	1.00	Common
18.2		Control Transformer 200VA, 415V/24V		Nos	1.00	Common
18.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
18.4		Cut of End Limit switch 1no-1nc 415vac		Nos	2.00	Common

18.5		Main power contactor 32A-15KW AC3, type-CE15EN3COIL VOLTAGE 24VAC		Nos	1.00	Common
18.6		Hoist power contactor 16A-7.5KW AC3,TYPE-CE15DEN3 COIL VOLTAGE 24VAC		Nos	2.00	Common
18.7		TRAVEL MOTOR CONTACTOR,9.1A-4.0 KW AC3,COIL VOLTAGE=24VAC		Nos	2.00	Common
18.8		Hoist motor OLR Range : 3.8A -10A		Nos	1.00	Common
18.9		Travel motor OLR Range : 2.2Amp to 6 Amp		Nos	1.00	Common
18.10		Fuse : Fuse HBC 63 Amp		Nos	3.00	Common
18.11		Fuse : TIA 16Amp		Nos	3.00	Common
18.12		Fuse : TIA 32amp		Nos	3.00	Common
18.13		Gravity Limit Sitch		Nos	2.00	Common
18.14		Break coil 415 volt ac		Nos	2.00	Common
18.15		Power Cable : 3 Core X 6 Sq.mm CU		Mtr	60.00	Common
18.16		CONTROL CABLE 6 CORE X 2.5 SQ MM CU		Mtr	25.00	Common
19	03- ton capacity HOIST AT BUNKER FLOOR - Spare supply and Servicing	As detailed below		Lot	1.00	Common
19.1		4 POLE 63 AMP MCB		Nos	2.00	Common
19.2		Control Transformer 250VA, 415V/24V		Nos	2.00	Common
19.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	2.00	Common
19.4		Cut of End Limit switch 1no-1nc 415vac		Nos	4.00	Common
19.5		Main Power Contactor Type=CE15EN3, COIL VOLAGE=24V		Nos	2.00	Common
19.6		UP/DOWN CONTACTOR,TYPE=CE15DN3,COIL V=24VAC		Nos	4.00	Common
19.7		REV/FORW CONTACTOR,TYPE=CE15BN3,COIL V=24VAC.		Nos	4.00	Common
19.8		Hoist OLR Range : 6Amp to 10Amp		Nos	2.00	Common
19.10		Travel OLR Range : 2 Amp to 4 Amp		Nos	2.00	Common

19.11		Fuse : TIA 16Amp		Nos	6.00	Common
19.12		Fuse : TIA 32amp		Nos	6.00	Common
19.13		Gravity Limit Sitch		Nos	2.00	Common
19.14		Power Cable : 3 Core X 6 Sq.mm		Mtr	80.00	Common
19.15		CONTROL CABLE 6 CORE X 2.5 SQ MM		Mtr	40.00	Common
19.16		Break coil 415 volt ac		Nos	2.00	Common
20	02- ton capacity HOIST AT SR1 DRIVE HOUSE - Spare supply and Servicing	As detailed below		Lot	1.00	Common
20.1		4 POLE 63 AMP MCB		Nos	1.00	Common
20.2		Control Transformer 200VA, 415V/24V		Nos	1.00	Common
20.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
20.4		Cut of End Limit switch 1no-1nc 415vac		Nos	2.00	Common
20.5		Main power contactor 32A-15KW AC3, type-CE15EN3COIL VOLTAGE 24VAC		Nos	1.00	Common
20.6		Hoist power contactor 16A-7.5KW AC3,TYPE-CE15DEN3 COIL VOLTAGE 24VAC		Nos	2.00	Common
20.7		TRAVEL MOTOR CONTACTOR,9.1A-4.0 KW AC3,COIL VOLTAGE=24VAC		Nos	2.00	Common
20.8		Hoist motor OLR Range : 3.8A -10A		Nos	1.00	Common
20.9		Travel motor OLR Range : 2.2Amp to 6 Amp		Nos	1.00	Common
20.10		Fuse : Fuse HBC 63 Amp		Nos	3.00	Common
20.11		Fuse : TIA 16Amp		Nos	6.00	Common
20.12		Fuse : TIA 32amp		Nos	6.00	Common
20.13		Gravity Limit Sitch		Nos	2.00	Common
20.14		Break coil 415 volt ac		Nos	2.00	Common
20.15		Power Cable : 3 Core X 6 Sq.mm CU		Mtr	50.00	Common
20.16		CONTROL CABLE 6 CORE X 2.5 SQ MM CU		Mtr	25.00	Common

21	15- ton capacity HOIST AT LIME DUMP HOPPER APPRON FEEDER FLOOR - Spare supply and Servicing	As detailed below		Lot	1.00	Common
21.1		4 POLE 63 AMP MCB		Nos	1.00	Common
21.2		Control Transformer 250VA, 415V/24V		Nos	1.00	Common
21.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
21.4		Cut of End Limit switch 1no-1nc 415vac		Nos	2.00	Common
21.5		Main Power Contactor, 73A- 37KW-AC3 ,Type=CE15JN3, COIL VOLAGE=24VAC		Nos	1.00	Common
21.6		UP/DOWN CONTACTOR,38A-23KW- AC3,TYPE=CE15DN3,COIL Voltage =24VAC		Nos	2.00	Common
21.7		REV/FORW CONTACTOR,12A-5.5KW- AC3,TYPE=CE15KN3,COIL Voltage=24VAC		Nos	2.00	Common
21.8		UP/DOWN OLR 22AMP TO 30AMP		Nos	1.00	Common
21.9		Travel OLR Range : 3.8Amp to 6 Amp		Nos	1.00	Common
21.10		Fuse : TIA 16Amp		Nos	3.00	Common
21.11		Fuse : TIA 32amp		Nos	3.00	Common
21.12		Fuse : TIA 63amp		Nos	3.00	Common
21.13		Gravity Limit Switch		Nos	2.00	Common
21.14		Break coil 415 volt ac		Nos	2.00	Common
21.15		HBC FUSE 63 Amp		Nos	3.00	Common
21.16		CONTROL CABLE 2.5 SQ MM , 6 CORE ,CU		Mtr	30.00	Common
21.17		POWER CABLE 3 CORE X10 SQ MM CU		Mtr	50.00	Common
22	02- ton capacity HOIST AT TP 4 LM- 1 DRIVE FLOOR - Spare supply and Servicing	As detailed below		Lot	1.00	Common
22.1		4 POLE 63 AMP MCB		Nos	1.00	Common

22.2		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
22.3		Break coil 415 volt ac		Nos	2.00	Common
23	02- ton capacity HOIST AT LM-2 DRIVE HOUSE - Spare supply and Servicing	As detailed below		Lot	1.00	Common
23.1		4 POLE 63 AMP MCB		Nos	1.00	Common
23.2		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
23.3		Break coil 415 volt ac		Nos	2.00	Common
24	05- ton capacity HOIST AT LIME CRUSHER HOUSE UBF FLOOR - Spare supply and Servicing	As detailed below		Lot	1.00	Common
24.1		4 POLE 63 AMP MCB		Nos	1.00	Common
24.2		Control Transformer 250VA, 415V/24V		Nos	1.00	Common
24.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	1.00	Common
24.4		Cut of End Limit switch 1no-1nc 415vac		Nos	2.00	Common
24.5		Main Power Contactor Type=CE15HN3, COIL VOLAGE=24VAC		Nos	1.00	Common
24.6		Hoist power contactor 32A-15KW AC3, COIL VOLTAGE 24VAC		Nos	2.00	Common
24.7		TRAVEL MOTOR CONTACTOR,9.1A-9KW AC3,COIL VOLTAGE=24VAC		Nos	2.00	Common
24.8		Hoist OLR Range : 8.9A -13A		Nos	1.00	Common
24.9		Travel OLR Range : 1.5Amp to 2.5 Amp		Nos	1.00	Common
24.10		Fuse : TIA 16Amp		Nos	3.00	Common
24.11		Fuse : TIA 32amp		Nos	3.00	Common
24.12		Fuse : TIA 63amp		Nos	3.00	Common
24.13		Fuse : HBC 63amp		Nos	3.00	Common
24.14		Gravity Limit Sitch 1no,1nc 415vac		Nos	2.00	Common
24.15		Power Cable : 3 Core X 10 Sq.mm CU		Nos	40.00	Common

24.16		CONTROL CABLE		Mtr	30.00	Common
25	10- ton capacity HOIST AT LIME CRUSHER HOUSE IMP FLOOR - Spare supply and Servicing	As detailed below		Lot	1.00	Common
25.1		4 POLE 63 AMP MCB		Nos	3.00	Common
25.2		Control Transformer 250VA, 415V/24V		Nos	3.00	Common
25.3		REMOTE BOX with 4 on push button,1 stop & 1 epb IP65 Protected		Nos	3.00	Common
25.4		Cut of End Limit switch		Nos	6.00	Common
25.5		Main Power Contactor Type=CE15HN3, COIL VOLAGE=24V,50A		Nos	3.00	Common
25.6		UP/DOWN CONTACTOR,TYPE=CE15GN3,COIL V=24VAC		Nos	6.00	Common
25.7		REV/FORW CONTACTOR,TYPE=CE15DN3,COIL V=24VAC.		Nos	6.00	Common
25.8		Hoist OLR Range : 17 TO 24AMP		Nos	3.00	Common
25.9		Travel OLR Range : 3.8Amp to 6 Amp		Nos	3.00	Common
25.10		Fuse : TIA 16Amp		Nos	3.00	Common
25.11		Fuse : TIA 32amp		Nos	3.00	Common
25.12		Fuse : TIA 63amp		Nos	3.00	Common
25.13		Gravity Limit Sitch		Nos	2.00	Common
25.14		Power Cable : 3 Core X 10 Sq.mm		Mtr	60.00	Common
25.15		Break coil 415 volt ac		Nos	2.00	Common
25.16		Fuse : Fuse HBC 63 Amp		Nos	3.00	Common
26	10- ton capacity HOIST AT LIME CRUSHER HOUSE ILMS FLOOR - Spare supply and Servicing	As detailed below		Lot	1.00	Common
26.1		4 POLE 63 AMP MCB		Nos	3.00	Common
26.2		Control Transformer 250VA, 415V/24V		Nos	3.00	Common

26.3		REMOTE BOX with 4 on push button, 1 stop & 1 epb IP65 Protected		Nos	3.00	Common
26.4		Cut of End Limit switch		Nos	6.00	Common
26.5		Main Power Contactor Type=CE15HN3, COIL VOLAGE=24V,50A		Nos	3.00	Common
26.6		UP/DOWN CONTACTOR,TYPE=CE15GN3,COIL V=24VAC		Nos	6.00	Common
26.7		REV/FORW CONTACTOR,TYPE=CE15DN3,COIL V=24VAC.		Nos	6.00	Common
26.8		Hoist OLR Range : 17 TO 24AMP		Nos	3.00	Common
26.9		Travel OLR Range : 3.8Amp to 6 Amp		Nos	3.00	Common
26.10		Fuse : TIA 16Amp		Nos	3.00	Common
26.11		Fuse : TIA 32amp		Nos	3.00	Common
26.12		Fuse : TIA 63amp		Nos	3.00	Common
26.13		Gravity Limit Sitch		Nos	2.00	Common
26.14		Power Cable : 3 Core X 10 Sq.mm		Mtr	60.00	Common
26.15		Break coil 415 volt ac		Nos	2.00	Common
26.16		Fuse : Fuse HBC 63 Amp		Nos	3.00	Common
27	03- ton capacity HOIST AT LIME BUNKER HOUSE - Spare supply and Servicing	As detailed below		Lot	1.00	Common
27.1		4 POLE 63 AMP MCB		Nos	2.00	Common
27.2		Control Transformer 250VA, 415V/24V		Nos	2.00	Common
27.3		REMOTE BOX with 4 on push button, 1 stop & 1 epb IP65 Protected		Nos	2.00	Common
27.4		Cut of End Limit switch 1no-1nc 415vac		Nos	4.00	Common
27.5		Main Power Contactor Type=CE15EN3, COIL VOLAGE=24V		Nos	2.00	Common
27.6		UP/DOWN CONTACTOR,TYPE=CE15DN3,COIL V=24VAC		Nos	4.00	Common

27.7		REV/FORW CONTACTOR,TYPE=CE15BN3,COIL V=24VAC.		Nos	4.00	Common
27.8		Hoist OLR Range : 6Amp to 10Amp		Nos	2.00	Common
27.9		Travel OLR Range : 2 Amp to 4 Amp		Nos	2.00	Common
27.10		Fuse : TIA 16Amp		Nos	6.00	Common
27.11		Fuse : TIA 32amp		Nos	6.00	Common
27.12		Gravity Limit Switch		Nos	2.00	Common
27.13		Power Cable : 3 Core X 6 Sq.mm		Mtr	80.00	Common
27.14		CONTROL CABLE 6 CORE X 2.5 SQ MM		Mtr	40.00	Common
27.15		Break coil 415 volt ac		Nos	2.00	Common
27.16		Add block C320KGTG22		Nos	24.00	Common
27.17		Add block C320KGTG11		Nos	24.00	Common

### **Plan 16: Miscellaneous Electric**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	11KV VCB	11KV Pole, Pole D.O Switch, vcb11KV Breaker with full cabinete including all bus & insulatators, Connecting power & control cable & RELAYS, 11kv D.O Switch, ETC.	11KV Pole, Pole D.O Switch, vcb11KV Breaker with full cabinete including all bus & insulatators, Connecting power & control cable & RELAYS, 11kv D.O Switch, ETC.	Lot	1	Common
1.1	11KV VCB	3 phase, 11KV Pole	11KV heavy duty Out side structure for 3PH line incoming & outgoind and D.O/isolation purpose (supply & installation) : 11KV I beam type channel - M.S coated beam with RCC foundation with two nos cross arm channeal I type & two nos support channel including earthing strip, D.O Switch and assesories with bolt and clamp for 11KV Incoming & outgoing power supply. 3 nos incoming support SRI tenstion type insulator & out gung cable fixing clamp.	Nos	1	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1.2	11KV VCB	Pole D.O Switch	11KV D.O Switch with manual operating mechanism /handle/lock/support fix and moving support insulator, mounting channel/copper bar isolator contacts	Set	1	Common
1.3	11KV VCB	VCB 11KV Breaker with full cabinet including all bus & insulators	11KV VCB with full cabinet including bus bar, incoming/outgoing terminal & all wiring with protection metering equipment panel with installation: : 11KV Breaker with full cabinet including all bus / insulators,/Connecting power/ control cable /protection / control relay/ terminal block/ CT/PT full cabinet with installation : with incoming 15mtr cable and both end termination; Same suitable for, For, CGL Make 11KV VCB, 800A, Type: 12VE40, 220V DC, Ref.sr.no: 12150VG Make: CGL.	Nos	1	Common
1.4	11KV VCB	Connecting control cables and relays	11KV HT 3Core aluminum power cable (Supply & installation) : 11KV 3core Aluminum power cable, (31KVP) with included Out side 3PH terminal kit & indoor 3PH terminal kit.	Mtr	20	Common
2	Fire pump system LT Breaker	Fire pump house LT breaker Fire MCC HP and Bus coupler breaker supply	As per below details:	Lot	2	Common
2.1	Fire pump system LT Breaker	LT ACB Supply	LT ACB Supply & installation (Retrofitting): Existing LT ACB Details: Frame: LH 800D/1,Ref.Sr.No.: Y212037, IEC-947-2, IS 13947, Cat:B, In:630Amp, lth:800A, ISC:50KA, Shunt Trip:220V DC, & Close:220V DC Make:CGL. New Retrofitting Require : 800A/1000A 3pole ACB retrofitting with L&T C-Power ACB, Make: L&T. As suitable to same above ACB & one to one replacement.	Nos	2	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
2.2	Fire pump system LT Breaker	LT ACB Supply	LT ACB Supply & installation (Retrofitting): Existing LT ACB Details: Frame: LH 1600D-1, Ref.Sr.No.: Y212072, IEC-947-2, IS 13947, Cat:B, In:1600Amp, lth:1600A, ISC:65KA, lchw: 65Ka/1sec., Shunt Trip:220V DC, & Close:220V DC, Motor :220VDC, Make:CGL. New Retrofitting Require : 1600A 3pole ACB retrofitting with L&T C-Power ACB, Make: L&T. As suitable to same above ACB & one to one replacement.	Nos	1	Common
3	Crane/Hoist	CW/Intake/ Firepump house crane Hoist spares bus support insulator, busbars, Rbox, SFU, Break etc.	25T EOT Crane Power and control full Panel with Resistance box and busbar set : 25T Main Load travel power & control panel including all power & control equipment with protection & wiring with resistance box & hand operating local push button remote with cable, 3-Phase +Neutral Basbar set (Length 40Mtr/each)with support insulators. Crane details: 25T EOT crane, Main load , LT & CT opeation, Drg.No:551-OG-701, Make: ANUPAm Industrials ltd. at baroda.	Nos	3	Common
4	HT/LT Insulating mat	HT/LT Insulated belt	As per below details:	Lot (detailed below)	1	Common
4.1	HT/LT Insulating mat	Insulating Rubber mat cross pattern type	Insulating Rubber mat cross pattern type,anti skidding suitable for 3.3KV insulation level,Thickness-2.0mm,Size-1 mtr width confirming to IS-15652-2006	Meter	2300	Unit 1 and Unit 2
4.2	HT/LT Insulating mat	Insulating Rubber mat cross pattern type	Insulating Rubber mat cross pattern type,anti skidding suitable for 11KV level,Thickness-2.5mm,Size-1 mtr width confirming to IS-15652-2007	Meter	150	Unit 1 and Unit 2
5	HT Breaker spares	All Area HT Breakers spares	As per below details:	Lot (detailed below)	1	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
5.1	HT Breaker spares	RELAY	RELAY,TYPE=RE-300,220VDC VOLTAGE OPERATED AUX.RELAY C/O. CONTACTS COIL SUPPLY VOLTAGE-220VDC	NOS	2	Common
5.2	HT Breaker spares	ANALOG KW METER	ANALOG KW METER,RANGE-0 TO 1800,150/1A,6.6KV/ $\sqrt{3}$ /110V/ $\sqrt{3}$ ,50HZ,AC MAKE-AE	NOS	2	Common
5.3	HT Breaker spares	ANALOG METER AMPEAR METER	ANALOG METER AMPEAR METER,RANGE-0 TO 900,150/1A,50HZ,MAKE-AE	NOS	2	Common
5.4	HT Breaker spares	LOCAL / REMOTE SWITCH W/O LOCK	LOCAL / REMOTE SWITCH W/O LOCK , NS 407,2 POLE,2WAY, 25AMP , 250V,FOR JYOTI MAKE:7.2KV,630-1600Amp,40KA,INDOOR VCB,TYPE-VK-10P40 / VK-10M40	NOS	2	Common
5.5	HT Breaker spares	TNC SWITCH(TRIP/NEUTRAL/CLOSE)	TNC SWITCH(TRIP/NEUTRAL/CLOSE),NS-387,W/O LOCK,25AMP , 250V,FOR JYOTI MAKE:7.2KV,630-1600Amp,40KA,INDOOR VCB,TYPE-VK-10P40 / VK-10M40,MAKE-JYOTI	NOS	2	Common
5.6	HT Breaker spares	Limit switch(S3,S2,S22,S4) for HT breaker	Limit switch(S3,S2,S22,S4) for HT breaker siemens make 12 KV ,3AH3,1250 A VCB	NOS	4	Unit 1 and Unit 2
5.7	HT Breaker spares	Limit switch(S3/S2/S22/S4) for HT breaker	Limit switch(S3/S2/S22/S4) for HT breaker siemens make 12 KV ,3AH3,1250 A VCBClosing coil (Closing tripping release 220 V DC, HT breaker siemens make 12 KV ,3AH3,1250 A VCB	NOS	3	Unit 1 and Unit 2
5.8	HT Breaker spares	Front drive box assembly	Front drive box assembly 800 mm width panel, HT breaker siemens make 12 KV ,3AH3,1250 A VCB	NOS	1	Unit 1 and Unit 2
5.9	HT Breaker spares	Complete Gear box assembly	Complete Gear box assembly, HT breaker siemens make 12 KV ,3AH3,1250 A VCB	NOS	1	Unit 1 and Unit 2
5.10	HT Breaker spares	Upper contact arm	Upper contact arm (1-set=3 no.), HT breaker siemens make 12 KV, 3AH3,1250 A VCB, HT breaker siemens make 12 KV	NOS	1	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			,3AH3,1250 A VCB			
5.11	HT Breaker spares	Lower contact arm	Lower contact arm (1-set=3 no.),	NOS	1	Unit 1 and Unit 2
5.12	HT Breaker spares	Shock Absorber	Shock Absorber, HT breaker siemens make 12 KV ,3AH3,1250 A VCB	NOS	1	Unit 1 and Unit 2
5.13	HT Breaker spares	Switching bar 141 mm long ( Moving contact operating rod)	Switching bar 141 mm long ( Moving contact operating rod), HT breaker siemens make 12 KV ,3AH3,1250 A VCB	NOS	1	Unit 1 and Unit 2
6	LT MCC SFU	LT BOARD/LT MCC SFU	As per below details:	Lot (detailed below)	1	Common
6.1	LT MCC SFU	HEAVY DUTY FUSE SWITCH	HEAVY DUTY FUSE SWITCH 3KM50 30-1YA00, Ie 63AMP AC22A, 550V, 50HZ MAX 63AMP	Nos	5	Common
6.2	LT MCC SFU	HEAVY DUTY FUSE SWITCH	HEAVY DUTY FUSE SWITCH 3KM49 30-1YA00, Ie 50AMP AC22A, 550V, 50HZ MAX 50AMP	Nos	10	Common
6.3	LT MCC SFU	HEAVY DUTY FUSE SWITCH	HEAVY DUTY FUSE -SWITCH 3KM48 30-1YA00, Ie 23=32 AMP , 650V, 50HZ MAX 32 AMP SIEMENS MAKE	Nos	10	Common
6.4	LT MCC SFU	HEAVY DUTY FUSE SWITCH	HEAVY DUTY FUSE SWITCH 3KM52 30-1YA00, Ie 125AMP AC22A, 550V, 50HZ MAX 125AMP	Nos	6	Common
6.5	LT MCC SFU	HEAVY DUTY FUSE SWITCH	HEAVY DUTY FUSE SWITCH 3KL25 30-1YA00 , Ie 250AMP AC22A/AC23A, 550V, 50HZ MAX 125AMP	Nos	15	Common
6.6	LT MCC SFU	SWITCH DISCONNECTOR FUSE TYPE SP07-D	SWITCH DISCONNECTOR FUSE TYPE SP07-D Ie:- 400A AC23A Ue:- 415v-50hz Uimp:-12kv vsk 400 max) 34W,MAKE GE	Nos	13	Common
7	Colony supply panel & SSP	supply panel & SSP encloser repairing	Roof repairing including supply of ss sheet of minimum 4 mm thickness. All panel SP/SSP/Energy saving Meter panel top roof with supply & instalation of sheet including all relavent work Per Sq.meter rate.	Nos	1	Common

## C&I

### Plan 1: Boiler and Turbine Auxiliaries

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	LP heater 2 and 3	Level transmitter	Make: VEGA, LEVEL TRANSMITTER, GUIDED WAVE RADAR type, TAG NO:LCC20CL001/2/3, OP.PRESSURE:1.273 BAR, OP.TEMP.:106.5 DEG' C, MEDIUM : WATER, TYPE : 4-20 MA, APPLICATION :LPH 2-3 LEVEL, RANGE : 0 - 465, ENGG UNIT : MMWC, IP 65,POWER SUPPLY: 24 VDC	Nos	5	Unit 1 and Unit 2
2	Condenser	Level transmitter	Make: VEGA, LEVEL TRANSMITTER, GUIDED WAVE RADAR type, TAG NO : 1MAG01CL003, MEDIUM : WATER, TYPE : 4 - 20 MA, RANGE : 0 - 1030, ENGG UNIT : MMWC, MATERIAL : SS316, O/P SIGNAL : 4-20MA DC, POWER SUPPLY : 24V DC NOMINAL, APPLICATION: CONDENSOR LEVEL, MAKE: VEGA / E&H/ FORBES MARSHALL.	Nos	1	Unit 2
3	Boiler Feed Pump 2B and 2C	Scoop speed controller	Make: BRAUN GMBH , MEASURING TRANSDUCER ADJUSTABLE VOITH, D ITEM NO.:42.1, ORIGIN:DE, CUSTOM TARIFF:84859080, CONSISTING OF SPEED MEAS. TRANSF. D124.1S2U1M, VOITH PART NO.:TCR 41793040 , MAKE:BRAUN GMBH	Nos	3	Unit 2
4	Turbine Steam Extraction Deaerator, HPH 5 & 6	Extraction NRV seal kit	Make: SERVOVALVE, SERVO VALVE ACTUATOR KIT FOR 30/121 MAKE: SERVOVALVE	Nos	8	Unit 1 and Unit 2
5	Turbine Steam Extraction Deaerator,	Extraction NRV seal kit	Make: SERVOVALVE, SERVO VALVE ACTUATOR KIT FOR TYPE RPM-60/16 MAKE:SERVOVALVE	Nos	4	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	LPH 2					
6	Turbine Steam Extraction CRH	Extraction NRV seal kit	Make: SERVOVALVE, SERVO VALVE ACTUATOR KIT FOR REPAIRING TYPE 100/201 MAKE:SERVO VALVE	Nos	4	Unit 1 and Unit 2
7	MOT Centrifuge	Flow switch	Make: HENGSTLER, ARTICLE NO: 0498274 LABEL: FLUSSOSTATO MR1KV.25.GM.040.0-40.IP65 1" FLOW SWITCH SPARE PARTS FOR VERONESI PLANT TYPE RSY180 MACHINE S/N MA01103-1/-2	Nos	1	Unit 2
8	MOT Pump	Pressure transmitter	New erection ,commissioning and installation of pressure transmitter	Nos	2	Unit 1 and Unit 2
9	MOT Pump	Temperature transmitter	New erection ,commissioning and installation of temperature transmitter	Nos	2	Unit 1 and Unit 2
10	HPH 5 and 6 Control Valve	Feedback transmitter	Make: ABB, TRANSMITTER FOR ANGULAR POSITIONER , RANGE: 0-30 DEG. , MODEL: TGM5-V14436A-131121 Z16, MAKE : ABB	Nos	2	Unit 2
11	Boiler Feed Pump	Reheater O/L pressure transmitter and BFP group crossover flow transmitter	Make: YOKOGAWA, GAUGE PRESSURE TRANSMITTER ,MODEL: EJA430E-JBS5G-912EB ,MEASUREMENT SPAN: 1.4 to 140 BAR , MWP: 16 MPA,MAKE : YOKOGAWA	Nos	2	Unit 2
12	HPH 5 and 6	Level transmitter	Make: YOKOGAWA, PRESSURE/DP TRANSMITTER , MODEL: EJA110E-JLS5J-912EB , MEASUREMENT SPAN: 50 to 1000 MMH20 , MAKE : YOKOGAWA	Nos	3	Unit 2
13	CEP A and B	Filter DP pressure switch	Make: HNL INSTRUMENTS AND CONTROL PVT. LTD., DIFF. PRESSURE SWITCH, Type- 735DPZ.1136.23.7508, Range- -250 to +250 mbar, set point 150 mBAR,	Nos	2	Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			MAKE:HNL INSTRUMENTS AND CONTROL PVT. LTD. Or equivalent			
14	CEP A	Discharge pressure switch	Make: SWITZER, PRESSURE SWITCHES, MODEL : GM-203-02-B2K-33-Z, RANGE - 10 TO 60 BAR, MAKE : SWITZER	Nos	4	Unit 2
15	Boiler, Turbine and BOP discharge pressure pump	Pressure gauge	PRESSURE GAUGE , TYPE: BOURDEN TUBE, DIAL SIZE: 150MM, RANGE:0-10 KG/CM2, PROCESS CONNECTION:1/2" NPT(M),MOUNTING: LOCAL,DIAL: WHITE ALLUMINIUM WITH BLACK LETTERING,CASE MATERIAL: SS304,WINDOW MATERIAL: LAMINATED SAFETY GLASS,ENCLOSURE: WEATHER PROOF,PROTECTION CLASS: IP65,ACCURACY: +/- 1% FSD, MOVEMENT MATERIAL: SS 304	Nos	40	Unit 1 and Unit 2
16	Boiler, Turbine and BOP discharge pressure pump	Pressure gauge	PRESSURE GAUGE, TYPE: BOURDEN TUBE, DIAL SIZE: 150MM, RANGE:0-25 KG/CM2, PROCESS CONNECTION:1/2" NPT(M),MOUNTING: LOCAL,DIAL: WHITE ALLUMINIUM WITH BLACK LETTERING,CASE MATERIAL: SS304,WINDOW MATERIAL: LAMINATED SAFETY GLASS,ENCLOSURE: WEATHER PROOF,PROTECTION CLASS: IP65,ACCURACY: +/- 1% FSD, MOVEMENT MATERIAL: SS 304	Nos	40	Unit 1 and Unit 2
17	Boiler, Turbine and BOP discharge pressure pump	Pressure gauge	PRESSURE GAUGE,TYPE: BOURDON TUBE ,RANGE :- 0 TO 100 KG/CM2,CASE MAERIAL:SS 304, DIAL SIZE:100MM, CONNECTION:3/8"NPT(M) ,ACCURACY: +/- 1% FSD,	Nos	15	Unit 1 and Unit 2
18	Boiler, Turbine and BOP	Pressure gauge	PRESSURE GAUGE,TYPE : BOURDON TUBE, DIAL SIZE:150MM,MODEL NO. : 6PSSWA2, RANGE : 0 TO 250 KG/CM2,	Nos	15	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	discharge pressure pump		PROCESS TEMPERATURE : 270 DEGREE C, PROCESS CONNECTION:1/2"NPT(M), ACCURACY:+/-1%FSD, BODY MATERIAL: SS316,			
19	Boiler, Turbine and BOP temperature gauge	Replacement of temperature gauge	TEMPERATURE GAUGE,TYPE : BOURDEN TUBE, MODEL: 6HDSUW1, SIZE : 150 MM, RANGE : 0 - 120 DEG C, STEM LENGTH::200MM, STEM DIA:10MM, CONNECTION:3/4"BSP(M) ADJUSTABLE, ACCURACY:+/-1%FSD, BODY MATERIAL:SS316,	Nos	20	Unit 1 and Unit 2
20	Boiler, Turbine and BOP temperature gauge	Replacement of temperature gauge	MERCURY IN STEEL DIAL THERMOMETER,TYPE : HEAT GAUGE DIAL SIZE:100MM, RANGE : 0-120 DEG C, CAPILLARY LENGTH: 2METER, CAPILLARY MATERIAL :SS316 COATED WITH RED INSULATION (PVC COATING), BULB DIA:12MM, BULB LENGTH:60MM, ACCURACY:+/-1% FSD, CONNECTION:1/2"NPT(M) ADJUSTABLE.	Nos	20	Unit 1 and Unit 2
21	Boiler, Turbine and BOP temperature gauge	Replacement of temperature gauge	TEMPERATURE GAUGE CUM SWITCH (DPDT), TYPE: CAPPILAY, CAPILLARY LENGTH: 3 METER, CAPILLARY MOC: SS316, DIAL SIZE:150MM, RANGE: 0 TO 120 DEG C, DIAL COLOUR: WHITE WITH BLACK NUMERALS, ACCURACY:+/-1% FSD, MOC OF SENSING ELEMENT:SS316,CONNECTION : 1/2" NPT(M), BULB DIA:8MM, BULB LENGTH:300MM, INSERSION LENGTH: 200MM, PLAIN GLASS, IP65,CASE & BEZEL: SS304, MOUNTING : BACK PANEL MOUNTING, SWITCH: DPDT, CONTACT RATING:5AMP@ 230 VAC	Nos	10	Unit 1 and Unit 2
22	Boiler, Turbine and BOP temperature	Replacement of temperature gauge	BEARING TEMP DETECTOR FOR HT MOTOR, CASE:HEAVY DUTY DIE CAST ALU, DIAL SIZE:150MM, DIAL SIZE - 150MM ,RANGE: 0-120DEG C,	Nos	10	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
	gauge		ACCURACY: +/-1%FSD, BULB/STEM:AISI SS316, ANGLE BULB WITH 90 DEG BEND 10MM OD X 50MM LONG, CONNECTION:1/4@BSP(M), CONNECTION:1/4"BSP(M), SPRING LOADED CONTACTS- 2 NOS NO/NC, CONTACT RATING 5A@230VAC/1A@230VDC(BUILT IN RELAY TYPE), O ADJ PROVIDED			
23	Hotwell	Conductivity meter	Make: ABB, Hotwell Conductivity with sensor	Nos	1	Unit 2
24	Impulse line pipe	Impulse line	impulse line for pressure and flow transmitter Line Pressure /Temp- 1) 200BAR / 540C, line size- OD-22MM, ID-11MM. 2) 500 MBAR /80C , OD-27MM, ID-22MM	Mtr	3000	Unit 1 and Unit 2
25	Turbine steam inlet valve	LVDT	Make: RMG, LINEARLY VARIABLE DIFF. TRANSFORMER ( LVDT),TYPE: INDUCTIVE LINEAR TRANSDUCER,MODEL NO.: IW 254/64-0.5 - A24, STROKE IS 64MM, OUTPUT:4 TO 20MA, ACCURACY:0.5%, COIL BODY LENGTH:250MM, COIL BODY OUTER DIAMETER:25MM, CORE LENGTH:255MM, CORE OUTER DIA:5MM, CORE SENSOR LENGTH:120MM, EQUIVALENT SR. NO.: 57352, 57353, 57354, APPLICATION: SERVO VALVE POSITION MEASUREMENT, TAG NO.- 2MAA11AA012 DESCRIPTION : 2ND. HP CONTROL VALVE, MAKE: TWK ELECTRONIK	Nos	1	Unit 2
26	Turbine Steam extraction block valve	Limit switch	Make: BOHMEN, LIMIT SWITCH, MODEL : 4 MXRLO, 2 NO + 2 NC APPL: BLOCK VALVE	Nos	10	Unit 1 and Unit 2
27	Turbo supervisory	HP casing expansion	Make: BENTLY NEVADA, CASING EXPANSION PICKUP, RANGE:0-50 mm,PART NO.:LVDT H56(24765-02-01),	Nos	1	Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			APPLICATION: TURBINE SUPERVISORY SYSTEM FOR 2X125 MW TG SET , MAKE:BENTLY NEVADA			
28	Turbo supervisory	HP differential expansion	Make: BENTLY NEVADA, DIFFERENTIAL EXPANSION PROBES WITH STANDARD CABLE OF 1 METER, RANGE: -10 TO +10mm,PART NO.:330302-000-050-10-90-01-00, APPLICATION: TURBINE SUPERVISORY SYSTEM FOR 2X125 MW TG SET , MAKE:BENTLY NEVADA	Nos	4	Unit 1 and Unit 2
29	Turbo supervisory	IP/LP casing expansion	Make: BENTLY NEVADA, CASING EXPANSION PICKUP, RANGE:0-20 mm,PART NO.:LVDT H56(24765-02-01), APPLICATION: TURBINE SUPERVISORY SYSTEM FOR 2X125 MW TG SET , MAKE:BENTLY NEVADA	Nos	1	Unit 2
30	Turbo supervisory	IP/LP differential expansion	Make: BENTLY NEVADA, DIFFERENTIAL EXPANSION PROBES WITH STANDARD CABLE OF 1 METER, RANGE: -10 TO +10mm,PART NO.:330302-000-050-10-90-01-00, APPLICATION: TURBINE SUPERVISORY SYSTEM FOR 2X125 MW TG SET , MAKE:BENTLY NEVADA	Nos	4	Unit 1 and Unit 2
31	Hogger / Ejector flow measurement	Flow meter	New erection ,commissioning and installation of flow meter	Nos	2	Unit 1 and Unit 2
32	BFP pumps	BFP pumps vibration switches	New erection, commissioning and installation of vibration switch with adjustable threshold values	Nos	12	Unit 1 and Unit 2
33	CEP pumps	CEP pumps vibration switches	New erection, commissioning and installation of vibration switch with adjustable threshold values	Nos	12	Unit 1 and Unit 2
34	De aerator	De aerator dissolved oxygen analyzer	New erection ,commissioning and installation of dissolved oxygen analyzer	Nos	2	Unit 1 and Unit 2
35	Turbine	Turbine extraction flow transmitter	New erection ,commissioning and installation of flow transmitter	Nos	12	Unit 1 and Unit 2
36	CRH	CRH steam flow transmitter	New erection, commissioning, and	Nos	12	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			installation of flow transmitter			
37	HRH	HRH steam flow transmitter	New erection, commissioning, and installation of flow transmitter	Nos	12	Unit 1 and Unit 2

### **Plan 2: Compressor**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Compressor	Vibration switch	New erection, commissioning, and installation of vibration switch with adjustable threshold values	Nos	9	Common

### **Plan 3: CW Pump House**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	CW For bay	Level transmitter	ULTRASONIC LEVEL TRANSMITTER, FMU 231E-AA21 PROSONIC T FMU231E,RANGE: 0 TO 7 METER, MAKE : E&H	Nos	1	Common
2	CW Pump house	Flow transmitter	ELECTROMAGNETIC FLOWMETER, TYPE: INSERTION , SERIES 6450, POWER SUPPLY:240VAC(+/-15%), 50Hz, PIPE LINE SIZE:1500MM, FLOW TRANSMITTER: INTEGRAL WITH LCD DISPLAY, FLOW RATE RANGE:0-18000 CU.M/HR, O/P: 4-20MADC, ACCURACY:(=/-)2 TO 3%, SERVICE: SEA WATER, OP. PR.: 2.5KG/CM2, OP. TEMP: 50DEG C., MAKE:ADEPT FLIDLINE, PUNE	Nos	5	Common
3	CW Pump house	RRM sensor	RRM/SPEED SENSOR/PROBE-TIP DIA:30MM,BODY DIA:M30X1.5, THREAD:M30X1.5, CASE LENGTH:120MM,MAKE: PRECISION	Nos	3	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
4	CW Pump house	Sump level switch	LIQUID LEVEL SWITCH, TYPE : CONDUCTIVITY, MODEL: CNS-JSOSST5 X TLC-NJ4N, SUPPLY VOLTAGE: 230 V AC OR 110 V AC OR 24 V DC, PROCESS CONNECTION MATERIAL:SS316, PROCESS CONNECTION:100NB,ASA 150#RF SS316 FLANGE, PROBE TYPE:SOLID, ELECTRODE/INSULATION MOC: SS316/PTFE, NO. OF ELECTRODES: FIVE ( 4 LEVELS), LEVEL CONTROLLER : WALL MOUNTED, IP65 X PB13.5, NO. OF SET POINTS: FOUR, RELAY RATING: 5A@230VAC(2C/O), INSTALLATION:TOP,MAX. TEMP:200DEG C, MAX TEST PR.:10KG/CM2, CONTROL ELECTROL LENGTH( L1/L2/L3/L4): 1600/2300/2300/2300MM, MASS ELECTRODE LENGTH(L) :2400MM, MAKE:PUNE TECHTROL PVE LTD.	Nos	5	Common
5	CW Pump house	Wet bulb temperature transmitter for cooling tower - Hygrometer	New erection ,commissioning and installation of hygrometer	Nos	2	Unit 1/Unit 2

#### **Plan 4: Material Handling Plant**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Lignite Conveyer	Pull cord switch	Make: EEC GURGAON-122001, FLP PULL CORD SWITCH (MANUAL RESET TYPE) CONTACT -2NO+2NC , Rating-10Amp., 550V, TYPE-EPC-1	Nos	50	Common
2	Lignite Conveyer	Belt sway switch	Make: EEC GURGAON-122001, FLP BELT SWAY SWITCH (AUTO RESET TYPE) CONTACT -2NO+2NC ,RATING-10Amp., 550V,	Nos	30	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			TYPE- BSS-1			
3	Belt weigher	Belt weigher (spare)	Make: IPA Banglore, BELT WEIGHER INCLUDING ELECTRONIC UNIT & LOAD CELL	Nos	9	Common
4	Seal kit	Seal kit (spare)	Make: VELJAN, SEAL KIT FOR AIR CYLINDER, MODEL:VSD 2100/5K, SIZE : 100MM BORE X STROKE 125MM, 25MM DIA PISTON ROD STANDARD DUTY AIR CYLINDER, MAKE: VELJAN	Nos	30	Common
5	Sensor probes	Sensor probes (spare)	Make: JAYSHREE ELECTRON, SENSOR PROBE( FOR CONVEYER BELT ZSS), TYPE - SP 8.5S 30MM DIA X 65 MM , PPROBE SIZE - M130X1.5PX65L, SENSING DISTANCE - 15MMLENGTH, CABLE - 2 CORE PVC FLEX 0.4 SQ.MM 2 MTRS.2 CORE, SUPPLY VOLTAGE : 8.5 VDC +/- 5%	Nos	15	Common
6	Sensor probes	Sensor probes (spare)	Make: CARLO GAVAZZI, PROXIMITY SWITCH PART NO.1A 18 ELN 08 UC TIMING:5 TO 10% MAKE:CARLO GAVAZZI	Nos	8	Common
7	Lignite bunker level sensor	Radar type sensor	ULTRA SONIC LEVEL TRANSMITER (SUMPI WITH LCD DISPLAY PROVIDES 4 TO 20 MA OUTPUT), ITEM CODE : 125691, Application: Lignite coal, TRANSDUCER : KAB-10F WITH AIMING KIT ASSEMBLY, POWER SUPPLY : 110 VAC OR 220 VAC, +/-15% 50/60 HZ, 8VAC 24VDC 5VA, MAKE : EIP	Set	4	Unit 1 and Unit 2
8	Coil	Coil (spare)	Make: ROTEX, SOLENOID VALVE COIL,TYPE:5/2 WAY DIRECT ACTING NORMALLY CLOSED SINGLE SOLENOID, MODEL NO.:51400-6-2G-B2+220V-50Hz-15-H, END CONNECTION:1/4"BSP(F),MEDIA: AIR, OP.PR. 2-10 BAR, ORIFICE:NW=6MM,FLOW FACTOR:12LIT/MIN, SOLENOID COIL INSULATION CLASS:H, NO. OF SOLENOID:1,COIL SIZE:I,COIL	Nos	20	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			VOLTAGE:220VAC, 6W,SEAT MOC: NBR, BODY MOC:BRASS, SOLENOID ENCLOSURE: TERMINAL BOX IP67, MANUAL OVERRIDE:PUSH TYPE			
9	Switch	Switch (spare)	LIMIT SWITCH, MODEL NO: NLTPR-22,MODEL NO: NLLA-22 CONTACT RATING: AC 15 AT 415V 0.8 AMP,AC 15 AT 240V 0.1 AMP, DC 13 AT 240V 0.1 AMP, PROTECTION:IP67, MAKE: BHARTIA CUTLER HAMMER	Nos	30	Common
10	Relay	Relay (spare)	Make: OEN, RELAY, MODEL: 67EP / 24/ 2C5, VOILTAGE:24VDC, 700OHM, CURRENT:5A RESISTIVE	Nos	20	Common
11	Cylinder	Cylinder (spare)	PNEUMATIC ACUATOR, MODEL:ED-100, DOUBLE ACTING PNEUMATIC ACTUATOR, EQUIVALENT TO SR. NO.:2036, MAKE: EL-O-MATIC	Nos	10	Common
12	Level sensor	Level sensor (spare)	RF SENSING PROBE LENGTH 220 MM, , SHIELD: 100MM ,MAKE: EIP BULK CONTROL	Nos	65	Common
13	Level switch	Level switch (spare)	ELECTRONIC CONTROLLER FOR RF LEVEL SWITCH, MODEL: RF 550EC, SUPPLY: 110/240VAC, 50HZ, OUTPUT:2 SPDT, CONTACT RATING: 5A @240VAC, IP66, MAKE: EIP BULK CONTROL	Nos	70	Common
14	Remote Switch	Remote switch (spare)	KAYCEE MAKE SELECTOR SWICH CONTACT RATING:10A\440 VAC\50HZ,2 POLE 2 WAY WITHOUT OFF,TYPE:2526B	Nos	50	Common
15	Push Button	Push button (spare)	CLUSTER LED TYPE:LUMINOUS PUSH BUTTON TYPE:2LHLR 110 VAC IEC/EN-60947-5-1, VOLTAGE RATING:110 VAC-+20% PUSH BUTTON-COLOUR-RED/GREEN, MAKE:TEKNIC	Nos	50	Common
16	Hose pipe	Hose pipe (spare)	METALLIC FLEXIBLE L.P. HOSE PIPE, SIZE: 1/4", PROCESS CONNECTION:1/4" NPT(F) LENGTH :1.5 METER, MEDIA : AIR, PRESSURE: 10 BAR MAX, MOC : SS304	Nos	20	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
17	ZSS	ZSS (spare)	ELECTRONICS SPEED CONTROLLER, TYPE : RM P211/NTD/PL/11/CC ,, SUPPLY VOLTAGE : 240 VAC, SPEED SENSING RANGE : RPM 20 TO 200, RANGE CALIBRATED FOR 2 IMP/REV, O/P CONTACTS : 1NO + 1NC, MAKE : JAYSHREE ELECTRON PVT. LTD.	Nos	15	Common
18	Pressure switch	Pressure switch (spare)	PRESSURE SWITCH TYPE:SNAP ACTION SWITCH (1 SPDT)CONNECTION:1/2"NPT(M)MATERIAL:SS 316 RANGE:0-10 BAR DEAD BAND:0.95KG/CM2 MAX MODEL:ZPD-WP-P010-S-GPL1-F / EQUIVALENT, SET POINT:ADJUSTABLE THROUGHOUT RANGE REPEATABILITY:#1%OF FSR MAX. PRESSURE;150%OF FSR MAX TEMP:150 DEG IP:66 SWITCH RATING:15A@250 VAC, 0.2 A RESI @ 220 VDC, MAKE: WAAREE / EQUIVALENT	Nos	20	Common
19	Pressure gauge	Pressure gauge (spare)	PRESSURE GAUGE , TYPE: BOURDEN TUBE, DIAL SIZE: 150MM, RANGE:0-7 KG/CM2, PROCESS CONNECTION:1/2" NPT(M) ,MODEL:6 PSSWA2, MOUNTING: LOCAL,DIAL: WHITE ALLUMINIUM WITH BLACK LETTERING,CASE MATERIAL: SS304,WINDOW MATERIAL: LAMINATED SAFETY GLASS,ENCLOSURE: WEATHER PROOF,PROTECTION CLASS: IP65,ACCURACY: +/- 1% FSD, MOVEMENT MATERIAL: SS 304, MAKE:H GURU / EQUIVALENT	Nos	30	Common
20	Coil	Coil (spare)	SOLENOID VALVE COIL, COIL INSULATION CLASS:H, COIL VOLTAGE: 220VDC, COIL SIZE:II, COIL ENCLOSURE: WEATHERPROOF TERMINAL BOX, IP-67, CABLE ENTRY: 3/4" ET, POWER CONSUMPTION:11WATT, MAKE: ROTEX	Nos	30	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
21	Rubber bush	Rubber bush (spare)	VELJAN MAKE ROD CUM WIPER SEAL STANDARD DUTY FOR 25MM PISTON ROD	Nos	40	Common
22	Cylinder	Cylinder (spare)	REF. DRAWING NO.: SC0107-1-3A, WORKING PRESSURE : 8BAR, STROKE: 125+1.0MM, BORE: 100MM DIA, ROD: 25 MM DIA, TYPE: DOUBLE ACTING CUSHIONED AT BOTH ENDS	Nos	25	Common
23	SOV	SOV (spare)	REPAIR KIT FOR SOLENOID VALVE TYPE:51400-6-2G-B2, TYPE: 5/2 WAY, ENDCONNECTION:1/4"BSP(F), BODY MATERIAL:BRASS,MAKE: ROTEX	Nos	20	Common
24	Engle valve	Engle valve (spare)	AVCON MAKE ACTUATOR 6612E50/CF8/S4/T/ONF/BSP WITH ACT CY-70-NC & WITH SVG-9350B020/BR-M45-1-RD-AL-FLP-IIC MANUAL OVERRIDE 230 V AC	Nos	10	Common
25	Temperature gauge	Temperature gauge (spare)	MERCURY IN STEEL DIAL THERMOMETER,TYPE : HEAT GAUGE DIAL SIZE:150MM, RANGE : 0-150 DEG C, CAPILLARY LENGTH: 2METER, CAPILLARY MATERIAL :SS316 COATED WITH RED INSULATION (PVC COATING), BULB DIA:9MM, BULB LENGTH:75MM, ACCURACY:+/-1% FSD, CONNECTION:1/2"NPT(M) ADJUSTABLE.	Nos	20	Common
26	Temperature switch	Temperature switch (spare)	TEMPRATURE SWITCH MODEL:TG 120# SERIES M-C-B-2-6-AI-S6-12-C2-3.5M-RANGE-1/2"NTP(M)-A-EMM-OP5 STEM INSRTION LENGTH:200 EMM END CONNECTION:1/2"NTP(M) RANGE:-20 TO +240 DEG C MAKE: HNL INSTRUMENTS AND CONTROLS, USA	Nos	20	Common
27	Temperature gauge	Temperature gauge (spare)	CEP TEMP GAUGE / SWITCH, MODEL: 6HDSUW1, DIAL SIZE : 150 MM, ACCURACY: +/- 1% FSD, CONTACT 2NO/NC, CONTACT RATING:5AMP, 230VAC, BULB DIA: 10MM, STEM LENGTH: 200MM,BULB/STEM MATERIAL:AISI 316,CONNECTION: 3/4"BSP(M), RANGE: 0-120 DEG C,CAPILLARY LENGTH:	Nos	20	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			2MTR,APPLICATION: CEP THRUST BRG TEMP., MAKE : H GURU/ EQUIVALENT			
28	Pressure gauge	Pressure gauge (spare)	Make: ELGI, BLOWDOWN PRESSURE SWITCH KIT KP-1 B 185103	Nos	14	Common
29	Thermowell	Thermowell (spare)	MOC: SS304, CONECTION:1"NPT(M), LENGTH: 65MM, INSERSTION DIA:6MM, INSERSION LENGTH:55MM	Nos	10	Common
30	Actuator	Actuator (spare)	Make: NORGREN, PNEUMATIC CYLINDER MODEL: RA/8200/320/SER.B.,Q-200 mm --- 320MM 83DD, P 1-16 BAR, TMAX 80 DEG C MAKE: NORGREN APPLICATION : BED MATERIAL FEEDING SYSTEM VALVE	Nos	4	Common
31	Connector	Connector (spare)	ELBOW , TYPE: PUSH TO FIT , SIZE:1/2"NPT(M), SUITABLE FOR 12MM OD P.U. TUBE	Nos	20	Common
32	Temperature controller	Temperature controller (spare)	Masibus make Cotroller Model No :5006RN Part No :5006RN-X-U1-Y-N Input :RTD Aux supply :230VAC Relay Output :2 Nos Retransmission Output :4-20 mA Size :96 X 96mm	Nos	10	Common
33	Relay	Relay (spare)	PLC RELAY MAKE:FINDER TYPE:40.52.7024.0000 SUPPLY:24 VDC CONTACT 2C/O COTACT RATING: 8 AMP, 250 VAC	Nos	20	Common
34	Timer	Timer (spare)	RELAY,TYPE:MULTI FUNCTION MULTIVOLTAGE TIMER ( ANY VOLTAGE AC/DC,24-240V AC/DC, MULTI TIMING FORM 0.05 SEC - 100 HOURS, CONTACT: 1 CHANGE/OVER, MODEL:ETR4-69-A, APPLICATION:LIGNITE DRAGLINK PANEL SAPRES, MAKE: MOELLER	Nos	10	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
35	Plastic	Plastic (spare)	ATPS ITEM CODE:62422 PLASTIC TRANSPARENT SHEET DOUBLE LAYER TYPE (WIDTH : 25 FEET APPROX.)	Nos	50	Common
36	Rope	Rope (spare)	ATPS ITEM CODE:62925 PLASTIC PACKING WIRE ROLL	Nos	5	Common
37	Pull cord	Pull cord switch rope	ATPS ITEM CODE:086766, WIRE,MULTI STANDARD FLEXIBLE ROPE ,WITH PVC,	Mtr	500	Common
38	Lignite impactor	Vibration switch	New erection, commissioning, and installation of vibration switch with adjustable threshold values	Nos	2	Common
39	Lime impactor	Vibration switch	New erection, commissioning, and installation of vibration switch with adjustable threshold values	Nos	2	Common
40	Lignite sizer	Vibration switch	New erection, commissioning, and installation of vibration switch with adjustable threshold values	Nos	2	Common
41	Lime sizer	Vibration switch	New erection, commissioning, and installation of vibration switch with adjustable threshold values	Nos	2	Common

### **Plan 5: Ash Handling Plant**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Ash Transporter	Discharge pressure gauge	TYPE: BOURDEN TUBE, DIAL SIZE: 150MM, RANGE:0-10 KG/CM2, PROCESS CONNECTION:1/2" NPT(M),MOUNTING: LOCAL,DIAL: WHITE ALLUMINIUM WITH BLACK LETTERING,CASE MATERIAL: SS304,WINDOW MATERIAL: LAMINATED SAFETY GLASS,ENCLOSURE: WEATHER PROOF,PROTECTION CLASS: IP65,ACCURACY: +/- 1% FSD, MOVEMENT	Nos	10	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			MATERIAL: SS 304			
2	AHP Fly Ash Silo	Fluidising SOV	Make: AVCON, SOLENOID VALVE MODEL: 9150B25/AD/S4/BN/BSP+ M45-1-RD/WP67/F, SUPPLY 240 VAC, 50 Hz, MAKE:AVCON	Nos	3	Common
3	AHP Fly Ash Silo	Fluidising system sequential timer	Make: EAPL, SEQUENTIAL TIMER WITH 10 CHANNELS, MODEL:ST-10M1,SOURCE VOLTAGE - 85 TO 270 V AC/DC, TIME RANGE - 0.1 SEC TO 100 HRS, OUT PUT - 1 C/O RELAY FOR EACH CHANNEL,MAKE:EAPL	Nos	2	Common
4	AHP Fly Ash Silo	KGV valve	Make: ROTEX, SOLENOID VALVE,TYPE:5/2 WAY DIRECT ACTING NORMALLY CLOSED SINGLE SOLENOID, MODEL NO.:51400-6-2G-B2+220V-50Hz-15-H, END CONNECTION:1/4"BSP(F),MEDIA: AIR, OP.PR. 2-10 BAR, ORIFICE:NW=6MM,FLOW FACTOR:12LIT/MIN, SOLENOID COIL INSULATION CLASS:H, NO. OF SOLENOID:1,COIL SIZE:I,COIL VOLTAGE:220VAC, 6W,SEAT MOC: NBR, BODY MOC:BRASS, SOLENOID ENCLOSURE: TERMINAL BOX IP67, MANUAL OVERRIDE:PUSH TYPE, MAKE: ROTEX	Nos	50	Common
5	Temperature gauge	Temperature gauge (spare)	TEMP GAUGE 40-125 DEG C,PART NO: B202101,SUPPLIER : ELGI with 2.2 mtr or more capillary length.	Nos	14	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
6	Actuator	Actuator (spare)	Make: EL-O-MATIC, 1)PNEUMATIC ACUATOR, MODEL:ED-25, DOUBLE ACTING PNEUMATIC ACTUATOR, EQUIVALENT TO SR. NO.:12228, MAKE: EL-O-MATIC 2)PNEUMATIC ACUATOR, MODEL:ED-40, DOUBLE ACTING PNEUMATIC ACTUATOR, EQUIVALENT TO SR. NO.:8090 MAKE: EL-O-MATIC 3)PNEUMATIC ACUATOR, MODEL:ED-100, DOUBLE ACTING PNEUMATIC ACTUATOR, EQUIVALENT TO SR. NO.:2036, MAKE: EL-O-MATIC	Nos	15	Common
7	Pressure gauge	Pressure gauge (spare)	PRESSURE GAUGE , TYPE: BOURDEN TUBE, DIAL SIZE: 150MM, RANGE:0-10 KG/CM2, PROCESS CONNECTION:1/2" NPT(M),MOUNTING: LOCAL,DIAL: WHITE ALLUMINIUM WITH BLACK LETTERING,CASE MATERIAL: SS304,WINDOW MATERIAL: LAMINATED SAFETY GLASS,ENCLOSURE: WEATHER PROOF,PROTECTION CLASS: IP65,ACCURACY: +/- 1% FSD, MOVEMENT MATERIAL: SS 304	Nos	15	Common
8	Temperature gauge	Temperature gauge (spare)	TEMPERATURE GAUGE CUM SWITCH,RANGE: 0-120 DEG C, SR. NO.145067 J04, CASE: HEAVY DUTY DIE CAST ALU , DIAL SIZE:150MM, CONTACT: 2NO POTENTIAL FREE FOR ALARM & TRIP, CONTACTRATING:5A@240VAC/0.5A@220VDC( BUILT INRELAY TYPE),JUNCTION BOX PROVIDED WITHTB AT BOTTOM ENTRY OF CASE,BULB DIA /STEM : AISI316, 12MM OD / 87 MM LONG WITH 60MM IMERTION LENGTHWITH COLLAR FIXED AT 60MM FORM BOTTOM OF THE BULB,CAPILLARY :3 MTR	Nos	15	Common
9	AHP Connector	Connector (spare)	END/MALE CONNECTOR, TYPE : PU FITTING, SIZE:1/4" NPT(M) SUITABLE FOR 12MM OD PU TUBE	Nos	50	Common
10	AHP Connector	Connector (spare)	ELBOW ,TYPE : PU FITTING, SIZE : 3/8" NPT(M) SUITABLE FOR 12 MM OD PU TUBE	Nos	50	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
11	AHP Channel timer	Channel timer (spare)	TIMER, TYPE :MULTIFUNCTION MULTI VOLTAGE, MODEL: ETR4-70A, VOLTAGE : AC/DC FROM 24 - 240 V AC /DC, MULTI TIMING FROM 0.05 SEC	Nos	4	Common
12	Ash Handling	Air Dryer Sensor	SENSOR SET FOR SAB PROCESSOR, PART NO.:BOR 50102, APPLICATION: FOR AIR DRYER MODEL NO.:SD 2250W, MAKE PACE AFTER MARKET	Nos	1	Common

### **Plan 6: Sea water treatment plant**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	MED	MED 1 & 2 cooling water control valve and condensate control valve	Surcooling control valve Actuator, type- pneumatic diaphragm, Actuator type and Area: A40 EGF-7, 100 Sq. inch, Spring range: 0.2 -1.0 kg/cm2, bench setting: 0.6 - 1.4 kg/cm2, increased actr. Pressure: OPEN, On supply failure: Valve CLOSE, air connection: 1/4" NPT(F), Hand wheel: TOP MOUNTED, air pressure: 2 bar, make: FOURESS ENGINEERING PVT LTD. With positioner and feedback assembly	Nos	2	Common
2	MED	MED 1 & 2 cooling water control valve and condensate control valve	Condensate control valve Actuator, type- pneumatic diaphragm, model: UI-30S, minimum air supply required: 3.5 kg/cm2, close at: 0.2 kg/cm2, open at: 1 kg/cm2, Fail Action: Close, make: Forbes Marshall Arca PVT LTD.With positioner and feedback assembly	Nos	2	Common
3	MED	MED 1 & 2 effect flow transmitter	ELECTROMAGNETIC FLOWMETER (MODEL: AQUAFLUX) WITH FLOW CONVERTOR ( MODEL:IFC 100W), RANGE: 0 TO 50 CU. MTR/HR, OUTPUT: 4 TO 20 MADC + STATUS + PULSE,SIZE: 100, SENSOR TYPE: IN LINE FULL BORE, FIELD EXCITATION: PULSED DC, ELEC: HC, FLOW SENSOR PROTECTION: IP67, GK: 2.5609, EQUIVALENT TO SR. NO.: 021055, MAKE: KROHNE MARSHALL LTD., REST SPECIFICATIONS AS PER ATTACHED DATA SHEET	Nos	11	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
4	MED	MED 2 feed water flow transmitter	ELECTROMAGNETIC FLOWMETER (MODEL: AQUAFLUX) WITH FLOW CONVERTOR ( MODEL:IFC 100W), RANGE: 0 TO 350 CU. MTR/HR, OUTPUT: 4 TO 20 MADC + STATUS + PULSE, SIZE: 250, SENSOR TYPE: IN LINE FULL BORE, FIELD EXCITATION: PULSED DC, ELEC: HC, FLOW SENSOR PROTECTION: IP67, GK: 2.280, EQUIVALENT TO SR. NO.: 031074, MAKE: KROHNE MARSHALL LTD., REST SPECIFICATIONS AS PER ATTACHED DATA SHEET	Nos	2	Common
5	MED	MED HP steam flow transmitter	New erection ,commissioning and installation of flow transmitter	Nos	3	Common
6	MED	MED condensate conductivity meter	Conductivity transmitter Aquacon Smartpro 8967 with sensor type: FM8310 and cable and flow through assembly , power supply: 12-36 VDC,2 wire, O/P: 4-20mA HART, Range: 0 - 100 microS/cm, make: Forbes Marshall	Nos	2	Common
7	MED	MED 1 & 2 Brine level control valve	MED BRINE CONTROL VALVE ACTUATOR , BV-895 SERIES, ACTUATOR FORM: DIAPHRAGM, ACTUATOR TYPE AND AREA: A40 BKF-7RA, 200 Sq. INCH, SPRING RANGE: 0.2 - 1.0 KG/CM2, BENCH SETTINGS: 0.8 - 1/6 KG/CM2, AIR FAIL TO CLOSE , AIR CONNECTION: 1/4" NPT(F), HAND WHEEL: SIDE MOUNTED, AIR PRESSURE: 2 BAR, MAKE: FOURESS, With positioner and feedback assembly	Nos	2	Common
8	MED	MED PRDS steam pressure control valve positioner	VALVE POSITIONER WITH GAUGE & MOUNTING BRACKET, MODEL : FGA2000-820PP ,MAKE : ARCA, FORBES MARSHAL	Nos	2	Common
9	MED	MED-2 steam inlet pressure transmitter	SMART (HART) ABSOLUTE PRESSURE TRANSMITTER,MODEL - 624EAE21030G11A1+SC4100,RANG:(0-2.5)BAR ABS, CAL RANGE:(0-1)BARABS,MEDIUM:VAPOUR, FUNCTION: TRANSMISSION-	Nos	1	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
			INDICATION, ACCU: +/-0.075% OF SPAN, SUP.VOLT:24VDC, ELEMENT:DIAPHRAGM, EX-PROOF & INTRINSICSAFE, ENCLCLASS:IP65-1NEMA4X, ELEMENTMATERIAL :316LSS, O/P:2WIRE, 4-20MADC, PROCESS CONN.: 1/2"NPT(F), HEAD MOUNTING, CABLE ENTRY:1/2"NPT(F), INT.METER:5 DIGIT LCD, CABLEGLAND:DOUBLECOMPRESSION, MAKE:ABB/EQUIVALENT			
10	MED	MED 1 & 2 effect temperature gauge	Bimetallic temperature gauge, Range: 0 - 120 C	Nos	10	Common
11	MED	MED 1 & 2 pump pressure gauge	pressure gauge, Range: 0- 10 kg/cm2	Nos	10	Common
12	MED	MED HP inlet stop valve cylinder	Air cylinder actuator, double acting valve	Nos	1	Common
13	PTP	Service valve	Vale with feedback assembly, make: EL-O-MATIC	Nos	14	Common
14	PTP	Backwash valve	Vale with feedback assembly, make: EL-O-MATIC	Nos	14	Common
15	PTP	Air line valve	Vale with feedback assembly, make: EL-O-MATIC	Nos	14	Common
16	PTP	DP transmitter	DP TRANSMITTER , Make: E&H	Nos	7	Common
17	PTP	SOV for all valves	SOV with Coil, Make: Rotex	Nos	42	Common
18	Reject water	PH sensor	New erection ,commissioning and installation of PH sensor	Nos	1	Unit 1 and Unit 2

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
19	Reject water	RTD sensor	New erection ,commissioning and installation of RTD sensor	Nos	1	Unit 1 and Unit 2
20	Reject water	TSS sensor	New erection ,commissioning and installation of TSS sensor	Nos	1	Unit 1 and Unit 2
21	Reject pump	Reject pump vibration switch	New erection, commissioning and installation of vibration switch with adjustable threshold values	Nos	3	Common
22	Intake pump	Intake pump motor vibration switch	New erection, commissioning and installation of vibration switch with adjustable threshold values	Nos	12	Common

### **Plan 7: ACW/CCW**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	ACW Pump	ACW pump discharge pressure transmitter	SMART (HART) GAUGE PRESSURE TRANSMITTER,MODEL - 2051TA2A2B21AB4K5M5D4Q4, CAL RANGE:0-6 BAR ABS,MEDIUM:STEAM,OPERATING PRESSURE:4 BAR,OP. TEMP.: 100'C,OVER PRESSURE : 10 BAR,FUNCTION:TRANSMISSION-INDICATION,ACCU:+/-0.075% OF SPAN,SUP.VOLT: 24 VDC,ELEMENT:DIAPHRAGM,EX-PROOF&INTRINSICSAFE,ENCL CLASS:IP65-NEMA4X,ELEMENT MATERIAL :316L SS,ENCLOSER MATERIAL:LOW COPPER ALUMINIUM POLYURETHANE PAINT,O/P :2 WIRE,4-20 MADC,PROCESS CONN.:1/2"NPT(F),2"PIPE MOUNTING,CABLE ENTRY:1/2"NPT(F),INT.MTR:5 DIGIT LCD,CABLE GLAND:DOUBLE COMPRESSION, MAKE: ABB/EQUIVALENT	Nos	3	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
2	ACW Pump	ACW pump vibration switch	New erection, commissioning, and installation of vibration switch with adjustable threshold values	Nos	3	Common
3	ACW Pump	ACW pump DE/NDE bearing temperature RTD	RTD ASSEMBLY,TYPE-4,SHEATH LENGTH:625 MM,SERIES:ART 1003,HEAD:CAST ALUMINIUM,WEATHER PROOF,BLACK EPOXY POWDER COATED WITH SCREWED COVER,CHAIN & GASKET AS PER IP-65,INSTRUMENT ENTRY:1/2"NPT(F),INSET TYPE:PT-100,DUPLEX,3 WIRE,INSULATION:MINERAL INSULATED(COMPACT MGO),ACCURACY:DIN 43760 CLASS "A",SHEATH MATERIAL:SS316,SHEATH DIA:06 MM,TERMINAL:NICKEL PLATED BRASS TERMINAL MOUNTED ON STEATITE GRADE CERAMIC BLOCK WITH SPRING LOADED SCREW FIXED ON SS BASE,PROCESS CONN:1/2"NPT(M) MADE UP-SS,MAKE:ALTOP	Nos	3	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
4	ACW Motor	ACW motor vibration switch	New erection, commissioning, and installation of vibration switch with adjustable threshold values	Nos	3	Common
5	CCW Pump	CCW pump discharge pressure transmitter	SMART (HART) GAUGE PRESSURE TRANSMITTER,MODEL - 2051TA2A2B21AB4K5M5D4Q4, CAL RANGE:0-6 BAR ABS,MEDIUM:STEAM,OPERATING PRESSURE:4 BAR,OP. TEMP.: 100'C,OVER PRESSURE : 10 BAR,FUNCTION:TRANSMISSION-INDICATION,ACCU:+/-0.075% OF SPAN,SUP.VOLT: 24 VDC,ELEMENT:DIAPHRAGM,EX-PROOF&INTRINSICSAFE,ENCL CLASS:IP65-NEMA4X,ELEMENT MATERIAL :316L SS,ENCLOSER MATERIAL:LOW COPPER ALUMINIUM POLYURETHANE PAINT,O/P :2 WIRE,4-20 MADC,PROCESS CONN.:1/2"NPT(F),2"PIPE MOUNTING,CABLE ENTRY:1/2"NPT(F),INT.MTR:5 DIGIT LCD,CABLE GLAND:DOUBLE COMPRESSION, MAKE: ABB/EQUIVALENT	Nos	3	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
6	CCW Pump	CCW pump vibration switch	New erection, commissioning, and installation of vibration switch with adjustable threshold values	Nos	3	Common
7	CCW Pump	CCW pump DE/NDE bearing temperature RTD	RTD ASSEMBLY,TYPE-4,SHEATH LENGTH:625 MM,SERIES:ART 1003,HEAD:CAST ALUMINIUM,WEATHER PROOF,BLACK EPOXY POWDER COATED WITH SCREWED COVER,CHAIN & GASKET AS PER IP-65,INSTRUMENT ENTRY:1/2"NPT(F),INSET TYPE:PT-100,DUPLEX,3 WIRE,INSULATION:MINERAL INSULATED(COMPACT MGO),ACCURACY:DIN 43760 CLASS "A",SHEATH MATERIAL:SS316,SHEATH DIA:06 MM,TERMINAL:NICKEL PLATED BRASS TERMINAL MOUNTED ON STEATITE GRADE CERAMIC BLOCK WITH SPRING LOADED SCREW FIXED ON SS BASE,PROCESS CONN:1/2"NPT(M) MADE UP-SS,MAKE:ALTOP	Nos	3	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
8	CCW Motor	CCW motor vibration switch	New erection, commissioning, and installation of vibration switch with adjustable threshold values	Nos	3	Common
9	PHE	PHE CCW inlet pressure transmitter	SMART (HART) GAUGE PRESSURE TRANSMITTER,MODEL - 2051TA2A2B21AB4K5M5D4Q4, CAL RANGE:0-6 BAR ABS,MEDIUM:STEAM,OPERATING PRESSURE:4 BAR,OP. TEMP.: 100°C,OVER PRESSURE : 10 BAR,FUNCTION:TRANSMISSION-INDICATION,ACCU:+/-0.075% OF SPAN,SUP.VOLT: 24 VDC,ELEMENT:DIAPHRAGM,EX-PROOF&INTRINSICSAFE,ENCL CLASS:IP65-NEMA4X,ELEMENT MATERIAL :316L SS,ENCLOSER MATERIAL:LOW COPPER ALUMINIUM POLYURETHANE PAINT,O/P :2 WIRE,4-20 MADC,PROCESS CONN.:1/2"NPT(F),2"PIPE MOUNTING,CABLE ENTRY:1/2"NPT(F),INT.MTR:5 DIGIT LCD,CABLE GLAND:DOUBLE COMPRESSION, MAKE: ABB/EQUIVALENT	Nos	3	Common
10	PHE	PHE CCW outlet pressure transmitter	SMART (HART) GAUGE PRESSURE TRANSMITTER,MODEL - 2051TA2A2B21AB4K5M5D4Q4, CAL RANGE:0-6 BAR ABS,MEDIUM:STEAM,OPERATING PRESSURE:4 BAR,OP. TEMP.: 100°C,OVER PRESSURE : 10 BAR,FUNCTION:TRANSMISSION-INDICATION,ACCU:+/-0.075% OF SPAN,SUP.VOLT: 24 VDC,ELEMENT:DIAPHRAGM,EX-PROOF&INTRINSICSAFE,ENCL CLASS:IP65-NEMA4X,ELEMENT MATERIAL :316L SS,ENCLOSER MATERIAL:LOW COPPER ALUMINIUM POLYURETHANE PAINT,O/P :2 WIRE,4-20 MADC,PROCESS CONN.:1/2"NPT(F),2"PIPE MOUNTING,CABLE ENTRY:1/2"NPT(F),INT.MTR:5 DIGIT LCD,CABLE GLAND:DOUBLE COMPRESSION, MAKE: ABB/EQUIVALENT	Nos	3	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
11	PHE	PHE sea water inlet pressure transmitter	SMART (HART) GAUGE PRESSURE TRANSMITTER,MODEL - 2051TA2A2B21AB4K5M5D4Q4, CAL RANGE:0-6 BAR ABS,MEDIUM:STEAM,OPERATING PRESSURE:4 BAR,OP. TEMP.: 100'C,OVER PRESSURE : 10 BAR,FUNCTION:TRANSMISSION-INDICATION,ACCU:+/-0.075% OF SPAN,SUP.VOLT: 24 VDC,ELEMENT:DIAPHRAGM,EX-PROOF&INTRINSICSAFE,ENCL CLASS:IP65-NEMA4X,ELEMENT MATERIAL :316L SS,ENCLOSER MATERIAL:LOW COPPER ALUMINIUM POLYURETHANE PAINT,O/P :2 WIRE,4-20 MADC,PROCESS CONN.:1/2"NPT(F),2"PIPE MOUNTING,CABLE ENTRY:1/2"NPT(F),INT.MTR:5 DIGIT LCD,CABLE GLAND:DOUBLE COMPRESSION, MAKE: ABB/EQUIVALENT	Nos	3	Common
12	PHE	PHE sea water outlet pressure transmitter	SMART (HART) GAUGE PRESSURE TRANSMITTER,MODEL - 2051TA2A2B21AB4K5M5D4Q4, CAL RANGE:0-6 BAR ABS,MEDIUM:STEAM,OPERATING PRESSURE:4 BAR,OP. TEMP.: 100'C,OVER PRESSURE : 10 BAR,FUNCTION:TRANSMISSION-INDICATION,ACCU:+/-0.075% OF SPAN,SUP.VOLT: 24 VDC,ELEMENT:DIAPHRAGM,EX-PROOF&INTRINSICSAFE,ENCL CLASS:IP65-NEMA4X,ELEMENT MATERIAL :316L SS,ENCLOSER MATERIAL:LOW COPPER ALUMINIUM POLYURETHANE PAINT,O/P :2 WIRE,4-20 MADC,PROCESS CONN.:1/2"NPT(F),2"PIPE MOUNTING,CABLE ENTRY:1/2"NPT(F),INT.MTR:5 DIGIT LCD,CABLE GLAND:DOUBLE COMPRESSION, MAKE: ABB/EQUIVALENT	Nos	3	Common
13	PHE	PHE CCW water I/L and O/L conductivity meter	New erection, commissioning, and installation of conductivity meter	Nos	3	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
14	CCW suction line	CCW suction line pressure transmitter	SMART (HART) GAUGE PRESSURE TRANSMITTER,MODEL - 2051TA2A2B21AB4K5M5D4Q4, CAL RANGE:0-6 BAR ABS,MEDIUM:STEAM,OPERATING PRESSURE:4 BAR,OP. TEMP.: 100°C,OVER PRESSURE : 10 BAR,FUNCTION:TRANSMISSION-INDICATION,ACCU:+/-0.075% OF SPAN,SUP.VOLT: 24 VDC,ELEMENT:DIAPHRAGM,EX-PROOF&INTRINSICSAFE,ENCL CLASS:IP65-NEMA4X,ELEMENT MATERIAL :316L SS,ENCLOSER MATERIAL:LOW COPPER ALUMINIUM POLYURETHANE PAINT,O/P :2 WIRE,4-20 MADC,PROCESS CONN.:1/2"NPT(F),2"PIPE MOUNTING,CABLE ENTRY:1/2"NPT(F),INT.MTR:5 DIGIT LCD,CABLE GLAND:DOUBLE COMPRESSION, MAKE: ABB/EQUIVALENT	Nos	1	Common

**Plan 8: Miscellaneous Systems**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	EPABX System	EPABX system	200-line EPABX system	Nos	1	Common
2	EPABX System	EPABX system	300-line EPABX system	Nos	1	Common

## Supporting functions

### Plan 1: Fire and safety

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Pipeline	25 NB pipeline	Mtr	28	Common
2	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Pipeline	50 NB pipeline	Mtr	25	Common
3	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Pipeline	80 NB pipeline	Mtr	402	Common
4	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Pipeline	100 NB pipeline	Mtr	1060	Common
5	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Pipeline	150 NB pipeline	Mtr	1885	Common
6	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Pipeline	200 NB pipeline	Mtr	1733	Common
7	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Pipeline	250 NB pipeline	Mtr	105	Common
8	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Pipeline	300 NB pipeline	Mtr	763	Common
9	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Isolation Valve	25 NB isolation valve	Nos	14	Common
10	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Isolation Valve	50 NB isolation valve	Nos	2	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
11	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Isolation Valve	80 NB isolation valve	Nos	19	Common
12	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Isolation Valve	100 NB isolation valve	Nos	19	Common
13	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Isolation Valve	150 NB isolation valve	Nos	12	Common
14	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Isolation Valve	200 NB isolation valve	Nos	6	Common
15	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Isolation Valve	250 NB isolation valve	Nos	1	Common
16	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Isolation Valve	300 NB isolation valve	Nos	9	Common
17	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – NRV	50 NB NRV	Nos	2	Common
18	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – NRV	80 NB NRV	Nos	5	Common
19	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – NRV	300 NB NRV	Nos	6	Common
20	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – ARV	80 NB ARV	Nos	10	Common
21	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Landing Valve	Landing Valve	Nos	75	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
22	Fire Hydrant Line	Fire Hydrant Line installation in MHP and other BOP areas – Water Monitor	Water Monitor	Nos	10	Common
23	Fire hose Box and Short Branch	Fire hose box installation in Boiler, TB, TJ building, SY, MHP, FOPH	Hose box MS (705X600X250MM) and Fire Fighting Short Branch of Stainless Steel	Nos	192	Common
24	Fire hose	Fire hose installation in Boiler, TB, TJ building, SY, MHP, FOPH	15m, Fire Hose RRL Type – B, As per BIS-636, Rubber Lined Fabric Reinforced Fire Hose with jacket of 100% Synthetic Yarn	Nos	384	Common
25	Fire hose Box and Short Branch	Remaining area Fire hose box installation	Hose box MS (705X600X250MM) and Fire Fighting Short Branch of Stainless Steel	Nos	15	Common
26	Fire hose	Remaining area Fire hose installation	15m, Fire Hose RRL Type – B, As per BIS-636, Rubber Lined Fabric Reinforced Fire Hose with jacket of 100% Synthetic Yarn	Nos	30	Common
27	Mulsifier	Fire Mulsifier (Spray) system installation - Transformer yard, MOT	HVWSS As per BIS-15325 05Nos. for Transformer 02 Nos. For MOT 01 Nos. for DG Set 01 Nos. for Dirty oil tank	Nos	9	Common
28	Mulsifier	Fire Mulsifier (Spray) system installation - Conveyor	MVWSS As per BIS-15325	Nos	7	Common
29	Foam Flooding System	Foam flooding system for FOPH tank storage	As per NFPA-11 02Nos. for HFO storage tank(Tank Dia-14m) 01Nos. for LDO storage tank(Tank Dia-7.5m)	Nos	3	Common
30	CO2 Flooding System	CO2 flooding system for Turbine Generator enclosures of both units	As per IS-15528	Nos	2	Common

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
31	Fire Extinguisher	Fire Extinguisher Installation	Fire Extinguisher (ABC, BC, CO2 and foam type fire extinguishers) Installation as per IS-2190 & IS-15683	Nos.	400	Common

### **Plan 2: Chemical Laboratory**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Spectrophotometer	Double Beam Spectrophotometer		Nos	1	Common
2	Colorimeter	Colorimeter	KF colorimeter titration DL 32/39	Nos	1	Common
3	Partile count analyser	PMAS Particle Count Analyser		Nos	1	Common
4	Digital bomb calorimeter	Digital Bomb calorimeter		Nos	1	Common
5	Furnace	Furnace (Temprature Range:- 0 to 1000 degree)		Nos	1	Common
6	3D Trasar automation equipment	Both Unit Cooling Tower NextGen 3D TRASAR automation equipment		Nos	1	Common

### **Plan 3: Monitoring system**

S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
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S. No	Component	Item	Description	UOM	Quantity	Unit 1/Unit 2
1	Effluent monitoring system	EQMS Online Effluent Monitoring System as per CPCB Guidelines (STP&ETP) (For treated water parameter monitoring)	Parameter for reject water pH, temperature and TSS. Parameter for STP Plant is pH, BOD,COD,TSS(Combo Sensor),Chlorine,DO Above All sensor are CPCB approved and as per OCEMS 2018 guidelines.	Nos	1	Common
2	Air monitoring system	Online Ambient Air Monitoring System including these parameters (SO <sub>2</sub> ,NO <sub>2</sub> ,CO,CO <sub>2</sub> ,PM <sub>2.5</sub> /PM <sub>10</sub> ) For Plant.	As per Ambient air quality monitoring index 2011.	Nos	2	Unit 1 and Unit 2
3	Chimney SPM online monitoring system	Chimney SO <sub>x</sub> ,NO <sub>x</sub> , SPM Online Monitoring System as per CPCB guidelines.	As per OCEMS 2018 Guidelines and CPCB approved Sensors and Instruments.	Nos	2	Unit 1 and Unit 2

**Annexure 3: List of Hangers**

*(Attached separately)*

**Annexure 4: Data sheet for fire and safety equipment**

*(Attached Separately)*

## **Annexure 5: Letter of bid submission**

(To be printed on Bidder's letterhead)

Dated:

To,  
General Manager (Power),  
Gujarat Mineral Development Corporation Ltd  
Khanij Bhavan,  
132-Ring Road, Gujarat University Ground, Vastrapur,  
Ahmedabad- 380052

**Subject:** Submission of Bid towards Request for Proposal (RFP) for Balance of Plant Package for Overhaul of GMDC's 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat

Dear Sir/Madam,

We, the undersigned, offer to provide services and spares for [Insert title of assignment] in accordance with your Request for Proposal dated [Insert Date] and our Bid. We are hereby submitting our Bid, which includes this Technical Bid, and a Price Bid, as follows.

1. Physical submission of Technical Bid, RFP Fee, and EMD as per the requirement of the RFP
2. Online submission of Price Bid as per the requirement of the RFP

We are submitting our Bid in individual capacity. We hereby declare that all the information and statements made in this proposal are true and accept that any misinterpretation contained in it may lead to our disqualification.

If discussions are held during the period of validity of the Bid, i.e., before the date indicated in RFP, we undertake to negotiate on the basis of the proposed personnel. Our Bid is binding upon us and subject to the modifications resulting from Contract discussions.

We undertake, if our Bid is accepted, to initiate the Overhauling services related to the assignment not later than the period specified in the RFP.

We understand you are not bound to accept any proposal you receive.

We remain,

Yours sincerely,

Authorized Signature [In full and initials]:

Name and Title of Signatory:

Name of Firm:

Address:

## Annexure 6: Bidders experience and credentials

### A – Pre-Qualification Criteria

#### 1. Bidder's organization

[Provide here a brief description of the background and organization of your firm/entity. The brief description should include Ownership details, date, and place of incorporation of the firm, objectives of the firm etc. Provide supporting documents such as Certificate of Incorporation, MOA, AOA, GSTIN Registration, which may be applicable etc.]

#### 2. Similar works by Bidder

[Using the format below, provide information on each project for which your firm, was legally contracted either individually as a corporate entity or as one of the major partners within an association, for carrying out job similar to the ones specified in Pre-Qualification Criteria set forth in the RFP (If possible, the Bidder shall specify exact job for which experience details may be submitted)]

Parameter	Response
Name of work	
Description of work	
Value of the Contract (in INR)	
Duration of the work (in months)	
Start date (month and year)	
End date (month and year)	

Similar works include – EPC / ETC / Overhauling / R&M / O&M of complete thermal power plants or EPC / ETC / Overhauling / R&M of material handling plants / ash handling plant / water treatment or circulations systems / electrical systems including switchyard, CT, CVT etc., in energy / process industries (power, oil & gas, chemicals, paint, cement, metals) carried out under a single LOI / work order / agreement.

The Bidder must provide document evidence including relevant portions of the work order / Contract / completion certificate for contracts undertaken.

## B – Technical Criteria

### 1. Prior experience:

[Using the format below, provide information on each work for which your firm, was legally contracted either individually as a corporate entity or as one of the major partners within an association, as per the Technical Criteria set forth in the RFP]

Parameter	Response
Name of work	
Description of the work	
Capacity of Contract (in MW)	
Value of the Contract (in INR)	
Duration of the work (in months)	
Start date (month and year)	
End date (month and year)	

The Bidder must provide document evidence including relevant portions of the work order / Contract / completion certificate (with proof of start and end date of the projects) for contracts undertaken.

## Annexure 7: Declaration of key personnel

Format of Curriculum Vitae (to be provided by all the Key Personnel as mentioned in Section 5.2 of Part 3 of this document)

1. Name of the Personnel: \_\_\_\_\_
2. Proposed Position for the Project: \_\_\_\_\_
3. Date of Birth: \_\_\_\_\_
4. Nationality: \_\_\_\_\_
5. Education Qualifications: \_\_\_\_\_

School/College	Degree/Certification	Year of Graduation

6. Languages: \_\_\_\_\_
7. Years of experience: \_\_\_\_\_
8. Employment Record: \_\_\_\_\_

Name of the firm	From – To Date	Designation/Position

9. Work(s) Undertaken that illustrates the capabilities to handle the tasks defined in Part 2 of this document
  - a. Name of the assignment: \_\_\_\_\_
  - b. Year: \_\_\_\_\_
  - c. Location: \_\_\_\_\_
  - d. Client: \_\_\_\_\_
  - e. Position(s) held: \_\_\_\_\_
  - f. Key activities performed: \_\_\_\_\_
10. Any Relevant Certifications (e.g. – PMP): \_\_\_\_\_

*Note: Kindly submit any other copies of CV (if needed) and appropriate certifications with this sheet. Additional sheets may be used to provide any additional information*

Authorized Signature [In full and initials]:

Name and Title of Signatory:

Name of Firm:

Address:

## Annexure 8: Revenue and net worth statement

(To be printed on Statutory Auditor's/ Registered Chartered Accountant's letterhead)

I hereby declare that I have scrutinized and audited the financial statement of M/s. \_\_\_\_\_ . Following is the audited revenue for the last three years, net worth and working capital for the last year.

Years	Revenue (INR Cr)
2020-2021	
2021-2022	
2022-2023	

Years	Net worth (INR Cr)
As on 31 <sup>st</sup> March 2023	

## **Annexure 9: No blacklisting certificate**

(To be printed on stamp paper of value INR 300)

### **Format for Affidavit certifying that the Entity/Promoter/s / Director/s of Bidder are not blacklisted**

#### **No-Blacklisting Affidavit**

I M/s. \_\_\_\_\_ (Name of the Bidder), (the names and addresses of the registered office) hereby certify and confirm that we or any of our promoter/s / director/s are not barred by Government of Gujarat (GoG) / any other entity of GoG or blacklisted by any state government or central government / department / Local Government / agency in India or from abroad from participating in Project/s, either individually or as member of a Consortium as on the \_\_\_\_\_ (Bid submission date).

We further confirm that we are aware that our Bid for the captioned Project would be liable for rejection in case any material misrepresentation is made or discovered with regard to the requirements of this RFP at any stage of the Bidding Process or thereafter during the agreement period.

Dated this \_\_\_\_\_ Day of \_\_\_\_\_, 2023.

Name of the Bidder:

Signature of the Authorized person:

Name of the Authorized person:

## **Annexure 10: No Deviation Certificate**

(To be printed on Bidder's letterhead)

Dated:

To,  
General Manager (Power),  
Gujarat Mineral Development Corporation Ltd  
Khanij Bhavan,  
132-Ring Road, Gujarat University Ground, Vastrapur,  
Ahmedabad- 380052

**Subject:** No deviation certificate regarding Bid towards Request for Proposal (RFP) for Balance of Plant Package for Overhaul of GMDC's 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat

Dear Sir/Madam,

We \_\_\_\_\_ (Name of the Bidder), confirm our acceptance to all terms and conditions mentioned in the RFP document, and all subsequent clarifications, in totality and withdraw all deviations raised by us, if any.

We remain,

Yours sincerely,

Authorized Signature [In full and initials]:

Name and Title of Signatory:

Name of Firm:

Address:

**Annexure 11: Format for power of attorney**

(On stamp paper of value INR 300)

KNOW ALL MEN by these presents that we, \_\_\_\_\_ [name of the firm], a FIRM incorporated under the and having its Registered Office/ office at \_\_\_\_\_ [Address of the Company] (hereinafter referred to as “Company/firm”):

WHEREAS in response to the RFP for \_\_\_\_\_ [Name of the Assignment] (“Project”), the Company/ firm is submitting Bid comprising Technical Bid physically while Price Bid through online submission for the project and GMDC and is desirous of appointing an attorney for the purpose thereof.

WHEREAS the Company deems it expedient to appoint Mr. \_\_\_\_\_ son / daughter of \_\_\_\_\_ resident of \_\_\_\_\_, holding the post of \_\_\_\_\_ as the Attorney of the Company/firm.

NOW KNOW WE ALL BY THESE PRESENTS, THAT \_\_\_\_\_ [name of the company/firm] do hereby nominate, constitute and appoint \_\_\_\_\_ [name & designation of the person] \_\_\_\_\_ as its true and lawful Attorney of the Company/ firm to do and execute all or any of the following acts, deeds and things for the Company/ firm in its name and on its behalf, that is to say:

To act as the Company’s/firm’s official representative for submitting the Bid comprising Technical Bid and Price Bid for the said project and other relevant documents in connection therewith;

To sign all the necessary documents, papers, testimonials, applications, representations and correspondence necessary and proper for the purpose aforesaid;

To RFP documents, receive and make inquiries, make the necessary corrections and clarifications to the Proposal and other documents, as may be necessary;

To do all such acts, deeds, and things in the name and on behalf of the Company as necessary for the purpose aforesaid.

<p>The common seal of [name of the company/firm] was here unto affixed pursuant to a resolution passed at the meeting of Committee of Directors held on ____ Day of, 2023 in the presence of [name &amp; designation of the person] and countersigned by [name&amp; designation of the person] of the Company/firm of [name of the company]</p>	<p>_____</p> <p>[name &amp; designation of the person]</p> <p>_____</p> <p>[name &amp; designation of the person]</p>
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## Annexure 12: Undertaking regarding genuineness of documents

(On stamp paper of value INR 300)

I/We, \_\_\_\_\_, Partner/Director/Legal  
Attorney/Accredited Representative of M/s. \_\_\_\_\_ solemnly  
declare that:

1. I/We are submitting Tender for the work \_\_\_\_\_  
\_\_\_\_\_ against Tender No. \_\_\_\_\_
2. None of the Partners/Directors of our firm/GMDC is relative of employee of GMDC.
3. All information furnished by us in respect of fulfillment of eligibility criteria and qualification information of this Tender is complete, correct and true.
4. All documents/credentials submitted along with this Tender are genuine, authentic, true and valid.
5. If it is found at any point of time that our documents are not genuine then in that case our tender will be rejected, earnest money deposited by us will be forfeited and we will be debarred from participating in further/future GMDC tenders and/or any action as deemed fit by GMDC may be taken against us, including termination of the contract, forfeiture of all dues including Earnest Money / Security deposit and banning/delisting of our entity and all related persons etc.

Dated this \_\_\_\_\_ day of 2023.

Signature

(Company Seal)

In the capacity of duly authorized to sign Bids for and on behalf of:

Signed by

Authorized Signatory with designation

### **Annexure 13: Undertaking of indemnity**

(To be printed on Bidder's letterhead)

Dated:

To,  
General Manager (Power),  
Gujarat Mineral Development Corporation Ltd  
Khanij Bhavan,  
132-Ring Road, Gujarat University Ground, Vastrapur,  
Ahmedabad- 380052

Dear Sir/Madam,

We M/s. ----- hereby undertake that, we shall at all times, indemnify and keep indemnified that GMDC Limited from any and all liability for damages resulting from or arising out of or in any way connected with the operations covered by the Tender No. \_\_\_\_\_. We shall be responsible for all risk arising in connection with or on account of the operations covered by the contract covered by the above tender and shall make good all losses and damages arising there from. In case, the GMDC Limited shall incur any cost or expense or suffer any loss on account of any claim demand or course of action brought against us and arising out of the operations covered by the Bidder/tender, the GMDC Limited shall have the power (without being bound to do so) to define, contest or compromise any such claim demand or cause of action. Any amount that may become payable by GMDC Limited and any cost expense etc. that may be incurred by the GMDC Limited in this behalf, shall also be recoverable from us, without prejudice to your other rights.

We remain,

Yours sincerely,

Authorized Signature [In full and initials]:

Name and Title of Signatory:

Name of Firm:

Address:

## Annexure 14: Indicative format of Price bid

(This is indicative format for Bidder's reference only. The PRICE PROPOSAL SHOULD BE SUBMITTED ONLINE ONLY at designated places through <http://gmdd.nprocure.com>. Price Bid should not be submitted in hard copy and or placed with Technical Bid. Prices submitted in hard copy and or placed with Technical Bid shall result in outright rejection of Bid)

Dated:

To,  
General Manager (Power),  
Gujarat Mineral Development Corporation Ltd  
Khanij Bhavan,  
132-Ring Road, Gujarat University Ground, Vastrapur,  
Ahmedabad- 380052

**Subject:** Price Bid for Request for Proposal (RFP) for Balance of Plant Package for Overhaul of GMDC's 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat

Dear Sir,

After thoroughly reading and accepting the RFP terms, understanding the requirements, and scope of work under this RFP, and its terms and conditions, we hereby agree to provide our services at the following rates

Description	Total Amount (INR, excl. GST)
<b>A. Lumpsum Charges for Supply of material (A1+A2+A3+A4)</b>	
<b>A1. Mechanical (Plan 1+...+Plan 15)</b>	
Plan 1: Lignite Handling System	
Plan 2: Lime Handling System	
Plan 3: Ash Handling System	
Plan 4: Pumps	
Plan 5: Turbine Auxiliaries	
Plan 6: Steam Extraction System	
Plan 7: Condensate System	
Plan 8: CCW System	
Plan 9: Compressors	
Plan 10: CW System	
Plan 11: Desalination System	
Plan 12: SWTP	
Plan 13: Crane and Hoist	
Plan 14: RO Plant	
Plan 15: Valves	
<b>A2. Electrical (Plan 1+...Plan 16)</b>	
Plan 1: CT/CVT	
Plan 2: Switchyard	
Plan 3: Cables	
Plan 4: Battery Bank	
Plan 5: TG	

Description	Total Amount (INR, excl. GST)
Plan 6: Lighting	
Plan 7: Actuators	
Plan 8: Motors	
Plan 9: Exhaust Fans	
Plan 10: DG	
Plan 11: SWTP	
Plan 12: GT#1 / UAT / ST	
Plan 13: CW and CCW System	
Plan 14: MHP	
Plan 15: Cranes and Hoist	
Plan 16: Miscellaneous Electrical	
<b>A3. C&amp;I (Plan 1+...+Plan 7)</b>	
Plan 1: Boiler, Turbine and Auxiliaries	
Plan 2: Compressor	
Plan 3: CW Pump House	
Plan 4: Material Handling Plant	
Plan 5: Ash Handling Plant	
Plan 6: SWTP	
Plan 7: ACW / CCW	
<b>A4. Supporting Functions (Plan 1+Plan 2+Plan 3)</b>	
Plan 1: Fire and Safety	
Plan 2: Chemical Laboratory	
Plan 3: Environment	
<b>B. Lumpsum Charges for Overhaul execution (B1+B2+B3+B4)</b>	
<b>B1. Mechanical</b>	
<b>B2. Electrical</b>	
<b>B3. C&amp;I</b>	
<b>B4. Civil</b>	
<b>Lumpsum Charges for Balance of Plant Package (A + B)</b>	

**Note:**

The Bidder to quote charges inclusive of all other taxes except applicable GST. Applicable GST, over and above approved Lumpsum Charges for Balance of Plant Package, at the time of invoicing shall be reimbursed by GMDC. The risk of applicability of any taxes, duties, and levies except GST, shall rest with the Bidder.

GMDC shall be entitled to deduct tax at source as may be applicable. The TDS certificate(s) shall be submitted as per the due date specified in the Income Tax Act.

Each Bidder must quote their rates after through reading of this RFP document and estimates of its cost through detailed due diligence of the Plant, statutory laws/regulations. GMDC reserves right to seek any clarifications regarding price quoted from Bidders before any decisions.

Please note the following details for Compulsory e-confirmation for Bank Guarantee through ICICI Bank through SFMS under our:

Gujarat Mineral Development Corporation Limited (GMDC)  
132 Ft Ring Road, Near University Ground Vastrapur, Ahmedabad.  
Bank Name: ICICI Bank Ltd  
IFS Code: ICIC0000024  
UIC GMDC530265584 for Field 7037 MT760

**Annexure 15: Format for Bank Guarantee towards EMD**

(On Non-judicial Stamp paper to be submitted along with submission of bids)

..... (Name of the Bank)  
Address.....  
Guarantee No.....  
A/C Messrs..... (Name of Bidder)  
Date of Expiry.....  
Limit to liability (currency & amount) .....

Invitation For RFP No..... Dated..... (bidding document )  
For..... (Name of Facilities)

**Subject:** Earnest Money Deposit Bank Guarantee.

Date.....2023

To,  
General Manger (\_\_\_\_),  
Gujarat Mineral Development Corporation Ltd.  
132 Ft Ring Road,  
Near University Ground  
Vastrapur,  
Ahmedabad.

Dear Sir,

In consideration of Gujarat Mineral Development Corporation (hereinafter called "GMDC") which expression shall unless repugnant to the subject of context include his successors and assigns having agreed to exempt M/s.....

(herein after called "Bidder") from demand under the terms and conditions of "Technical Bid Document" ( hereinafter called the said "Bidding Document") issued by the GMDC vide RFP No. \_\_\_\_\_ for the work \_\_\_\_\_

( Name of the facilities ) from Earnest Money Deposit (EMD) of Bid for the due fulfillment by the Bidder of the terms and conditions contained in the said Bidding Document on production of Bank Guarantee for INR \_\_\_\_\_

( \_\_\_\_\_ only ) ( figure in words).

1. We the \_\_\_\_\_ ( Name of Bank ) hereinafter referred to as "Bank" having our registered office at \_\_\_\_\_ ( address of Bank ) do hereby undertake and agree to indemnify and keep indemnified GMDC to extent of INR \_\_\_\_\_ ( \_\_\_\_\_ only ) ( figures in words ) against any losses, damage cost, charges and expenses caused to or suffered by or that may be caused or suffered by GMDC by reason of any breach or breaches by the Bidder of any of the terms and conditions contained in the said Bidding Document and unconditionally pay the amount claimed by GMDC on demand and without demur to the extent aforesaid.
2. We \_\_\_\_\_ (Name of Bank) do hereby undertake to pay the amounts due and payable under the guarantee without any demur merely on a demand by you stating that the amount claimed is due by way of loss or damage caused to or would be caused or suffered by you by reason of any breach by the said Bidder of any of the terms or conditions contained in the said Bidding Document by reason of the Bidder's failure to fulfill the conditions of said Bidding Document. Any such demand on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding INR \_\_\_\_\_.
3. We \_\_\_\_\_ ( Name of Bank ) further agree that GMDC shall be the sole judge of and as to whether the Bidder has committed any breach or breaches of terms and conditions of the said Bidding Document and the extent of loss, damages, costs, charges and expenses caused to or suffered by or that may cause to or suffered by GMDC on account hereof to the extent of the Bid Security required to be deposited by the Bidder in respect of the said document and the decision of GMDC that the Bidder has committed such breach or breaches and as to the amount or amounts of loss, damages, costs, charges, and expenses caused to or suffered by or that may be caused to or suffered by GMDC shall be final and binding on us.
4. We \_\_\_\_\_ (Name of Bank) further agree that guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance on the said Bidding Document and that it shall continue to be enforceable till you certify that terms and conditions of the said Bidding Document have been fully and properly carried out by the said Bidder and accordingly discharge the guarantee. Unless a demand or claim under this guaranteed is made on us in writing on or before the (date) \_\_\_\_\_ we shall be discharged from all liability under this guarantee.
5. We \_\_\_\_\_ ( Name of Bank ) further agree with you that you have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Bidding Document or to extend time of performance by the said Bidder from time to time or to postpone for any time or from time to time any of the powers exercisable by you against

the said Bidder and to forbear or enforce any of the terms and conditions relating to the said Bidding Document and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said Bidder or for any forbearance act or omission on your part or any indulgence by you to the said Bidder or any such matter or thing whatsoever under the law relating to sureties would but for this provision have effect of so relieving us.

6. It shall not be necessary for GMDC to proceed against the Bidder before proceeding against the Bank and the Guarantee herein contained shall be enforceable against the Bank, notwithstanding any security which GMDC may have obtained from the Bidder at this time when proceeding are taken against Bank hereunder be outstanding or unrealized.
7. We \_\_\_\_\_ (Name of Bank) further undertake to unconditionally pay the amount claimed by GMDC merely on demand and without demur to the extent aforesaid.
8. We, the said Bank lastly undertake not to revoke this guarantee during its currency except with the previous consent of GMDC in writing.
9. This Guarantee will not be discharged due to the change in the constitution of the Bank or the said bidder.
10. The Bank has under its constitution power to give this guarantee and Mr. \_\_\_\_\_ who has signed it on behalf of the Bank have authority to do so.

Yours faithfully

For.....

(Name of the Bank)

Notwithstanding anything contained hereinabove

- (I) Our liability under this Bank Guarantee shall not exceed **Rs** \_\_\_\_\_/-  
**(Rupees \_\_\_\_\_ only)**
- (II) This Bank Guarantee is valid up to \_\_\_\_\_ (Date).
- (III) We are liable to pay the guarantee amount or any part thereof under this bank Guarantee only and only if you serve upon us a written claim or a demand on or before \_\_\_\_\_ (date).
- (IV) This bank guarantee is operative only when accompanied with SFMS advice from us.

Yours faithfully

For \_\_\_\_\_(Name of the Bank)

**Yours faithfully**

**For.....**

**(Name of the Bank)**

**Please note the following details for Compulsory e-confirmation for Bank Guarantee through ICICI Bank through SFMS under our:**

Gujarat Mineral Development Corporation Limited (GMDC)  
132 Ft Ring Road, Near University Ground Vastrapur, Ahmedabad.  
Bank Name: ICICI Bank Ltd  
IFS Code: ICIC0000024  
UIC GMDC530265584 for Field 7037 MT760

**Annexure 16: Format for Bank Guarantee towards Performance Security**

Name of the Bank :  
Address :  
Guarantee No :  
Name of the Bidder : M/s \_\_\_\_\_  
Date of Expiry :  
Limit to liability : Rs \_\_\_\_\_/- (Rupees \_\_\_\_\_  
only)

**Ref:** RFP bearing No. \_\_\_\_\_

**Subject: Bank Guarantee towards Security Deposit.**

Date.....2023

To,  
General Manger (\_\_\_\_),  
Gujarat Mineral Development Corporation Ltd.  
132 Ft Ring Road,  
Near University Ground  
Vastrapur,  
Ahmedabad.

Dear Sir,

In consideration of Gujarat Mineral Development GMDC (hereinafter called "GMDC") which expression shall unless repugnant to the subject of context include his successors and assigns having agreed to exempt **M/s** \_\_\_\_\_(hereinafter called "Bidder") from demand

under the terms and conditions of "Technical Bid Document" ( hereinafter called the said "Bidding Document") issued by the GMDC vide RFP \_\_\_\_\_ . **The present Bank Guarantee is towards Security Deposit (SD) of Bid in terms of Clause No. \_\_\_\_\_ of Chapter – \_\_\_\_\_ of the afore-said bidding document for the due fulfillment by the Bidder of the terms and conditions contained in the said Bidding Document on production of Bank Guarantee for Rs \_\_\_\_\_/- (Rupees \_\_\_\_\_ only)**

- 1) We the \_\_\_\_\_ (Name of the Bank) hereinafter referred to as "Bank" having our registered office at \_\_\_\_\_ do hereby undertake and agree to indemnify and keep indemnified GMDC to extent of **Rs \_\_\_\_\_/- (Rupees \_\_\_\_\_ only)** against any losses, damage cost, charges and expenses caused to or suffered by or that may be caused or suffered by GMDC by reason of any breach or breaches by the Bidder of any of the terms and conditions contained in the said Bidding Document and unconditionally pay the amount claimed by GMDC on demand and without demur to the extent aforesaid.
- 2) We \_\_\_\_\_ (Name of the Bank) do hereby undertake to pay the amounts due and payable under the guarantee without any demur merely on a demand by you stating that the amount claimed is due by way of loss or damage caused to or would be caused or suffered by you by reason of any breach by the said Bidder of any of the terms or conditions contained in the said Bidding Document by reason of the Bidder's failure to perform according to the terms and conditions of said Bidding Document. Any such demand on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding **Rs \_\_\_\_\_/- (Rupees \_\_\_\_\_ only)**.
- 3) We \_\_\_\_\_ (Name of the Bank) further agree that GMDC shall be the sole judge of and as to whether the Bidder has committed any breach or breaches of terms and conditions of the said Bidding Document and the extent of loss, damages, costs, charges and expenses caused to or suffered by or that may caused to or suffered by GMDC on account hereof to the extent of the Bid Security required to be deposited by the Bidder in respect of the said document and the decision of GMDC that the Bidder has committed such breach or breaches and as to the amount or amounts of loss, damages, costs, charges, and expenses caused to or suffered by or that may be caused to or suffered by GMDC shall be final and binding on us.
- 4) We \_\_\_\_\_ (Name of the Bank) undertake to pay to the GMDC any money so demanded notwithstanding any dispute or disputes raised by the said Bidder (s) in any suit or proceeding pending before any forum of law relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the said Bidder (s) shall have no claim against us for making such payment.
- 5) We \_\_\_\_\_ (Name of the Bank) further agree that guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance on the said Bidding Document and that it shall continue to be enforceable till you certify that terms and conditions of the said Bidding Document have been fully and properly carried out by the said Bidder and accordingly discharge the guarantee. Unless a demand or claim under this guaranteed is made on us in writing on or before the (date) \_\_\_\_\_ we shall be discharged from all liability under this guarantee thereafter.

- 6) We \_\_\_\_\_ (Name of the Bank) further agree with you that you have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Bidding Document or to extend time of performance by the said Bidder from time to time or to postpone for any time or from time to time any of the powers exercisable by you against the said Bidder and to forbear or enforce any of the terms and conditions relating to the said Bidding Document and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said Bidder or for any forbearance act or omission on your part or any indulgence by you to the said Bidder or any such matter or thing whatsoever under the law relating to sureties would but for this provision have effect of so relieving us. The Bank further agrees that in case this guarantee is required for a longer period, the bank may extend the same.
- 7) We \_\_\_\_\_ (Name of the Bank) further undertake to unconditionally pay the amount claimed by GMDC merely on demand and without demur to the extent aforesaid.
- 8) We, the said Bank lastly undertake not to revoke this guarantee during its currency except with the previous consent of GMDC in writing.
- 9) This Guarantee will not be discharged due to the change in the constitution of the Bank or the said Bidder.
- 10) The Bank has under its constitution power to give this guarantee and \_\_\_\_\_ Mr. \_\_\_\_\_ who has signed it on behalf of the Bank have authority to do so.

Yours faithfully

For.....

(Name of the Bank)

Notwithstanding anything contained hereinabove

- (I) Our liability under this Bank Guarantee shall not exceed **Rs** \_\_\_\_\_/-  
**(Rupees \_\_\_\_\_ only)**
- (II) This Bank Guarantee is valid up to \_\_\_\_\_ (Date).
- (III) We are liable to pay the guarantee amount or any part thereof under this bank Guarantee only and only if you serve upon us a written claim or a demand on or before \_\_\_\_\_ (date).
- (IV) This bank guarantee is operative only when accompanied with SFMS advice from us.

Yours faithfully

For \_\_\_\_\_(Name of the Bank)

## **Annexure 17: List of approved banks for EMD, RFP fees, and Performance Security**

The following list of banks can get updated from time to time as per the latest notice provided by the Government of Gujarat. The Bidder can provide EMD / RFP Fee / Performance Security from any of the approved banks by the Government of Gujarat in the latest notice, except for the co-operative banks

**Acceptance of Bank Guarantee as  
Security Deposit and Earnest  
Money Deposit.**

### **Government of Gujarat**

#### **Finance Department**

GR. No.: FD/MSM/e-file/4/2023/0057/D.M.O.

Date: 21/04/2023

Read: FD GR. No.: EMD/4/2022/0002/DMO Dt. 20/05/2022

#### **Preamble:**

Tendering authorities of the State Government and its Boards/Corporations/PSUs frequently take Bank Guarantee from the bidders towards Security Deposit and Earnest Money Deposit. The State Government had issued the list of eligible banks vide above read resolutions of this department dated 20/05/2022.

After careful consideration, the Government has decided to approve the list of Banks whose Bank Guarantees would be accepted for the purpose mentioned above. It has now been decided to resolve as follows:

#### **Resolution:**

Government Departments and State Government Boards / Corporations / PSUs would accept Bank Guarantee (towards Security Deposit and Earnest Money Deposit) issued by any of the banks included in the **Annexure I**, attached to this Resolution.

The tendering authority will be required to ascertain the authenticity of the Bank Guarantee and set up necessary internal control procedures.

By order and in the name of the Governor of Gujarat.

  
(S. Chhakehhuak)

Additional Secretary (Budget)

Finance Department

**To,**  
The Secretary to His Excellency Governor of Gujarat, Raj Bhavan, Gandhinagar  
Principal Secretary to Hon. Chief Minister  
PS to Hon. Finance Minister  
PS to all Hon. Ministers, State Ministers and Deputy Ministers  
PS to Chief Secretary  
PS to Principal Secretary, Finance Department  
PS to Secretary (EA), Finance Department  
PS to Secretary (Expenditure), Finance Department  
PS to Additional Secretary (B), Finance Department  
All Administrative Departments, Sachivalaya, Gandhinagar  
System Manager, Finance Department for put up on GSWAN website  
Select File DMO-Finance Department

**Annexure I.**

**Finance Department, GR. No.: FD/MSM/e-file/4/2023/0057/D.M.O.**

Date: 21/04/2023

(A) Guarantees issued by the following banks will be accepted as SD/EMD on permanent basis:

❖ **All Nationalized Banks**

(B) Guarantees issued by the following Banks will be accepted as SD/EMD for the period up to March 31, 2024. The validity cut-off date in the GR is with respect to the date of issue of Bank Guarantee irrespective of the date of termination of Bank Guarantee.

Sr No	Name of Banks	Sr No	Name of Banks
1	AXIS Bank	17	Kotak Mahindra Bank
2	AU Small Finance Bank	18	South Indian Bank
3	Bandhan Bank	19	Standard Chartered Bank
4	BNP Paribas	20	Tamilnadu Mercantile Bank
5	City Union Bank	21	Utkarsh Small Finance Bank
6	CSB Bank	22	The Kalapur Commercial Co-op. Bank
7	DBS Bank India Limited	23	Ahmedabad Mercantile Co-op. Bank
8	DCB Bank	24	Nutan Nagarik Sahakari Bank Ltd.
9	Equitas Small Finance Bank	25	Rajkot Nagarik Sahakari Bank Ltd.
10	FEDERAL Bank	26	Saraswat Co-Operative Bank Ltd
11	HDFC Bank	27	SVC Co-Operative Bank LTD.
12	HSBC Bank	28	The Gujarat State Co-operative Bank
13	ICICI Bank	29	The Mehsana Urban Co-Op. Bank Ltd
14	IndusInd Bank	30	The Surat District Co-Operative Bank Ltd
15	Karnataka Bank	31	The Surat People's Co-Op. Bank Ltd
16	Karur Vysya Bank	32	Saurashtra Gramin Bank

All the eligible banks are instructed to collect the original documents/papers of guarantee from the concerned tendering authority.

  
(S. Chhakchhuak)

Additional Secretary (Budget)

Finance Department

-----XXXXX-----