

	Scope of Work	Lethabo Power Station
---	----------------------	------------------------------

Title: **Lethabo Power Station Ducting Contract
Scope and Technical Evaluation
Requirements**

Unique Identifier: **N/A**

Alternative Identifier: **N/A**

Revision: **00**

Total Pages: **31**

Next Review Date: **As Required**

Disclosure **Controlled**
Classification: **Disclosure**

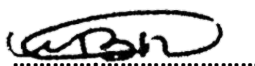
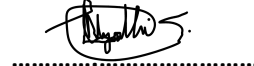
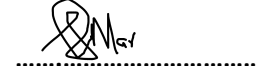
This document has been approved and authorised by:

Compiled by:

Supported By:

Supported By:

Authorised by:

Pretesh Parag

Nathi Mazibuko

Nkululeko Nyathi

Sifiso Maringa

**Draught Plant O&M
Engineer**

BPE Manager

Outage Coordinator

Outage Manager

Date:
04/01/2022

Date:
2022-01-06

Date:
10/01/2022

Date:
2022.01.10

General: To provide perspective for welding, the following spares were provided for our last GO outage (note this is by no means a comprehensive list and is merely to provide some insight):

Material	Quantity	Unit
SHEET MTL:WD 1.2 M;LG 2.5 M;THK 5 MM	59000	kg
ELECTRODE WELDG:2.5 MM;E6013;MS;BOX 5 KG	600	kg
ELECTRODE WELDG:075-273;3.15 MM	2000	kg
ELECTRODE WELDG:3.2 MM;A5.4-E; E316L-16	240	kg
DISK CUTNG:OD 230 MM;22.23 MM;THK 3.2 MM	1000	each
DISK GRINDG:115 MM;22.23 MM;13300 RPM	1500	each
DISK CUTNG:OD 115 MM;22.23 MM;AL OXIDE	1500	each
NOZZLE TRCH:W005-015;CUTTING;1.2 MM;CU	140	each
GAS:OXYGEN TECHNICAL;99.5 PCT;13.6 KG	220	each
GAS ACETLN:DISSOLVED;ACETYLENE 99 PCT	120	each
PLATE MTL:WD 1.5 M X LG 3 M X THK 6 MM	4420	kg
ELECTRODE WELDG:A127;3.2 MM;CR/NI HIGH	200	kg
PLATE MTL:BS4360/43A;43A	60	each
PLATE MTL:BS4360;43A;PERFORATED SCREEN	60	each
PLATE MTL:BS 4360;43A;PERFORATED SCREEN	60	each
PLATE MTL:BS4360;43A;PERFORATED SCREEN	60	each

Typical Crew Requirements: ALL AIR / FLUE GAS DUCTING AND DAMPERS AS PER SCOPE OF WORK BREAKDOWN

Core Crew	PER PERSON OR ITEM	RATE PER HOUR	CONTRACTOR SUGGESTED CREW QTY BASED ON ENTIRE SCOPE
Artisan, Maximum Legally Allowed Time per week	1		
Fitter, Maximum Legally Allowed Time per week	1		
Artisan Helper, Maximum Legally Allowed Time per week	1		
B Class Welder, Maximum Legally Allowed Time per week	1		
Bakkie Driver, Maximum Legally Allowed Time per week	1		
Material Controller, Maximum Legally Allowed Time per week	1		
Boilermaker, Maximum Legally Allowed Time per week	1		
Electrician, Maximum Legally Allowed Time per week	1		
Electrician Assistant, Maximum Legally Allowed Time per week	1		
Fire Watch, Maximum Legally Allowed Time per week	1		
QC Inspector - Mechanical, Maximum Legally Allowed Time per week	1		
QC Inspector - Welding, Maximum Legally Allowed Time per week	1		
Rigger, Maximum Legally Allowed Time per week	1		
Rigger Assistant, Maximum Legally Allowed Time per week	1		
Crane Operator, Maximum Legally Allowed Time per week	1		
Safety Officer, Maximum Legally Allowed Time per week	1		
Skilled Labourer, Maximum Legally Allowed Time per week	1		
Semi Skilled Labourer, Maximum Legally Allowed Time per week	1		
Storeman, Normal Time, Maximum Legally Allowed Time per week	1		
Supervisor, Normal Time, Maximum Legally Allowed Time per week	1		
Project Manager, Maximum Legally Allowed Time per week	1		
Site Manager, Maximum Legally Allowed Time per week	1		
Admin Staff,, Maximum Legally Allowed Time per week	1		
Site Establishment, Maximum Legally Allowed Time per week	1		
Site Disestablishment, Maximum Legally Allowed Time per week	1		
Appointed (Authorised) Supervisor (AS), Maximum Legally Allowed Time per week	1		
Responsible Person (RP), Maximum Legally Allowed Time per week	1		
Unskilled Labourer, Maximum Legally Allowed Time per week	1		
Material Controller	1		
Total			

**Typical Equipment Requirements: ALL AIR / FLUE GAS DUCTING AND DAMPERS AS PER SCOPE OF WORK
BREAKDOWN**

General Equipment	PER ITEM	RATE PER HOUR	CONTRACTOR SUGGESTED QTY BASED ON ENTIRE SCOPE
220V Welding machine with cables	1		
10" Angle grinder + consumables	1		
6" Angle grinder + consumables	1		
220V Extension 30m long with double plug	1		
380V Extension 30 m long with round plug	1		
380V Welding machine with cables	1		
Cutting torch complete with 1.2 nozzle, 30 meters hose	1		
Fire blanket	1		
Fire extinguisher with test certificate	1		
Fluorescent light on small stand	1		
Wedge	1		
Welding screen	1		
Two way radio with sling	1		
DB board	1		
Fluorescent light on small stand	1		
Torch / Flash light	1		
Tearoom	1		
Wedge	1		
1 meter, 2 ton sling	1		
16mm manilla rope per metre	1		
2 ton plate grab	1		
2 ton, 30m, winch	1		
4 meter, 2 ton sling	1		
Safety harness	1		
Snatch block single pulley	1		
1.5 ton chain block	1		
2 meter, 2 ton sling	1		
2 ton shackle	1		
220V Extension, 4 plug, 30 meters long	1		
Barricade Tape	1		
Bakkie & trailer	1		
Site Office	1		
Store with racks	1		
Dust masks	1		
Ear protection	1		
Plastic Gloves	1		
Welding Gloves	1		
Gloves General	1		
Overalls	1		
Safety glasses	1		
Safety helmets	1		
Safety shoes	1		
Medical examination	1		
Welding helmet	1		
General Tools (Screw Drivers / Spanners / Pliers etc.)	1		
Welding Aprin	1		
Total			

Scope Of Work - Primary Air Heaters	Spares Required	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)									
Left and Right Hand Side Tubular Primary Air Heater - Bottom Short Bank Gas Side									
Replace badly damaged inserts, maximum number of inserts 6000 per side inserts.	Ceramic Inserts/ Metal Inserts					X			X
Replace badly damaged inserts, maximum number of inserts 4000 per side inserts.	Ceramic Inserts/ Metal Inserts			X	X		X	X	
Replace badly damaged inserts, maximum number of inserts 500 per side inserts.	Ceramic Inserts/ Metal Inserts		AR						
Patch the tube plate with Tube plate templates (300mm by 210 mm) to be installed on tube plate that is worn or where holes are evident (100 per side).	Tube plate templates					X			X
Patch the tube plate with Tube plate templates (300mm by 210 mm) to be installed on tube plate that is worn or where holes are evident (75 per side).	Tube plate templates			X	X		X	X	
Patch the tube plate with Tube plate templates (300mm by 210 mm) to be installed on tube plate that is worn or where holes are evident (20 per side).	Tube plate templates		AR						
Implement wear protection on the supports and stays. (100%)				X	X	X	X	X	X
Implement wear protection on the supports and stays. (25%)			AR						
Ceramic Sealing Paste wear protection to be applied where holes are evident, around inserts and portions of the Tube Plate. (100%)	Arc BX 2 Ceramic Paste			X	X	X	X	X	X
Ceramic Sealing Paste wear protection to be applied where holes are evident, around inserts and portions of the Tube Plate. (25%)	Arc BX 2 Ceramic Paste		AR						
Gratings & Sacrificial Tube Plates to be replaced (100%)	Grating (Approximate Size: 840mm X 400mm) Grating (Approximate Size: 1020mm X 800mm) Grating (Approximate Size: 1020mm X 520mm) Grating (Approximate Size: 370mm X 2100mm) Sacrificial Tube Plates (Approximate Size: 840mm X 400mm) Sacrificial Tube Plates (Approximate Size: 1020mm X 800mm) Sacrificial Tube Plates (Approximate Size: 1020mm X 520mm) Sacrificial Tube Plates (Approximate Size: 370mm X 2100mm)			X	X	X	X	X	X

Gratings & Flow straighteners (25%)	Grating (Approximate Size: 840mm X 400mm)		AR						
	Grating (Approximate Size: 1020mm X 800mm)								
	Grating (Approximate Size: 1020mm X 520mm)								
	Grating (Approximate Size: 370mm X 2100mm)								
	Sacrificial Tube Plates (Approximate Size: 840mm X 400mm)								
	Sacrificial Tube Plates (Approximate Size: 1020mm X 800mm)								
	Sacrificial Tube Plates (Approximate Size: 1020mm X 520mm)								
	Sacrificial Tube Plates (Approximate Size: 370mm X 2100mm)								
Ceramic Coating and protection of tube sheet	ARC S7 AR Coating			X	X	X	X	X	X
Conduct 10% NDTs on all welds performed			X	X	X	X	X	X	X
Create Weld Maps for Traceability			X	X	X	X	X	X	X

Scope Of Work - Primary Air Heaters	Spares Required	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)									
Left and Right Hand Side Tubular Primary Air Heater - Top Short Bank Gas Side									
Implement wear protection on the supports and stays. (100%)				X	X	X	X	X	X
Implement wear protection on the supports and stays. (25%)			AR						
Ceramic Sealing Paste wear protection to be applied where holes are evident, around inserts and portions of the Tube Plate. (100%)	Arc BX 2 Ceramic Paste			X	X	X	X	X	X
Ceramic Sealing Paste wear protection to be applied where holes are evident, around inserts and portions of the Tube Plate. (25%)	Arc BX 2 Ceramic Paste		AR						
Conduct 10% NDTs on all welds performed			X	X	X	X	X	X	X
Create Weld Maps for Traceability			X	X	X	X	X	X	X
Conduct RFT (Remote Field Tests) on 10% of tubes				AR	AR	X	AR	AR	X
Left and Right Hand Side Tubular Primary Air Heater - Top Long Bank Gas Side									
8 Corners (4 left hand side air heater and 4 right hand side air heater) of the expansion joint above the tube plate needs to be renewed				X	X	X	X	X	X
Implement wear protection on the supports and stays. (100%)									
Implement wear protection on the supports and stays. (25%)			AR						
Blank off marked leaking tubes				X	X	X	X	X	X
Ceramic Sealing Paste wear protection to be applied where holes are evident, around inserts and portions of the Tube Plate. (100%)	Arc BX 2 Ceramic Paste			X	X	X	X	X	X
Ceramic Sealing Paste wear protection to be applied where holes are evident, around inserts and portions of the Tube Plate. (25%)	Arc BX 2 Ceramic Paste		AR						
Patch the tube plate with Tube plate templates (to be installed on tube plate that is worn or where holes are evident)	Tube plate templates		AR	X	X	X	X	X	X
Conduct Remote Field Thickness test (20% of each air heater +/- 1190 tubes per side)				AR	AR	AR	AR	AR	AR
Conduct 10% NDTs on all welds performed			X	X	X	X	X	X	X
Create Weld Maps for Traceability			X	X	X	X	X	X	X
Conduct RFT (Remote Field Tests) on 10% of tubes				AR	AR	X	AR	AR	X
Left and Right Hand Side Tubular Primary Air Heater - Bottom Long Bank Gas Side									
Implement wear protection on the supports and stays. (100%)				X	X	X	X	X	X
Implement wear protection on the supports and stays. (25%)			AR						
Blank off marked leaking tubes				X	X	X	X	X	X
Ceramic Sealing Paste wear protection to be applied where holes are evident, around inserts and portions of the Tube Plate. (100%)	Arc BX 2 Ceramic Paste			X	X	X	X	X	X
Ceramic Sealing Paste wear protection to be applied where holes are evident, around inserts and portions of the Tube Plate. (25%)	Arc BX 2 Ceramic Paste		AR						
Conduct 10% NDTs on all welds performed			X	X	X	X	X	X	X
Create Weld Maps for Traceability			X	X	X	X	X	X	X

Scope Of Work - Primary Air Heaters	Spares Required	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)									
Left and Right Hand Side Tubular Primary Air Heater (General) - All Areas Air and Gas									
Repair expansion joints cover plate			AR	X	X	X	X	X	X
Repair metal expansion joints			AR	X	X	X	X	X	X
Replace Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Adjust Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Replace guide vanes at the Primary air heater gas inlet			AR	X	X	X	X	X	X
Repair guide vanes at the Primary air heater gas inlet			AR	X	X	X	X	X	X
Replace guide vanes at the Primary air heater gas outlet			AR	X	X	X	X	X	X
Repair guide vanes at the Primary air heater gas Outlet			AR	X	X	X	X	X	X
Repair casing slopes (gas side bottom, long and short banks) (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]			AR	X	X	X	X	X	X
Repair casing slopes (gas side bottom, long and short banks) (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]			AR						
Repair primary air heater casings (top, bottom & side walls) (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]				X	X	X	X	X	X
Repair air heater casings (top, bottom & side walls) (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]			AR						
Repair I-Beams (100%)			AR	X	X	X	X	X	X
Repair Supports and Stays(100%)			AR	X	X	X	X	X	X
Replace Supports and Stays			AR	AR	AR	X	AR	AR	X
Repair Stiffeners (100%)			AR	X	X	X	X	X	X
Replace Stiffeners			AR	AR	AR	X	AR	AR	X
Repair External Structure (100%)			AR	X	X	X	X	X	X
Replace Wear Protections			AR	X	X	X	X	X	X
Implement Wear Protection on Supports and Stays			AR	X	X	X	X	X	X
Repair doors (Hinges, Handles and locks)			AR	X	X	X	X	X	X
Replace Doors			AR	AR	AR	AR	AR	AR	AR
Replace Door Seals and apply high temperature silicone			AR	X	X	X	X	X	X
Repair/Replace Thermocouple Pockets			AR	X	X	X	X	X	X
Implement test pockets for on load testing			AR	AR	AR	AR	AR	AR	AR
Holes picked up need to be addressed.			X	X	X	X	X	X	X
Conduct 10% NDTs on all welds performed			X	X	X	X	X	X	X
Create Weld Maps for Traceability			X	X	X	X	X	X	X

Scope Of Work -Flue Gas Ducts	Spares Required	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)									
From Left and Right Hand Side Economiser gas outlet (including slope) to Secondary Air Heater gas inlet LH and RH									
Open all inspection doors			AR	X	X	X	X	X	X
Open bolted inspection doors			AR	X	X	X	X	X	X
Cleaning and vacuuming should be done to remove ash and debris.			AR	X	X	X	X	X	X
Remove expansion joints cover plate for inspection			AR	X	X	X	X	X	X
Repair/Replace expansion joints cover plate			AR	X	X	X	X	X	X
Repair metal expansion joints -Remove protective plates on expansion joints -Remove all debris and lagging from grooves -Inspect for cracks and repair any cracks -Replace all grooves with lagging -Replace protective plates			AR	X	X	X	X	X	X
Replace Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Adjust Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Replace guide vanes at the Primary air heater gas inlet			AR	X	X	X	X	X	X
Repair guide vanes at the Primary air heater gas inlet			AR	X	X	X	X	X	X
Replace guide vanes at the Secondary air heater gas inlet			AR	X	X	X	X	X	X
Repair guide vanes at the Secondary air heater gas inlet			AR	X	X	X	X	X	X
Repair casing slopes (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR	X	X	X	X	X	X
Repair casing slopes (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR						
Repair casings (top, bottom & side walls) (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR	X	X	X	X	X	X
Repair casings (top, bottom & side walls) (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR						
Repair I-Beams (100%)			AR	X	X	X	X	X	X
Repair Supports and Stays (100%)			AR	X	X	X	X	X	X
Replace Supports and Stays			AR	AR	AR	X	AR	AR	X
Repair Stiffeners (100%)			AR	X	X	X	X	X	X
Replace Stiffeners			AR	AR	AR	X	AR	AR	X
Repair External Structure (100%)			AR	X	X	X	X	X	X
Replace Protections			AR	X	X	X	X	X	X
Repair Inspection Doors (Hinges, Handles and locks)			AR	X	X	X	X	X	X
Replace Inspection Doors			AR	AR	AR	AR	AR	AR	AR
Replace Inspection Door Seals and apply high temperature silicone			AR	X	X	X	X	X	X
Holes picked up need to be addressed.			X	X	X	X	X	X	X
Repair/Replace Thermocouple/Transmitter Pockets			AR	X	X	X	X	X	X
Install test pockets for on load testing			AR	AR	AR	AR	AR	AR	AR
Repair existing test ports			AR	X	X	X	X	X	X
Coat selected areas with concrete layer for wear protection			AR	AR	AR	AR	AR	AR	AR
Coat selected Vanes for wear protection			AR	AR	AR	AR	AR	AR	AR
Repair external Structure around the O2 matrix and Cegrit sampler			AR	X	X	X	X	X	X

Conduct repairs on Cegrit Sampling system / pipework and probes (replace necessary items)			AR	X	X	X	X	X	X
Conduct repairs on O2 Matrix system / pipework and probes (replace necessary items)			AR	X	X	X	X	X	X
Replace O2 Matrix probes			AR	X	X	X	X	X	X
Replace stiffener holding O2 Matrix Probes in place			AR	X	X	X	X	X	X
In cases where too frequent patch/window repairs are done, this would require larger sectional replacements for effective maintenance			AR	AR	AR	X	AR	AR	X
Duct Hangers to be inspected, repaired/replaced			AR	X	X	X	X	X	X
Conduct 10% NDTs on all welds performed			X	X	X	X	X	X	X
Create Weld Maps for Traceability			X	X	X	X	X	X	X
Close inspection Doors and bolted inspection doors			AR	X	X	X	X	X	X

Scope Of Work -Flue Gas Ducts	Spares Required	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)									
Left and Right Hand Side Secondary Air Heater gas inlet (Up to and including the last expansion joint over the Secondary Air Heater)									
Open all inspection doors			AR	X	X	X	X	X	X
Open bolted inspection doors			AR	X	X	X	X	X	X
Cleaning and vacuuming should be done to remove ash and debris.			AR	X	X	X	X	X	X
Remove expansion joints cover plate for inspection			AR	X	X	X	X	X	X
Repair/Replace expansion joints cover plate			AR	X	X	X	X	X	X
Repair metal expansion joints -Remove protective plates on expansion joints -Remove all debris and lagging from grooves -Inspect for cracks and repair any cracks -Replace all grooves with lagging -Replace protective plates			AR	X	X	X	X	X	X
Replace Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Adjust Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Replace guide vanes at the Secondary air heater gas inlet			AR	X	X	X	X	X	X
Repair guide vanes at the Secondary air heater gas inlet			AR	X	X	X	X	X	X
Repair casings (top, bottom & side walls) (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm		X	X	X	X	X	X
Repair casings (top, bottom & side walls) (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR						
Request to open lagging and cladding near the Secondary Air Heater motor and gearbox to address leakage in areas inaccessible from inside the duct			AR	X	X	X	X	X	X
Repair I-Beams (100%)			AR	X	X	X	X	X	X
Repair Supports and Stays (100%)			AR	X	X	X	X	X	X
Replace Supports and Stays			AR	AR	AR	X	AR	AR	X
Repair Stiffeners (100%)			AR	X	X	X	X	X	X
Replace Stiffeners			AR	AR	AR	X	AR	AR	X
Repair External Structure (100%)			AR	X	X	X	X	X	X
Replace Protections			AR	X	X	X	X	X	X
Repair Inspection Doors (Hinges, Handles and locks)			AR	X	X	X	X	X	X
Replace Inspection Doors			AR	AR	AR	AR	AR	AR	AR
Replace Inspection Door Seals and apply high temperature silicone			AR	X	X	X	X	X	X
Holes picked up need to be addressed.			X	X	X	X	X	X	X
Repair/Replace Thermocouple/Transmitter Pockets			AR	X	X	X	X	X	X
Install test pockets for on load testing			AR	AR	AR	AR	AR	AR	AR
Repair existing test ports			AR	X	X	X	X	X	X
Coat selected Vanes for wear protection			AR	AR	AR	AR	AR	AR	AR
In cases wear too frequent patch/window repairs are done, this would require larger sectional replacements for effective maintenance			AR	AR	AR	X	AR	AR	X
Duct Hangers to be inspected, repaired/replaced			AR	X	X	X	X	X	X
Conduct 10% NDTs on all welds performed			X	X	X	X	X	X	X
Create Weld Maps for Traceability			X	X	X	X	X	X	X
Close inspection Doors and bolted inspection doors			AR	X	X	X	X	X	X

Scope Of Work -Flue Gas Ducts	Spares Required	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)									
Left and Right Hand Side Secondary Air Heater gas outlet (from and including the first expansion joint under the Secondary Air Heater) to Precipitator inlet duct									
Open all inspection doors			AR	X	X	X	X	X	X
Open bolted inspection doors			AR	X	X	X	X	X	X
Close inspection Doors and bolted inspection doors			AR	X	X	X	X	X	X
Cleaning and vacuuming should be done to remove ash and debris.			AR	X	X	X	X	X	X
Remove expansion joints cover plate for inspection			AR	X	X	X	X	X	X
Repair/Replace expansion joints cover plate			AR	X	X	X	X	X	X
Repair metal expansion joints -Remove protective plates on expansion joints -Remove all debris and lagging from grooves -Inspect for cracks and repair any cracks -Replace all grooves with lagging -Replace protective plates			AR	X	X	X	X	X	X
Replace Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Adjust Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Replace guide vanes at the Secondary air heater gas outlet			AR	X	X	X	X	X	X
Repair guide vanes at the Secondary air heater gas outlet			AR	X	X	X	X	X	X
Replace guide vanes at the Precipitator gas inlet duct			AR	X	X	X	X	X	X
Repair guide vanes at Precipitator gas inlet duct			AR	X	X	X	X	X	X
Repair casing slopes (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR	X	X	X	X	X	X
Repair casing slopes (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR						
Repair casings (top, bottom & side walls) (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm		X	X	X	X	X	X
Repair casings (top, bottom & side walls) (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR						
Repair I-Beams (100%)			AR	X	X	X	X	X	X
Repair Supports and Stays (100%)			AR	X	X	X	X	X	X
Replace Supports and Stays			AR	AR	AR	X	AR	AR	X
Repair Stiffeners (100%)			AR	X	X	X	X	X	X
Replace Stiffeners			AR	AR	AR	X	AR	AR	X
Repair External Structure (100%)			AR	X	X	X	X	X	X
Replace Protections			AR	X	X	X	X	X	X
Repair Inspection Doors (Hinges, Handles and locks)			AR	X	X	X	X	X	X
Replace Inspection Doors			AR	AR	AR	AR	AR	AR	AR
Replace Inspection Door Seals and apply high temperature grease			AR	X	X	X	X	X	X
Holes picked up need to be addressed.			X	X	X	X	X	X	X
Repair/Replace Thermocouple/Transmitter Pockets			AR	X	X	X	X	X	X
Install test pockets for on load testing			AR	AR	AR	AR	AR	AR	AR
Repair existing test ports			AR	X	X	X	X	X	X

Coat selected areas with concrete layer for wear protection			AR	AR	AR	AR	AR	AR	AR
Coat selected Vanes for wear protection			AR	AR	AR	AR	AR	AR	AR
In cases wear too frequent patch/window repairs are done, this would require larger sectional replacements for effective maintenance			AR	AR	AR	X	AR	AR	X
Service the Drain ports and associated slide gates, replace neccessary components			AR	X	X	X	X	X	X
Duct Hangers to be inspected, repaired/replaced			AR	X	X	X	X	X	X
Conduct 10% NDTs on all welds performed			X	X	X	X	X	X	X
Create Weld Maps for Traceability			X	X	X	X	X	X	X

Scope Of Work -Flue Gas Ducts	Spares Required	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)									
Left and Right Hand Side Primary Air Heater gas inlet (up to Primary Air Heater)									
Open all inspection doors			AR	X	X	X	X	X	X
Open bolted inspection doors			AR	X	X	X	X	X	X
Close inspection Doors and bolted inspection doors			AR	X	X	X	X	X	X
Cleaning and vacuuming should be done to remove ash and debris.			AR	X	X	X	X	X	X
Remove expansion joints cover plate for inspection			AR	X	X	X	X	X	X
Repair/Replace expansion joints cover plate			AR	X	X	X	X	X	X
Repair metal expansion joints -Remove protective plates on expansion joints -Remove all debris and lagging from grooves -Inspect for cracks and repair any cracks -Replace all grooves with lagging -Replace protective plates			AR	X	X	X	X	X	X
Replace Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Adjust Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Replace guide vanes at the Primary air heater gas inlet			AR	X	X	X	X	X	X
Repair guide vanes at the Primary air heater gas inlet			AR	X	X	X	X	X	X
Repair casings (top, bottom & side walls) (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm		X	X	X	X	X	X
Repair casings (top, bottom & side walls) (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR						
Repair I-Beams (100%)			AR	X	X	X	X	X	X
Repair Supports and Stays (100%)			AR	X	X	X	X	X	X
Replace Supports and Stays			AR	AR	AR	X	AR	AR	X
Repair Stiffeners (100%)			AR	X	X	X	X	X	X
Replace Stiffeners			AR	AR	AR	X	AR	AR	X
Repair External Structure (100%)			AR	X	X	X	X	X	X
Replace Protections			AR	X	X	X	X	X	X
Repair Inspection Doors (Hinges, Handles and locks)			AR	X	X	X	X	X	X
Replace Inspection Doors			AR	AR	AR	AR	AR	AR	AR
Replace Inspection Door Seals and apply high temperature grease			AR	X	X	X	X	X	X
Holes picked up need to be addressed.			X	X	X	X	X	X	X
Repair/Replace Thermocouple/Transmitter Pockets			AR	X	X	X	X	X	X
Install test pockets for on load testing			AR	AR	AR	AR	AR	AR	AR
Repair existing test ports			AR	X	X	X	X	X	X
Coat selected areas with concrete layer for wear protection			AR	AR	AR	AR	AR	AR	AR
Coat selected Vanes for wear protection			AR	AR	AR	AR	AR	AR	AR
In cases wear too frequent patch/window repairs are done, this would require larger sectional replacements for effective maintenance			AR	AR	AR	X	AR	AR	X
Duct Hangers to be inspected, repaired/replaced			AR	X	X	X	X	X	X
Conduct 10% NDTs on all welds performed			X	X	X	X	X	X	X
Create Weld Maps for Traceability			X	X	X	X	X	X	X

Scope Of Work -Flue Gas Ducts	Spares Required	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)									
Left and Right Hand Side Primary Air Heater gas outlet Precipitator inlet duct									
Open all inspection doors			AR	X	X	X	X	X	X
Open bolted inspection doors			AR	X	X	X	X	X	X
Close inspection Doors and bolted inspection doors			AR	X	X	X	X	X	X
Cleaning and vacuuming should be done to remove ash and debris.			AR	X	X	X	X	X	X
Remove expansion joints cover plate for inspection			AR	X	X	X	X	X	X
Repair/Replace expansion joints cover plate			AR	X	X	X	X	X	X
Repair metal expansion joints -Remove protective plates on expansion joints -Remove all debris and lagging from grooves -Inspect for cracks and repair any cracks -Replace all grooves with lagging -Replace protective plates			AR	X	X	X	X	X	X
Replace Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Adjust Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Replace guide vanes at the Secondary air heater gas outlet			AR	X	X	X	X	X	X
Repair guide vanes at the Secondary air heater gas outlet			AR	X	X	X	X	X	X
Replace guide vanes at the Precipitator gas inlet duct			AR	X	X	X	X	X	X
Repair guide vanes at Precipitator gas inlet duct			AR	X	X	X	X	X	X
Repair casing slopes (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]			AR	X	X	X	X	X	X
Repair casing slopes (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]			AR						
Repair casings (top, bottom & side walls) (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR	X	X	X	X	X	X
Repair casings (top, bottom & side walls) (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR						
Repair I-Beams (100%)			AR	X	X	X	X	X	X
Repair Supports and Stays (100%)			AR	X	X	X	X	X	X
Replace Supports and Stays			AR	AR	AR	X	AR	AR	X
Repair Stiffeners (100%)			AR	X	X	X	X	X	X
Replace Stiffeners			AR	AR	AR	X	AR	AR	X
Repair External Structure (100%)			AR	X	X	X	X	X	X
Replace Protections			AR	X	X	X	X	X	X
Repair Inspection Doors (Hinges, Handles and locks)			AR	X	X	X	X	X	X
Replace Inspection Doors			AR	AR	AR	AR	AR	AR	AR
Replace Inspection Door Seals and apply high temperature silicone			AR	X	X	X	X	X	X
Holes picked up need to be addressed.			X	X	X	X	X	X	X
Repair/Replace Thermocouple/Transmitter Pockets			AR	X	X	X	X	X	X
Install test pockets for on load testing			AR	AR	AR	AR	AR	AR	AR
Repair existing test ports			AR	X	X	X	X	X	X
Coat selected areas with concrete layer for wear protection			AR	AR	AR	AR	AR	AR	AR
Coat selected Vanes for wear protection			AR	AR	AR	AR	AR	AR	AR
In cases wear too frequent patch/window repairs are done, this would require larger sectional replacements for effective maintenance			AR	AR	AR	X	AR	AR	X
Duct Hangers to be inspected, repaired/replaced			AR	X	X	X	X	X	X

Conduct 10% NDTs on all welds performed			X	X	X	X	X	X	X
Create Weld Maps for Traceability			X	X	X	X	X	X	X

Scope Of Work -Flue Gas Ducts	Spares Required	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)									
Precipitator inlet duct: Left Hand Outer; Left Hand Inner; Right Hand Inner; Right Hand Outer. (Up to and Including Precipitator Distribution Screens)									
Open all inspection doors			AR	X	X	X	X	X	X
Open bolted inspection doors			AR	X	X	X	X	X	X
Close inspection Doors and bolted inspection doors			AR	X	X	X	X	X	X
Cleaning and vacuuming should be done to remove ash and debris.			AR	X	X	X	X	X	X
Remove expansion joints cover plate for inspection			AR	X	X	X	X	X	X
Repair/Replace expansion joints cover plate			AR	X	X	X	X	X	X
Repair metal expansion joints -Remove protective plates on expansion joints -Remove all debris and lagging from grooves -Inspect for cracks and repair any cracks -Replace all grooves with lagging -Replace protective plates			AR	X	X	X	X	X	X
Replace Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Repair/Replace Fabric Expansion Joints			AR	X	X	X	X	X	X
Adjust Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Replace guide vanes			AR	X	X	X	X	X	X
Repair guide vanes (100%)			AR	X	X	X	X	X	X
Repair guide vanes (25%)			AR						
Replace all 3 layers Distribution Screens			AR	AR	AR	X	AR	AR	X
Replace all 3 layers Distribution Screens where severe damage is noted			AR	X	X	X	X	X	X
Repair casing slopes (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR	X	X	X	X	X	X
Repair casing slopes (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR						
Repair casings (top, bottom & side walls) (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm		X	X	X	X	X	X
Repair casings (top, bottom & side walls) (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR						
Repair I-Beams (100%)			AR	X	X	X	X	X	X
Repair Supports and Stays (100%)			AR	X	X	X	X	X	X
Replace Supports and Stays			AR	AR	AR	X	AR	AR	X
Repair Stiffeners (100%)			AR	X	X	X	X	X	X
Replace Stiffeners			AR	AR	AR	X	AR	AR	X
Repair External Structure (100%)			AR	X	X	X	X	X	X
Replace Protections			AR	X	X	X	X	X	X
Repair Inspection Doors (Hinges, Handles and locks)			AR	X	X	X	X	X	X
Replace Inspection Doors			AR	AR	AR	AR	AR	AR	AR
Replace Inspection Door Seals and apply high temperature paint			AR	X	X	X	X	X	X
Holes picked up need to be addressed.			X	X	X	X	X	X	X
Repair/Replace Thermocouple/Transmitter Pockets			AR	X	X	X	X	X	X
Install test pockets for on load testing			AR	AR	AR	AR	AR	AR	AR
Repair existing test ports			AR	X	X	X	X	X	X

Coat selected areas with concrete layer for wear protection			AR	AR	AR	AR	AR	AR	AR
Coat selected Vanes for wear protection			AR	AR	AR	AR	AR	AR	AR
In cases wear too frequent patch/window repairs are done, this would require larger sectional replacements for effective maintenance			AR	AR	AR	X	AR	AR	X
Duct Hangers to be inspected, repaired/replaced			AR	X	X	X	X	X	X
Conduct 10% NDTs on all welds performed			X	X	X	X	X	X	X
Create Weld Maps for Traceability			X	X	X	X	X	X	X

Scope Of Work -Flue Gas Ducts	Spares Required	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)									
Precipitator outlet duct: Left Hand Outer; Left Hand Inner; Right Hand Inner; Right Hand Outer. (Up to and Including ID Fan Casing)									
Open all inspection doors			AR	X	X	X	X	X	X
Open bolted inspection doors			AR	X	X	X	X	X	X
Close inspection Doors and bolted inspection doors			AR	X	X	X	X	X	X
Cleaning and vacuuming should be done to remove ash and debris.			AR	X	X	X	X	X	X
Remove expansion joints cover plate for inspection			AR	X	X	X	X	X	X
Repair/Replace expansion joints cover plate			AR	X	X	X	X	X	X
Repair metal expansion joints -Remove protective plates on expansion joints -Remove all debris and lagging from grooves -Inspect for cracks and repair any cracks -Replace all grooves with lagging -Replace protective plates			AR	X	X	X	X	X	X
Replace Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Adjust Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Replace guide vanes			AR	X	X	X	X	X	X
Repair guide vanes (100%)			AR	X	X	X	X	X	X
Repair guide vanes (25%)			AR						
Repair casings (top, bottom & side walls) (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR	X	X	X	X	X	X
Repair casings (top, bottom & side walls) (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR						
Repair I-Beams (100%)			AR	X	X	X	X	X	X
Repair Supports and Stays (100%)			AR	X	X	X	X	X	X
Replace Supports and Stays			AR	AR	AR	X	AR	AR	X
Repair Stiffeners (100%)			AR	X	X	X	X	X	X
Replace Stiffeners			AR	AR	AR	X	AR	AR	X
Repair External Structure (100%)			AR	X	X	X	X	X	X
Replace Protections			AR	X	X	X	X	X	X
Repair Inspection Doors (Hinges, Handles and locks)			AR	X	X	X	X	X	X
Replace Inspection Doors			AR	AR	AR	AR	AR	AR	AR
Replace Inspection Door Seals and apply high temperature sealant			AR	X	X	X	X	X	X
Holes picked up need to be addressed.			X	X	X	X	X	X	X
Repair/Replace Thermocouple/Transmitter Pockets			AR	X	X	X	X	X	X
Install test pockets for on load testing			AR	AR	AR	AR	AR	AR	AR
Repair existing test ports			AR	X	X	X	X	X	X
Coat selected areas with concrete layer for wear protection			AR	AR	AR	AR	AR	AR	AR
Coat selected Vanes for wear protection			AR	AR	AR	AR	AR	AR	AR
In cases wear too frequent patch/window repairs are done, this would require larger sectional replacements for effective maintenance			AR	AR	AR	X	AR	AR	X
Duct Hangers to be inspected, repaired/replaced			AR	X	X	X	X	X	X
Conduct 10% NDTs on all welds performed			X	X	X	X	X	X	X
Create Weld Maps for Traceability			X	X	X	X	X	X	X

Scope Of Work -Flue Gas Ducts	Spares Required	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)									
ID Fan Outlet Duct outlet duct Left and Right Hand side (Up to smoke stack)									
Open all inspection doors			AR	X	X	X	X	X	X
Open bolted inspection doors			AR	X	X	X	X	X	X
Close inspection Doors and bolted inspection doors			AR	X	X	X	X	X	X
Cleaning and vacuuming should be done to remove ash and debris.			AR	X	X	X	X	X	X
Remove expansion joints cover plate for inspection			AR	X	X	X	X	X	X
Repair/Replace expansion joints cover plate			AR	X	X	X	X	X	X
Repair metal expansion joints -Remove protective plates on expansion joints -Remove all debris and lagging from grooves -Inspect for cracks and repair any cracks -Replace all grooves with lagging -Replace protective plates			AR	X	X	X	X	X	X
Replace Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Adjust Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Replace guide vanes			AR	X	X	X	X	X	X
Repair guide vanes (100%)			AR	X	X	X	X	X	X
Repair guide vanes (25%)			AR						
Repair casings (top, bottom & side walls) (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm		X	X	X	X	X	X
Repair casings (top, bottom & side walls) (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR						
Repair I-Beams (100%)			AR	X	X	X	X	X	X
Repair Supports and Stays (100%)			AR	X	X	X	X	X	X
Replace Supports and Stays			AR	AR	AR	X	AR	AR	X
Repair Stiffeners (100%)			AR	X	X	X	X	X	X
Replace Stiffeners			AR	AR	AR	X	AR	AR	X
Repair External Structure (100%)			AR	X	X	X	X	X	X
Replace Protections			AR	X	X	X	X	X	X
Repair Inspection Doors (Hinges, Handles and locks)			AR	X	X	X	X	X	X
Replace Inspection Doors			AR	AR	AR	AR	AR	AR	AR
Replace Inspection Door Seals and apply high temperature silicone			AR	X	X	X	X	X	X
Holes picked up need to be addressed.			X	X	X	X	X	X	X
Repair/Replace Thermocouple/Transmitter Pockets			AR	X	X	X	X	X	X
Install test pockets for on load testing			AR	AR	AR	AR	AR	AR	AR
Repair existing test ports			AR	X	X	X	X	X	X
Coat selected areas with concrete layer for wear protection			AR	AR	AR	AR	AR	AR	AR
Coat selected Vanes for wear protection			AR	AR	AR	AR	AR	AR	AR
In cases wear too frequent patch/window repairs are done, this would require larger sectional replacements for effective maintenance			AR	AR	AR	X	AR	AR	X
Duct Hangers to be inspected, repaired/replaced			AR	X	X	X	X	X	X
Conduct 10% NDTs on all welds performed			X	X	X	X	X	X	X
Create Weld Maps for Traceability			X	X	X	X	X	X	X

Scope Of Work - Air Ducts	Spares Required	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
From Left and Right Hand Side Air Intake (including screen) (73m Level) to FD fan and PA fan Inlet ducts									
Open all inspection doors			AR	x	x	x	x	x	x
Open bolted inspection doors			AR	X	X	X	X	X	X
Close inspection Doors and bolted inspection doors			AR	X	X	X	X	X	X
Cleaning and vacuuming should be done to remove ash and debris.			AR	x	x	x	x	x	x
Remove expansion joints cover plate for inspection			AR	x	x	x	x	x	x
Repair/Replace expansion joints cover plate			AR	x	x	x	x	x	x
Repair metal expansion joints -Remove protective plates on expansion joints -Remove all debris and lagging from grooves -Inspect for cracks and repair any cracks -Replace all grooves with lagging -Replace protective plates			AR	X	X	X	X	X	X
Replace Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Adjust Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Replace guide vanes			AR	x	x	x	x	x	x
Repair guide vanes (100%)			AR	x	x	x	x	x	x
Repair guide vanes (25%)			AR						
Repair casings (top, bottom & side walls) (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm		x	x	x	x	x	x
Repair casings (top, bottom & side walls) (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR						
Repair I-Beams (100%)			AR	x	x	x	x	x	x
Repair Supports and Stays (100%)			AR	x	x	x	x	x	x
Replace Supports and Stays			AR	AR	AR	x	AR	AR	x
Repair Stiffeners (100%)			AR	x	x	x	x	x	x
Replace Stiffeners			AR	AR	AR	x	AR	AR	x
Repair External Structure (100%)			AR	x	x	x	x	x	x
Replace Protections			AR	x	x	x	x	x	x
Repair doors (Hinges, Handles and locks)			AR	x	x	x	x	x	x
Replace Doors			AR	AR	AR	AR	AR	AR	AR
Replace Door Seals and apply high temperature silicone			AR	x	x	x	x	x	x
Holes/Cracks picked up need to be addressed.			x	x	x	x	x	x	x
Repair/Replace Thermocouple/Transmitter Pockets			AR	x	x	x	x	x	x
Install test pockets for on load testing			AR	AR	AR	AR	AR	AR	AR
Repair existing test ports			AR	X	X	X	X	X	X
In cases wear too frequent patch/window repairs are done, this would require larger sectional replacements for effective maintenance			AR	AR	AR	x	AR	AR	x
Inspect/Clean/Blow through aerofoils (conduct pressure decay test)			AR	x	x	x	x	x	x
Inspect Aerofoil internal and external pipework			AR	x	x	x	x	x	x
Repair/Replace Damaged aerofoil pipework			AR	x	x	x	x	x	x
Clean/Repair/Replace inlet screens			AR	AR	AR	x	AR	AR	x
Duct Hangers to be inspected, repaired/replaced			AR	x	x	x	x	x	x
Conduct 10% NDTs on all welds performed			x	x	x	x	x	x	x
Create Weld Maps for Traceability			x	x	x	x	x	x	x

Scope Of Work - Air Ducts	Spares Required	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)									
From Left and Right Hand Side Primary air fan outlet duct to Primary Air Heater Air Inlet LH and RH									
Open all inspection doors			AR	x	x	x	x	x	x
Open bolted inspection doors			AR	x	x	x	x	x	x
Close inspection Doors and bolted inspection doors			AR	x	x	x	x	x	x
Cleaning and vacuuming should be done to remove ash and debris.			AR	x	x	x	x	x	x
Remove expansion joints cover plate for inspection			AR	x	x	x	x	x	x
Repair/Replace expansion joints cover plate			AR	x	x	x	x	x	x
Repair metal expansion joints -Remove protective plates on expansion joints -Remove all debris and lagging from grooves -Inspect for cracks and repair any cracks -Replace all grooves with lagging -Replace protective plates			AR	x	x	x	x	x	x
Replace Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Adjust Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Replace guide vanes			AR	x	x	x	x	x	x
Repair guide vanes (100%)			AR	x	x	x	x	x	x
Repair guide vanes (25%)			AR						
Repair casings (top, bottom & side walls) (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm		x	x	x	x	x	x
Repair casings (top, bottom & side walls) (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR						
Repair I-Beams (100%)			AR	x	x	x	x	x	x
Repair Supports and Stays (100%)			AR	x	x	x	x	x	x
Replace Supports and Stays			AR	AR	AR	x	AR	AR	x
Repair Stiffeners (100%)			AR	x	x	x	x	x	x
Replace Stiffeners			AR	AR	AR	x	AR	AR	x
Repair External Structure (100%)			AR	x	x	x	x	x	x
Replace Protections			AR	x	x	x	x	x	x
Repair doors (Hinges, Handles and locks)			AR	x	x	x	x	x	x
Replace Doors			AR	AR	AR	AR	AR	AR	AR
Replace Door Seals and apply high temperature silicone			AR	x	x	x	x	x	x
Holes/Cracks picked up need to be addressed.			x	x	x	x	x	x	x
Repair/Replace Thermocouple/Transmitter Pockets			AR	x	x	x	x	x	x
Install test pockets for on load testing			AR	AR	AR	AR	AR	AR	AR
Repair existing test ports			AR	x	x	x	x	x	x
In cases wear too frequent patch/window repairs are done, this would require larger sectional replacements for effective maintenance			AR	AR	AR	x	AR	AR	x
Duct Hangers to be inspected, repaired/replaced			AR	x	x	x	x	x	x
Conduct 10% NDTs on all welds performed			x	x	x	x	x	x	x
Create Weld Maps for Traceability			x	x	x	x	x	x	x

Scope Of Work - Air Ducts	Spares Required	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)									
From Left and Right Hand Side Primary Air Heater Air outlet duct to Mill A,B,C,D,E,F Inlet									
Open all inspection doors			AR	x	x	x	x	x	x
Open bolted inspection doors			AR	x	x	x	x	x	x
Close inspection Doors and bolted inspection doors			AR	x	x	x	x	x	x
Cleaning and vacuuming should be done to remove ash and debris.			AR	x	x	x	x	x	x
Remove expansion joints cover plate for inspection			AR	x	x	x	x	x	x
Repair/Replace expansion joints cover plate			AR	x	x	x	x	x	x
Repair metal expansion joints -Remove protective plates on expansion joints -Remove all debris and lagging from grooves -Inspect for cracks and repair any cracks -Replace all grooves with lagging -Replace protective plates			AR	x	x	x	x	x	x
Replace Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Adjust Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Replace guide vanes			AR	x	x	x	x	x	x
Repair guide vanes (100%)			AR	x	x	x	x	x	x
Repair guide vanes (25%)			AR						
Repair casings (top, bottom & side walls) (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm		x	x	x	x	x	x
Repair casings (top, bottom & side walls) (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR						
Repair I-Beams (100%)			AR	x	x	x	x	x	x
Repair Supports and Stays (100%)			AR	x	x	x	x	x	x
Replace Supports and Stays			AR	AR	AR	x	AR	AR	x
Repair Stiffeners (100%)			AR	x	x	x	x	x	x
Replace Stiffeners			AR	AR	AR	x	AR	AR	x
Repair External Structure (100%)			AR	x	x	x	x	x	x
Replace Protections			AR	x	x	x	x	x	x
Repair doors (Hinges, Handles and locks)			AR	x	x	x	x	x	x
Replace Doors			AR	AR	AR	AR	AR	AR	AR
Replace Door Seals and apply high temperature silicone			AR	x	x	x	x	x	x
Holes/Cracks picked up need to be addressed.			x	x	x	x	x	x	x
Repair/Replace Thermocouple/Transmitter Pockets			AR	x	x	x	x	x	x
Install test pockets for on load testing			AR	AR	AR	AR	AR	AR	AR
Repair existing test ports			AR	x	x	x	x	x	x
In cases wear too frequent patch/window repairs are done, this would require larger sectional replacements for effective maintenance			AR	AR	AR	x	AR	AR	x
Inspect/Clean/Blow through aerofoils (conduct pressure decay test)			AR	x	x	x	x	x	x
Inspect Aerofoil internal and external pipework			AR	x	x	x	x	x	x
Repair/Replace Damaged aerofoil pipework			AR	x	x	x	x	x	x
Duct Hangers to be inspected, repaired/replaced			AR	x	x	x	x	x	x
Conduct 10% NDTs on all welds performed			x	x	x	x	x	x	x
Create Weld Maps for Traceability			x	x	x	x	x	x	x

Scope Of Work - Air Ducts	Spares Required	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)									
From Left and Right Hand Side Forced Draught Fan outlet duct to Secondary Air Heater Air Inlet LH and RH									
Open all inspection doors			AR	x	x	x	x	x	x
Open bolted inspection doors			AR	x	x	x	x	x	x
Close inspection Doors and bolted inspection doors			AR	x	x	x	x	x	x
Cleaning and vacuuming should be done to remove ash and debris.			AR	x	x	x	x	x	x
Remove expansion joints cover plate for inspection			AR	x	x	x	x	x	x
Repair/Replace expansion joints cover plate			AR	x	x	x	x	x	x
Repair metal expansion joints -Remove protective plates on expansion joints -Remove all debris and lagging from grooves -Inspect for cracks and repair any cracks -Replace all grooves with lagging -Replace protective plates			AR	x	x	x	x	x	x
Replace Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Adjust Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Replace guide vanes			AR	x	x	x	x	x	x
Repair guide vanes (100%)			AR	x	x	x	x	x	x
Repair guide vanes (25%)			AR						
Repair casings (top, bottom & side walls) (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm		x	x	x	x	x	x
Repair casings (top, bottom & side walls) (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR						
Repair I-Beams (100%)			AR	x	x	x	x	x	x
Repair Supports and Stays (100%)			AR	x	x	x	x	x	x
Replace Supports and Stays			AR	AR	AR	x	AR	AR	x
Repair Stiffeners (100%)			AR	x	x	x	x	x	x
Replace Stiffeners			AR	AR	AR	x	AR	AR	x
Repair External Structure (100%)			AR	x	x	x	x	x	x
Replace Protections			AR	x	x	x	x	x	x
Repair doors (Hinges, Handles and locks)			AR	x	x	x	x	x	x
Replace Doors			AR	AR	AR	AR	AR	AR	AR
Replace Door Seals and apply high temperature silicone			AR	x	x	x	x	x	x
Holes/Cracks picked up need to be addressed.			x	x	x	x	x	x	x
Repair/Replace Thermocouple/Transmitter Pockets			AR	x	x	x	x	x	x
Install test pockets for on load testing			AR	AR	AR	AR	AR	AR	AR
Repair existing test ports			AR	x	x	x	x	x	x
In cases wear too frequent patch/window repairs are done, this would require larger sectional replacements for effective maintenance			AR	AR	AR	x	AR	AR	x
Service the Drain ports and associated slide gates, replace neccessary components			AR	x	x	x	x	x	x
Duct Hangers to be inspected, repaired/replaced			AR	x	x	x	x	x	x
Conduct 10% NDTs on all welds performed			x	x	x	x	x	x	x
Create Weld Maps for Traceability			x	x	x	x	x	x	x

Scope Of Work - Air Ducts	Spares Required	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)									
From Left and Right Hand Side Secondary Air Heater Air outlet duct to Burners									
Open all inspection doors			AR	x	x	x	x	x	x
Open bolted inspection doors			AR	x	x	x	x	x	x
Close inspection Doors and bolted inspection doors			AR	x	x	x	x	x	x
Cleaning and vacuuming should be done to remove ash and debris.			AR	x	x	x	x	x	x
Remove expansion joints cover plate for inspection			AR	x	x	x	x	x	x
Repair/Replace expansion joints cover plate			AR	x	x	x	x	x	x
Repair metal expansion joints -Remove protective plates on expansion joints -Remove all debris and lagging from grooves -Inspect for cracks and repair any cracks -Replace all grooves with lagging -Replace protective plates			AR	x	x	x	x	x	x
Replace Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Adjust Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Replace guide vanes			AR	x	x	x	x	x	x
Repair guide vanes (100%)			AR	x	x	x	x	x	x
Repair guide vanes (25%)			AR						
Repair casings (top, bottom & side walls) (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm		x	x	x	x	x	x
Repair casings (top, bottom & side walls) (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR						
Repair I-Beams (100%)			AR	x	x	x	x	x	x
Repair Supports and Stays (100%)			AR	x	x	x	x	x	x
Replace Supports and Stays			AR	AR	AR	x	AR	AR	x
Repair Stiffeners (100%)			AR	x	x	x	x	x	x
Replace Stiffeners			AR	AR	AR	x	AR	AR	x
Repair External Structure (100%)			AR	x	x	x	x	x	x
Replace Protections			AR	x	x	x	x	x	x
Repair doors (Hinges, Handles and locks)			AR	x	x	x	x	x	x
Replace Doors			AR	AR	AR	AR	AR	AR	AR
Replace Door Seals and apply high temperature silicone			AR	x	x	x	x	x	x
Holes/Cracks picked up need to be addressed.			x	x	x	x	x	x	x
Repair/Replace Thermocouple/Transmitter Pockets			AR	x	x	x	x	x	x
Install test pockets for on load testing			AR	AR	AR	AR	AR	AR	AR
Repair existing test ports			AR	x	x	x	x	x	x
In cases wear too frequent patch/window repairs are done, this would require larger sectional replacements for effective maintenance			AR	AR	AR	x	AR	AR	x
Inspect/Clean/Blow through aerofoils			AR	x	x	x	x	x	x
Inspect Aerofoil internal and external pipework			AR	x	x	x	x	x	x
Repair/Replace Damaged pipework			AR	x	x	x	x	x	x
Inspect/Clean/Blow through aerofoils (conduct pressure decay test)			AR	x	x	x	x	x	x
Inspect Aerofoil internal and external pipework			AR	x	x	x	x	x	x
Repair/Replace Damaged aerofoil pipework			AR	x	x	x	x	x	x
Duct Hangers to be inspected, repaired/replaced			AR	x	x	x	x	x	x
Conduct 10% NDTs on all welds performed			x	x	x	x	x	x	x
Create Weld Maps for Traceability			x	x	x	x	x	x	x

Scope Of Work - Air Ducts	Spares Required	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)									
From Left and Right Hand Side Tempering Air inlet duct to Primary air duct Mill A,B,C,D,E,F									
Open all inspection doors			AR	x	x	x	x	x	x
Open bolted inspection doors			AR	x	x	x	x	x	x
Close inspection Doors and bolted inspection doors			AR	x	x	x	x	x	x
Cleaning and vacuuming should be done to remove ash and debris.			AR	x	x	x	x	x	x
Remove expansion joints cover plate for inspection			AR	x	x	x	x	x	x
Repair/Replace expansion joints cover plate			AR	x	x	x	x	x	x
Repair metal expansion joints -Remove protective plates on expansion joints -Remove all debris and lagging from grooves -Inspect for cracks and repair any cracks -Replace all grooves with lagging -Replace protective plates			AR	x	x	x	x	x	x
Replace Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Adjust Expansion Joints			AR	AR	AR	AR	AR	AR	AR
Replace guide vanes			AR	x	x	x	x	x	x
Repair guide vanes (100%)			AR	x	x	x	x	x	x
Repair guide vanes (25%)			AR						
Repair casings (top, bottom & side walls) (100%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm		x	x	x	x	x	x
Repair casings (top, bottom & side walls) (25%) [All repairs to casing require full window repairs with full seal welds should cover 4 times the area of the hole that is to be covered]		Repair Threshold for duct thickness: Original 12mm plate : The minimum is 8mm Original 8mm plate : The minimum 5 mm Original 6mm plate : The minimum 3 mm	AR						
Repair I-Beams (100%)			AR	x	x	x	x	x	x
Repair Supports and Stays (100%)			AR	x	x	x	x	x	x
Replace Supports and Stays			AR	AR	AR	x	AR	AR	x
Repair Stiffeners (100%)			AR	x	x	x	x	x	x
Replace Stiffeners			AR	AR	AR	x	AR	AR	x
Repair External Structure (100%)			AR	x	x	x	x	x	x
Replace Protections			AR	x	x	x	x	x	x
Repair doors (Hinges, Handles and locks)			AR	x	x	x	x	x	x
Replace Doors			AR	AR	AR	AR	AR	AR	AR
Replace Door Seals and apply high temperature silicone			AR	x	x	x	x	x	x
Holes/Cracks picked up need to be addressed.			x	x	x	x	x	x	x
Repair/Replace Thermocouple/Transmitter Pockets			AR	x	x	x	x	x	x
Install test pockets for on load testing			AR	AR	AR	AR	AR	AR	AR
Repair existing test ports			AR	x	x	x	x	x	x
In cases wear too frequent patch/window repairs are done, this would require larger sectional replacements for effective maintenance			AR	AR	AR	x	AR	AR	x
Duct Hangers to be inspected, repaired/replaced			AR	x	x	x	x	x	x
Check condition air piping tapping off from tempering air duct (repair)			AR	x	x	x	x	x	x
Assist with Pyrometer Purge air line rapping to remove settled ash in the pipework during fan balancing activity			AR	x	x	x	x	x	x
Conduct 10% NDTs on all welds performed			x	x	x	x	x	x	x
Create Weld Maps for Traceability			x	x	x	x	x	x	x

Scope Of Work - Dampers	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
The works apply to the following damper systems: - Primary Air regulating dampers - Tempering Air Dampers - Hot Air Dampers - Secondary Air Dampers - Primary Air Heater Air Inlet Dampers - Primary Air Fan Discharge Dampers - Secondary Air Heater Air Outlet Dampers - Secondary Air Heater Bypass Dampers - FD Fan Inlet Damper - Secondary Air Heater Gas Outlet Dampers - Secondary Air Heater Gas Inlet Dampers - Precip Outlet Dampers - ID Fan Outlet Damper - Primary Air Heater Gas Outlet Dampers - Primary Air Heater Gas Inlet Dampers:								
Blade seals Replacement		AR	x	x	x	x	x	x
Seal Ledge Repair or Replacement		AR	x	x	x	x	x	x
Check position of blades in closed position, adjust to ensure fully closed position and effective sealing is achieved		AR	x	x	x	x	x	x
Check condition of damper blades and repair/replace		AR	x	x	x	x	x	x
Inspect and Replace (if necessary) bearings on both actuator and non actuator ends		AR	x	x	x	x	x	x
Grease bearing		AR	x	x	x	x	x	x
Replace Gaskets		AR	x	x	x	x	x	x
Inspect bearing support bracket. renew/replace		AR	x	x	x	x	x	x
Inspect bearing Housings, spherical seating's, spacers, dowel pins and sleeves, Replace/Renew		AR	x	x	x	x	x	x
Replace glands packing		AR	x	x	x	x	x	x
Inspect condition of gland follower, renew/replace		AR	x	x	x	x	x	x
Inspect condition of shaft collar and thrust collar, renew/replace		AR	x	x	x	x	x	x
Check/ Replace ball joints on drive and connecting linkages		AR	x	x	x	x	x	x
Check/ Replace bushes		AR	x	x	x	x	x	x
Check/ Replace/ Repair Linkage arms		AR	x	x	x	x	x	x
Replace Pins, Bushes on link arms		AR	x	x	x	x	x	x
Check/ Replace/ Machine/ Repair damper shaft		AR	x	x	x	x	x	x
Check/Repair/ Replace damper blade		AR	x	x	x	x	x	x
All mechanical defects to be rectified		AR	x	x	x	x	x	x
Mechanical stops need to be checked, verified and mechanically stroke checked, thereafter dampers to be stroke checked with Mechanical Maintenance/ Control & Instrumentation/ Electrical Maintenance and Performance and testing departments		AR	x	x	x	x	x	x
Inspect Acutators/ Gearboxes for defects (e.g. leaks and mechanical tightness) Report to Mechanical (Gearboxes) and Electrical (Actuators) maintenance departments and assist to bring faulty equipment their respective work shops for refurbishment, there after assist with taking equipment back to plant installation		AR	x	x	x	x	x	x

Scope Of Work - Dampers	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)								
Precipitator Inlet Guillotine Isolating Dampers								
Replace the guillotine damper rectangular seals		AR	x	x	x	x	x	x
Inspect flap door condition		AR	x	x	x	x	x	x
Repair Corrosion damage (holes due to corrosion) on flap doors		AR	x	x	x	x	x	x
Repair damaged areas of flap door		AR	x	x	x	x	x	x
Guillotine damper flap manual actuator to be refurbished		AR	x	x	x	x	x	x
Inspect Camlocks on flap doors (Renew/Replace)		AR	x	x	x	x	x	x
Clean / replace Spindle		AR	x	x	x	x	x	x
Lubricate spindle with graphite powder		AR	x	x	x	x	x	x
Check the condition of the Round circular bar seal (replace if worn)		AR	x	x	x	x	x	x
Check the condition of the Blade seals elements (repair/replace if worn)		AR	x	x	x	x	x	x
Check spindle nut condition (replace if worn)		AR	x	x	x	x	x	x
Check condition of blade (if worn/ bent replace or repair)		AR	x	x	x	x	x	x
45° blade plate Seals (repair/ replace if bent/ worn)		AR	x	x	x	x	x	x
Close housing covers		AR	x	x	x	x	x	x
All mechanical defects to be rectified		AR	x	x	x	x	x	x
Ensure blades are sealing appropriately		AR	x	x	x	x	x	x
Regrease boot		AR	x	x	x	x	x	x
Repair/ Replace clutch		AR	x	x	x	x	x	x
Inspect blade housing frame, repair		AR	x	x	x	x	x	x
Inspect Bellows and Bellow clamping plates, Repair/ Replace		AR	x	x	x	x	x	x
Inspect Lay shaft Bearing, Replace		AR	x	x	x	x	x	x
Inspect Blade guide, Repair / Replace		AR	x	x	x	x	x	x
Mechanical stops need to be checked, verified and mechanically stroke checked, thereafter dampers to be stroke checked with Mechanical Maintenance/ Control & Instrumentation/ Electrical Maintenance and Performance and testing departments		AR	x	x	x	x	x	x
Inspect Acutators/ Gearboxes / Motors / Couplings for defects (e.g. leaks and mechanical tightness) Report to Mechanical (Gearboxes) and Electrical (Actuators) maintenance departments and assist to bring faulty equipment their respective work shops for refurbishment, there after assist with taking equipment back to plant installation		AR	x	x	x	x	x	x

Scope Of Work - Dampers	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)								
Primary Air Guillotine Isolating Dampers								
Replace the guillotine damper top flexible seals		AR	x	x	x	x	x	x
Clean / Replace Spindle		AR	x	x	x	x	x	x
Lubricate spindle with graphite powder		AR	x	x	x	x	x	x
Check the condition of the Round circular bar seal (replace if worn)		AR	x	x	x	x	x	x
Check the condition of the bottom flared seals (repair/replace if worn)		AR	x	x	x	x	x	x
Check spindle nut condition (replace if worn)		AR	x	x	x	x	x	x
Check condition of blade (if worn/ bent replace or repair)		AR	x	x	x	x	x	x
45° blade plate Seals (repair/ replace if bent/ worn)		AR	x	x	x	x	x	x
Close housing covers		AR	x	x	x	x	x	x
All mechanical defects to be rectified		AR	x	x	x	x	x	x
Ensure blades are sealing appropriately		AR	x	x	x	x	x	x
Regrease boot		AR	x	x	x	x	x	x
Replace gaskets / webbing		AR	x	x	x	x	x	x
Repair/ Replace clutch		AR	x	x	x	x	x	x
Inspect blade housing frame, repair		AR	x	x	x	x	x	x
Inspect Blade guide, Repair / Replace		AR	x	x	x	x	x	x
Replace motor/gearbox system with actuated system		AR	x	x	x	x	x	x
Mechanical stops need to be checked, verified and mechanically stroke checked, thereafter dampers to be stroke checked with Mechanical Maintenance/ Control & Instrumentation/ Electrical Maintenance and Performance and testing departments		AR	x	x	x	x	x	x
Inspect Acutators/ Gearboxes / Motors / Couplings for defects (e.g. leaks and mechanical tightness) Report to Mechanical (Gearboxes) and Electrical (Actuators) maintenance departments and assist to bring faulty equipment their respective work shops for refurbishment, there after assist with taking equipment back to plant installation		AR	x	x	x	x	x	x

Scope Of Work - Dampers	Comment	OPPORTUNITY MAINTENANCE	IR 1 (GO +20 Months)	IR 2 (GO +40 Months)	MGO 1 (GO +60 Months)	IR 3 (GO +80 Months)	IR 4 (GO +100 Months)	GO (GO +120 Months)
It is to be noted that scope is provided for a given outage prior to unit shut down for planning and is not the final scope. At the start of said outage First Line inspections will be done with the contractor's team, quality controller and engineering. Based on this the scope will be revised (items added or removed)								
Secondary Air Master Flow Dampers (Burner Solar Dampers)								
Check condition of blade seals – replace if required		AR	x	x	x	x	x	x
Check condition of blades – repair if necessary		AR	x	x	x	x	x	x
Check Condition of damper shaft, Replace/repair								
Replace Gaskets		AR	x	x	x	x	x	x
Replace glands packing		AR	x	x	x	x	x	x
Inspect condition of gland follower, renew/replace		AR	x	x	x	x	x	x
Check/ Replace bushes		AR	x	x	x	x	x	x
Check/ Replace/ Machine/ Repair damper shaft		AR	x	x	x	x	x	x
All mechanical defects to be rectified		AR	x	x	x	x	x	x
Dampers to be positioned and locked in place as per Engineering instruction: - The ideal configuration will be relayed to the contractor - The Bolts (Size 24 bolt) need to loosened on: 08-06NS10s045 (A1); 08-06NS10s046 (A2); 08-06NS10s055 (A6); 08-06NS10s056 (A5); 08-06NS20s045 (B1); 08-06NS20s046 (B2); 08-06NS20s055 (B6); 08-06NS20s056 (B5); 08-06NS30s045 (C1); 08-06NS30s046 (C2); 08-06NS30s055 (C6); 08-06NS30s056 (C5); 08-06NS40s045 (D1); 08-06NS40s046 (D2); 08-06NS40s055 (D6); 08-06NS40s056 (D5); 08-06NS50s045 (E1); 08-06NS50s046 (E2); 08-06NS50s055 (E6); 08-06NS50s056 (E5); 08-06NS60s045 (F1); 08-06NS60s046 (F2); 08-06NS60s055 (F6); 08-06NS60s056 (F5); - The Bolts then need to be tightened after adjustments are made		AR	x	x	x	x	x	x
Replace Gaskets		AR	x	x	x	x	x	x
Replace glands packing		AR	x	x	x	x	x	x
Inspect condition of gland follower, renew/replace		AR	x	x	x	x	x	x
Check/ Replace bushes		AR	x	x	x	x	x	x
Check/ Replace/ Machine/ Repair damper shaft		AR	x	x	x	x	x	x

Damper Description	AKZ Right Hand	AKZ Left Hand
PRIMARY AIR ISOLATING DAMPER	NM10S005	NM40S005
PRIMARY AIR ISOLATING DAMPER	NM20S005	NM50S005
PRIMARY AIR ISOLATING DAMPER	NM30S005	NM60S005
PRIMARY AIR RATING DAMPER	NM10S015	NM40S015
PRIMARY AIR RATING DAMPER	NM20S015	NM50S015
PRIMARY AIR RATING DAMPER	NM30S015	NM60S015
TEMPERING AIR DAMPER	NM10S035	NM40S035
TEMPERING AIR DAMPER	NM20S035	NM50S035
TEMPERING AIR DAMPER	NM30S035	NM60S035
HOT AIR DAMPER	NM10S025	NM40S025
HOT AIR DAMPER	NM20S025	NM50S025
HOT AIR DAMPER	NM30S025	NM60S025
Row A Secondary Air Damper	NS10S058	NS10S048
Row B Secondary Air Damper	NS20S058	NS20S048
Row C Secondary Air Damper	NS30S058	NS30S048
Row D Secondary Air Damper	NS40S058	NS40S048
Row E Secondary Air Damper	NS50S058	NS50S048
Row F Secondary Air Damper	NS60S058	NS60S048
PRIMARY AIR HEATER AIR INLET DAMPER	NG22S041	NG12S041
PRIMARY AIR HEATER GAS INLET DAMPER	NR21S014	NR11S014
PRIMARY AIR HEATER GAS DAMPER	NR21S013	NR11S013
PA FAN DISCHARGE DAMPER	NG22S011	NG12S011
Secondary Air Heater Air Outlet Damper	NG21S060	NG11S060
Secondary Air Heater Air Outlet Damper	NG21S061	NG11S061
SECONDARY AIR HEATER GAS OUTLET DAMPER	NR21S043	NR11S043
SECONDARY AIR HEATER GAS OUTLET DAMPER	NR21S053	NR11S053
SECONDARY AIR HEATER GAS INLET DAMPER	NR21S023	NR11S023
SECONDARY AIR HEATER GAS INLET DAMPER	NR21S024	NR11S024
SECONDARY AIR HEATER ByPass Damper	NG21S050	NG11S050
FD Fan Inlet Damper	NG21S010	NG11S010
FD Fan Inlet Damper	NG21S012	NG11S012
FD Fan Inlet Damper	NG21S011	NG11S011
FD Fan Inlet Damper	NG21S013	NG11S013
ID FAN DISCHARGE DAMPER	NR21S036	NR11S036
ID FAN DISCHARGE DAMPER	NR21S037	NR11S037
PRECIP OUTLET DAMPER	NR21S056	NR11S056
PRECIP OUTLET DAMPER	NR21S057	NR11S057
PRECIP INLET DAMPER	NR21S054	NR11S054
PRECIP INLET DAMPER	NR21S055	NR11S055
Burner Solar Damper	NS10S045	NS10S055
Burner Solar Damper	NS10S046	NS10S056
Burner Solar Damper	NS10S047	NS10S057
Burner Solar Damper	NS20S045	NS20S055
Burner Solar Damper	NS20S046	NS20S056
Burner Solar Damper	NS20S047	NS20S057
Burner Solar Damper	NS30S045	NS30S055
Burner Solar Damper	NS30S046	NS30S056
Burner Solar Damper	NS30S047	NS30S057
Burner Solar Damper	NS40S045	NS40S055
Burner Solar Damper	NS40S046	NS40S056
Burner Solar Damper	NS40S047	NS40S057
Burner Solar Damper	NS50S045	NS50S055
Burner Solar Damper	NS50S046	NS50S056
Burner Solar Damper	NS50S047	NS50S057
Burner Solar Damper	NS60S045	NS60S055
Burner Solar Damper	NS60S046	NS60S056
Burner Solar Damper	NS60S047	NS60S057

Technical Evaluation Requirements		
Mandatory Requirements that must be submitted and/or adhered to by the supplier.		
Proposals will be required to meet 80% functionality qualifying score in order to be evaluated further and proposals that fail to achieve the minimum qualifying score for functionality will be disqualified. A weighted score-card approach will be used to evaluate technical compliance of tenders against the specification.		
REQUIREMENT	SCORE (%)	REMARKS
Certifications	Mandatory	- ISO 3834-4 Valid accreditation (Submit proof) - ISO 9001 Valid accreditation (Submit proof) - Letter to confirm that supplier will adhere to Eskom Welding Rule Book.
Key Project Team	52.50%	- Qualified/Competent B Class welders (certified through an approved welding institute) & Supervisor with 3 years' experience (A minimum of 3 to be submitted for evaluation purposes). (10%) - Project manager: with formal N. Dip Mechanical engineering (minimum) as well as >3years experience (2.5%) - Qualified/Competent Boilermakers with 3 years' experience. (A minimum of 3 to be submitted for evaluation purposes) (5%) - Qualified/Competent Mechanical Fitter with 3 years' experience. (A minimum of 3 to be submitted for evaluation purposes) (5%) - Site manager: with proof of mechanical and welding site management + minimum years' experience (5%) - Mechanical & Welding QC personnel: with formal qualification as well as level 1 and 3 years' experience (10%) - SHE officer/rep: with minimum of SAMTRAC qualification. (5%) - Planner with minimum Primavera certificate & knowledge. (5%) - Proof of all the above to be submitted with a CV and certificates (including welders certificates), failure to submit proof will lead a score of 0% for the respective item. - Detailed Site Organogram (5%)
Experience	22.50%	- Supplier to have 5 years' experience for similar SOW and supply references, signed customer satisfactory survey and task orders of work done on the same type of plant by the company. References from previous clients required (minimum two separate referees). (15%) - Copy of an activity plan /program to include, as a minimum, outline durations and milestones. (5%) - Copy of completed & signed off QCP from previous contracts / outages with a duration of +/-30 days. (2.5%)
Method statement for execution of the works	15%	Tenderer to demonstrate technical capability to bring the contract scope of work to a satisfactory conclusion. (15%)
Typical QCP	10%	- Provide a typical example of Quality Control Plan which meets the minimum requirements for the contract scope of work (5%) - Typical PQRs & WPSs which meets the minimum requirements for the contracted scope of work (related to welding). <i>Note during actual activity the PQRs & WPSs are related to free issue consumables provided.</i> (5%)