

 Eskom	Strategy	Engineering
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Title: **Tender Technical Evaluation
Strategy for the Maintenance of
Ducting and Dampers**

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1. INTRODUCTION

Matla Boilers are a coal fired boilers producing 6x600MW. Routine maintenance is required to keep the boilers running in safe and reliable until the end of life of the station

Ducting and dampers form part of the boiler auxiliary plants which channel and control the air for pulverised fuel transportation into the boiler, combustion purposes and channels the gases after fuel combustion out of the boiler and into the smokestacks. Maintenance of these components ensures safe boiler operation and reduced unplanned shutdowns.

This strategy report details the technical requirements for the tender to maintain the boiler ducting and dampers.

2. SUPPORTING CLAUSES

2.1 SCOPE

The strategy covers the technical evaluation requirement for the maintenance of ducting and dampers.

2.1.1 Purpose

The purpose of this tender technical evaluation strategy is to define the Mandatory Evaluation Criteria, Qualitative Evaluation Criteria and TET member responsibilities for tender technical evaluation. The technical evaluation strategy serves as basis for the tender technical evaluation process

2.1.2 Applicability

This document is applicable to all relevant stakeholders involved with the technical tender evaluation process for the maintenance of the Boiler Ducting and Dampers.

2.2 NORMATIVE/INFORMATIVE REFERENCES

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs

2.2.1 Normative

[1] 240-48929482. Tender Technical Evaluation Procedure

2.2.2 Informative

N/A

2.3 DEFINITIONS

Definition	Description
N/A	

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2.3.1 Classification

Controlled Disclosure: Controlled Disclosure to external parties (either enforced by law, or discretionary).

2.4 ABBREVIATIONS

Abbreviation	Description
GO	General Overhaul
IR	Interim Repairs
ISO	International Organisation for Standardisation
MGO	Mini General Overhaul
QCP	Quality Control Plan
TET	Technical Evaluation Team
ST	Short Term

2.5 ROLES AND RESPONSIBILITIES

As per 240-48929482: Tender Technical Evaluation Procedure

2.6 PROCESS FOR MONITORING

N/A

2.7 RELATED/SUPPORTING DOCUMENTS

[1] 240-48929482: Tender Technical Evaluation Procedure

3. TENDER TECHNICAL EVALUATION STRATEGY

3.1 TECHNICAL EVALUATION THRESHOLD

The minimum weighted final score (threshold) required for a tender to be considered from a technical perspective is 70%.

3.2 TET MEMBERS

Table 1: TET Members

TET number	TET Member Name	Designation
TET 1	Yamkela Mahamba	System Engineer
TET 2	Bongani Sibiya	Senior Maintenance Supervisor

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3.3 MANADATORY TECHNICAL EVALUATION CRITERIA

Table 2: Mandatory Technical Evaluation Criteria

	Mandatory Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Motivation for use of Criteria
1.	The service provider shall have a Quality Management System that meets or exceeds the requirements of ISO 9001. Relevant and applicable Certification and the Quality Management Policy to be submitted	Returnable: ISO9001 Certification and the Quality Management Policy to be submitted	The service provider must have a quality management system in place to ensure the project is executed following sound quality principles.

3.4 QUALITATIVE TECHNICAL EVALUATION CRITERIA

Table 3: Qualitative Technical Evaluation Criteria

	Qualitative Technical Criteria Description	Reference to Technical Specification / Tender Returnable	Criteria Weighting (%)
1.	Company experience	Reference list of previous projects completed indicating the experience in the maintenance of Ducting and Dampers. The list must give a short description of the project or contract and the duration of each of the project/contract	20%
2.	Profile: Site manager	CV detailing relevant management experience of projects and a qualification in Engineering.	10%

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3.	Profile: Site supervisor	CV detailing relevant maintenance supervision experience on boiler ducting and dampers and relevant mechanical trade test as a minimum.	20%
4.	Profile: QC personnel	CV detailing quality control experience and welding inspector level 1 qualification.	15%
5.	Execution methodology	Technical method statement detailing how the scope of work will be executed including (as a minimum): - Resources to be used for GO [5] - Refurbishment of a damper [5] - Flue gas ducting repair work [5] - Damper stroke checking and adjustment [5] - Typical defects found on the ducting and dampers [5]	20%
6.	Quality	An example of the Service provider's typical QCP in line with the MGO SOW (section 9.2 of the SOW. The section of the SOW can also be found on the appendix). The QCP must be broken down as per plant section (primary air path, secondary air path, flue gas path and primary air heaters)	15%
			TOTAL: 100

Table 4: Qualitative Technical Evaluation Criteria Scoring Breakdown

Criteria No.	KPI - Criteria Evaluation Indicator	Scale			
		0 (0%)	2 (40%)	4 (80%)	5 (100%)
1.	Company Experience	Not submitted or less than 3 projects completed	3-5 projects completed	6-9 projects completed	More than 9 projects completed.
2.	Site manager	Not submitted	NQF5 or N6 Certificate or N Dip and less than 1yr experience	NQF5 or N6 Certificate or N Dip and between 1- and 3-years' experience	NQF5 or N6 Certificate or N Dip with more than 3 years' experience
3.	Supervisor	Not submitted	Mechanical trade test qualification with less than 1 year experience.	Mechanical trade test qualification and between 1- and 3-years' experience	Mechanical trade test qualification with more than 3 years' experience.
4.	Quality controller	Not submitted	QC certificate and less than 1 year experience	QC certificate and between 1- and 3-years' experience	QC certificate with more than 3 years' experience
5.	Execution methodology	Not submitted	Method Statement Score: 10-15 Points	Method Statement Score: 15-20 Points	Method Statement Score: 20-25 Points
6.	Quality	No QCP submitted or not based on the MGO scope of work	QCP submitted but covering less than 2/4 of the plant areas from the MGO scope of work	QCP submitted but covering less than 3/4 of the plant areas from the MGO scope of work.	Detailed QCP, covering 4/4 of the plant area from the MGO scope of work.

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3.5 TET MEMBER RESPONSIBILITIES

Table 5: TET Member Responsibilities

Mandatory Criteria Number	TET 1	TET 2
1	X	X
Qualitative Criteria Number	TET 1	TET 2
1	X	X
2	X	X
3	X	X
4	X	X
5	X	X
6	X	X

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3.6 FORESEEN ACCEPTABLE / UNACCEPTABLE QUALIFICATIONS

3.6.1 Risks

Table 6: Acceptable Technical Risks

Risk	Description
1	Supplier tender that has not previously to worked with Eskom.
2	
3.	

Table 7: Unacceptable Technical Risks

Risk	Description
1	Supplier cannot adhere to the specified requirements
2	Incomplete documentation submitted for the tender

3.6.2 Exceptions / Conditions

Table 8: Acceptable Technical Exceptions / Conditions

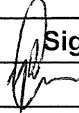
Risk	Description
1	None

Table 9: Unacceptable Technical Exceptions / Conditions

Risk	Description
1	None

4. AUTHORISATION

This document has been seen and accepted by:

Name	Designation	Signature
Yamkela Mahamba	System Engineer	
Bongani Sibiya	Boiler Maintenance Supervisor	
John Makuleka	Boiler Plant Engineering Manager	
Lindokuhle Ngobese	Engineering Manager	

5. REVISIONS

Date	Rev.	Compiler	Remarks
11 May 2022	0	Y. Mahamba	Original document
01 September 2022	1	Y. Mahamba	Changes on the technical scoring
09 September 2022	2	Y. Mahamba	Changes on the technical scoring
16 September 2022	3	Y. Mahamba	Changes on the technical scoring

6. DEVELOPMENT TEAM

The following people were involved in the development of this document:

- Yamkela Mahamba
- Bongani Sibiya

7. ACKNOWLEDGEMENTS

None.

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8. APPENDIX

MINI OVERALL OF BOILER DUCTING AND DAMPERS

PRIMARY AIR PATH DUCTING

SCOPE		MAINTENANCE OF DUCTING AND DAMPERS				
SUBSYSTEM		PRIMARY AIR PATH DUCTING				
COMPONENT ACTIVITIES					GOVERNING DOCUMENTS	
No	COMPONENT DESCRIPTION	ACTIVITY TYPE (INSPECT / TEST/ REFURBISH / REPLACE)	DETAILED ACTIVITY DESCRIPTION	RESPONSIBLE PARTY	WORK SPEC & CHECK SHEET NO.	INTERVENTION POINTS (H/W/S/R)
	Scaffolding	Erect	Erect scaffolding on the NDE side of the primary air path dampers: - Mill A-F primary, hot and cold air dampers - LH and RH primary air fan discharge dampers - LH and RH primary air heater air inlet dampers	Contractor	QCP	S
	Access door	Open	Open the duct access doors on each of the primary air path dampers including the aerofoil access doors (26 off).	Contractor	QCP	S
	Aerofoil	Inspect	Inspect primary air aerofoil internals (A-F mills) NOTE: Aerofoil to be cleaned inside before inspection takes place.	Contractor	QCP	W
		Test	Impulse lines to be inspected for damage and leaks. Perform a "soap" test to check the leaks.	Contractor	QCP	S
		Inspect	Impulse lines to be unblocked and blown clear of any dust. All ferrules and connections to be inspected for leaks. (C&I).	Contractor	QCP	W
	Damper	Replace	Replace all the bulb seals on all the primary air path dampers.	Contractor	QCP	H
		Replace	Ensure that all damper linkage ball joint conical rubber dust boot seals are fitted on all the primary air path dampers: - Mill A-F primary, hot and cold air dampers - LH and RH primary air fan discharge dampers	Contractor	QCP	W

SCOPE		MAINTENANCE OF DUCTING AND DAMPERS				
SUBSYSTEM		PRIMARY AIR PATH DUCTING				
COMPONENT ACTIVITIES					GOVERNING DOCUMENTS	
No	COMPONENT DESCRIPTION	ACTIVITY TYPE (INSPECT / TEST/ REFURBISH / REPLACE)	DETAILED ACTIVITY DESCRIPTION	RESPONSIBLE PARTY	WORK SPEC & CHECK SHEET NO.	INTERVENTION POINTS (H/W/S/R)
			LH and RH primary air heater air inlet dampers			
	Damper	Grease	Grease all primary air path damper linkage ball joints	Contractor	QCP	S
		Replace	On all the primary air path dampers Dismantle, clean, measure and assemble the damper bearing housing and damper bearing. Submit report to engineering Cracked or broken damper bearing housing or damper bearing must be replaced (make provision to replace all of the bearing housing and bearings)	Contractor	QCP	W
		Inspect	Ensure that all damper linkage ball joints are tightened and that all castle nuts are fitted with split pins (16 off)	Contractor	QCP	W
		Test	Stroke check all primary air path dampers (C&I Eskom and contractor)	Contractor	QCP	W
	Access door	Close	Assemble primary air aerofoil access doors and fit new seals (2 off)	Contractor	QCP	S
		Replace	Replace primary air ducting access door seals (4 off)	Contractor	QCP	S
		Inspect	Ensure all scaffolding is removed before closing doors	Contractor	QCP	W
		Close	Close duct access doors on both inlet and outlet ducting. (4 off)	Contractor	QCP	H

SECONDARY AIR PATH DUCTING

SCOPE		MAINTENANCE OF DUCTING AND DAMPERS				
SUBSYSTEM		SECONDARY AIR PATH DUCTING				
COMPONENT ACTIVITIES					GOVERNING DOCUMENTS	
No	COMPONENT DESCRIPTION	ACTIVITY TYPE (INSPECT / TEST/ REFURBISH / REPLACE)	DETAILED ACTIVITY DESCRIPTION	RESPONSIBLE PARTY	WORK SPEC & CHECK SHEET NO.	INTERVENTION POINTS (H/W/S/R)
	Scaffolding	Erect	Erect scaffolding on the NDE side of the Secondary Air path dampers (12 off)	Contractor	QCP	S
	Access door	Open	Open all secondary air path ducting access doors (20 off, 18 hinged, 2 bolted)			
	Ducting	Inspect	Inspect the condition of the secondary air duct work Eroded/holed areas are to be patched (allow for 1m ² patch work)	Contractor	QCP/WPS	W
	Expansion joint	Inspect	Remove the cover plate on the expansion joints and inspect for any damage Allowance to be made to weld repair cracks and for patching holed areas	Contractor	QCP/WPS	W
	Expansion joint cover	Replace	Replace/reinstate the cover plate on all the expansion joints (3000x500mm)	Contractor	QCP/WPS	H
	Access door	Open	Remove total air-aerofoil access and secondary air-aerofoil access doors (14 off bolted doors)	Contractor	QCP	R
	Aerofoil impulse lines	Inspect	Inspect total air and secondary air aerofoil internals (Engineering) (Left hand and right hand) NOTE Aerofoil to be cleaned inside before inspection takes place Inspection of aerofoil external to be conducted Scaffolding to be built for access to the aerofoil from inside the ducting Provision to be made for the replacement of cement/grout on the concrete to steel transition point	Contractor	QCP	H
	Aerofoil impulse lines	Inspect	Impulse lines to be unblocked and blown clear of any dust All ferrules and connections to be inspected for leaks (c&i) (14 off)	Contractor	QCP	W

SCOPE		MAINTENANCE OF DUCTING AND DAMPERS				
SUBSYSTEM		SECONDARY AIR PATH DUCTING				
COMPONENT ACTIVITIES					GOVERNING DOCUMENTS	
No	COMPONENT DESCRIPTION	ACTIVITY TYPE (INSPECT / TEST/ REFURBISH / REPLACE)	DETAILED ACTIVITY DESCRIPTION	RESPONSIBLE PARTY	WORK SPEC & CHECK SHEET NO.	INTERVENTION POINTS (H/W/S/R)
	Damper	Inspect	Ensure that all damper linkage ball joint conical rubber dust boot seals are fitted on all the secondary air path dampers - LH and RH forced draught fan inlet dampers - LH and RH secondary air heater air outlet dampers - LH and RH secondary air heater bypass damper - LH And RH Mill A-F Secondary Air Dampers	Contractor	QCP	S
	Damper	Inspect	Grease all secondary air path damper linkage ball joints	Contractor	QCP	S
	Damper	Inspect	On all the Mill A-F Burner Secondary Air dampers. Dismantle, clean, measure and assemble the damper bearing housing and damper bearing. Submit report to engineering Cracked or broken damper bearing housing or damper bearing must be replaced (make provision to replace all of the bearing housing and bearings) On the rest of the secondary air path dampers, the dampers are to be inspected and tested to drive freely. Defective dampers are to be repaired by replacing the defective bearings	Contractor	QCP	W
	Damper	Inspect	Ensure that all damper linkage ball joints are tightened and that all castle nuts are fitted with split pins (26 off)	Contractor	QCP	S
	Damper	Test	Stroke check all secondary air path dampers (26 of)	Contractor	QCP	S
	Access door	Close	Assemble total air and secondary air aerofoil access doors and fit new seals (14 off, bolted doors)	Contractor	QCP	S
	Access door	Close	Remove and replace secondary air ducting access door seals (20 off, hinged doors)	Contractor	QCP	H

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Tube Sheet

SCOPE		MAINTENANCE OF DUCTING AND DAMPERS				
SUBSYSTEM		SECONDARY AIR PATH DUCTING				
COMPONENT ACTIVITIES						
No	COMPONENT DESCRIPTION	ACTIVITY TYPE (INSPECT / TEST/ REFURBISH / REPLACE)	DETAILED ACTIVITY DESCRIPTION	RESPONSIBLE PARTY	WORK SPEC & CHECK SHEET NO.	INTERVENTION POINTS (H/W/S/R)
	Scaffolding	Dismantle	Ensure all scaffolding is removed before closing doors (Engineering)	Contractor	QCP	S

FLUE GAS PATH DUCTING

SCOPE		MAINTENANCE OF DUCTING AND DAMPERS				
SUBSYSTEM		FLUE GAS PATH DUCTING				
COMPONENT ACTIVITIES					GOVERNING DOCUMENTS	
No	COMPONENT DESCRIPTION	ACTIVITY TYPE (INSPECT / TEST/ REFURBISH / REPLACE)	DETAILED ACTIVITY DESCRIPTION	RESPONSIBLE PARTY	WORK SPEC & CHECK SHEET NO.	INTERVENTION POINTS (H/W/S/R)
	Flue Gas Path Air Tightness Test	Test	Perform the Boiler Air Tightness Test as per procedure 4489 The test identifies sources of air ingress on both the boiler furnace and the flue gas ducting (from economiser outlet to the stack	Contractor	4489	H
	Economizer Gas Outlet to Secondary Air Heater Gas Inlet Duct	Open	Open the economiser gas outlet flue access doors (1 off bolted doors)	Contractor	QCP	S
		Inspect	Remove the expansion joint cover and lagging and inspect the condition of the expansion joint erosion shield (G1 &G2) Eroded/holed sections are to be patched (2m ² , 3mm plate and 44m of 100x6mm flat bar) Replace/reinstate the lagging and expansion joint cover (44x1 2m, 6mm plate)	Contractor	QCP/WPS	W
		Inspect	The economiser outlet flue duct work is expected to be holed/eroded Allowance is to be made for 5m ² (6mm plate) of patches	Contractor	QCP/WPS	
		Inspect	Economizer duct stiffeners are expected to be eroded Remove the damaged erosion shield plate and patch weld the stiffener Weld new shield plate after the patch weld (10m of 120x120x5 angle iron, 10m of 80x5mm flat bar)	Contractor	QCP/WPS	W
		Inspect	Inspect the condition of the Oxygen manifold (O2 Matrix) - Inspect for leaks on the Oxygen manifold piping and fittings. - Inspect for blockages on the matrix internally in the ducting Compressed air can be used to blow through the ash blocking the piping.	Contractor	WPS	W

SCOPE		MAINTENANCE OF DUCTING AND DAMPERS				
SUBSYSTEM		FLUE GAS PATH DUCTING				
COMPONENT ACTIVITIES					GOVERNING DOCUMENTS	
No	COMPONENT DESCRIPTION	ACTIVITY TYPE (INSPECT / TEST / REFURBISH / REPLACE)	DETAILED ACTIVITY DESCRIPTION	RESPONSIBLE PARTY	WORK SPEC & CHECK SHEET NO.	INTERVENTION POINTS (H/W/S/R)
			Inspect the condition of the matrix piping erosion shield All defects found during the inspection are to be rectified by (see drawing 0 47/47747) - Replacing the gaskets on the flanges. - Tightening of the fittings - Using compressed air to unblock the blocked pipe. It may be necessary to use a poking rod to clear the blockage. Cutting the eroded erosion shields and replacing with new (16 off, 80x80x3mm angle iron)			
		Inspect	Economizer gas outlet turning vanes are eroded at the tips of the vanes Patch the turning vanes (allow for 22m² of a 6mm plate) Repair the vane support brackets (100x100x8mm bracket) Allow for bending of the plates according to drawing 0 47/4631	Contractor	QCP/WPS	W
		Inspect	The secondary air heater gas inlet ducting stiffeners erosion shields are eroded Replace the erosion shields (20m of 100x100x6mm angle iron) Allowance to be made to replace the stiffeners if it is also eroded (Pipe ID 100mm, schedule 40, 6m per stiffener)	Contractor	QCP/WPS	W
		Inspect	The secondary air heater gas inlet dampers are worn damper stoppers are missing Patch weld the eroded sections of the dampers and replace the missing stoppers (50x50x3mm angle iron) Bending of the plate material may be required (20m² of 3mm plate)	Contractor	QCP/WPS	W

SCOPE		MAINTENANCE OF DUCTING AND DAMPERS				
SUBSYSTEM		FLUE GAS PATH DUCTING				
COMPONENT ACTIVITIES					GOVERNING DOCUMENTS	
No	COMPONENT DESCRIPTION	ACTIVITY TYPE (INSPECT / TEST / REFURBISH / REPLACE)	DETAILED ACTIVITY DESCRIPTION	RESPONSIBLE PARTY	WORK SPEC & CHECK SHEET NO.	INTERVENTION POINTS (H/W/S/R)
	Secondary Air Heater Gas outlet	Open	Open the air heater gas outlet flue doors (2 off hinged door)	Contractor	QCP	S
		Inspect	The secondary air heater gas outlet dampers are worn damper stoppers are missing Patch weld the eroded sections of the dampers (20m ² of 3mm plate) and replace the missing stoppers (50x50x3mm angle iron) Bending of the plate material may be required (20m ² of 3mm plate)	Contractor	QCP/WPS	
		Inspect	The floor at the water drain box is holed Patch the holed areas with 200 x 600mm plate (6mm) and seal weld Also remove any obstruction to the drain box	Contractor	QCP/WPS	W
	Primary Air Heater Gas Outlet	Inspect	The primary air heater gas outlet dampers are worn damper stoppers are missing Patch weld the eroded sections of the dampers and replace the missing stoppers (50x50x3mm angle iron) Bending of the plate material may be required (20m ² of 3mm plate)	Contractor	QCP/WPS	W
		Inspect	The primary air heater gas outlet duct work is eroded Patch the eroded/holed areas of the duct working, including the stiffening beams Allow for 2m ² of patches with 6mm plate	Contractor	QCP/WPS	W
	General	Erect	Erect scaffolding on the flue gas path dampers to allow for inspection of the NDE bearings	Contractor	QCP	S
		Inspect	Inspect the condition of the flue gas path dampers DE and NDE damper bearings and bearing housings for cracks Replace the cracked bearings (16 off)	Contractor	QCP	w
		Test	Stroke check all the flue gas ducting dampers and adjust the links to achieve the open and closed positions - Primary air heater gas inlet and outlet dampers (4 off)	Contractor	QCP	R

SCOPE		MAINTENANCE OF DUCTING AND DAMPERS				
SUBSYSTEM		FLUE GAS PATH DUCTING				
COMPONENT ACTIVITIES					GOVERNING DOCUMENTS	
No	COMPONENT DESCRIPTION	ACTIVITY TYPE (INSPECT / TEST / REFURBISH / REPLACE)	DETAILED ACTIVITY DESCRIPTION	RESPONSIBLE PARTY	WORK SPEC & CHECK SHEET NO.	INTERVENTION POINTS (H/W/S/R)
			- Secondary air heater gas inlet and outlet dampers (8 off) - ID fan discharge dampers (4 off) During stroke checking, monitor the actuator stand to be rigid. If the stand is loose, reinstate the welding on the structure and re-stroke the damper.			
		Inspect	Final internal inspection	Contractor	QCP	H
		Replace	Replace all manhole door seals	Contractor	QCP	S
		Close	Close all access doors and manholes after inspection	Contractor	QCP	W

PRIMARY AIR HEATER

SCOPE		MAINTENANCE OF DUCTING AND DAMPERS				
SUBSYSTEM		PRIMARY AIR HEATER				
COMPONENT ACTIVITIES					GOVERNING DOCUMENTS	
No	COMPONENT DESCRIPTION	ACTIVITY TYPE (INSPECT / TEST / REFURBISH / REPLACE)	DETAILED ACTIVITY DESCRIPTION	RESPONSIBLE PARTY	WORK SPEC & CHECK SHEET NO.	INTERVENTION POINTS (H/W/S/R)
	Primary Air Heater	Test	Perform PAH Pressure Test as per procedure 4499	Contractor	4499	W
		Open	All access doors (14 off latched) are to be opened	Contractor	QCP	S

SCOPE		MAINTENANCE OF DUCTING AND DAMPERS				
SUBSYSTEM		PRIMARY AIR HEATER				
COMPONENT ACTIVITIES					GOVERNING DOCUMENTS	
No	COMPONENT DESCRIPTION	ACTIVITY TYPE (INSPECT / TEST / REFURBISH / REPLACE)	DETAILED ACTIVITY DESCRIPTION	RESPONSIBLE PARTY	WORK SPEC & CHECK SHEET NO.	INTERVENTION POINTS (H/W/S/R)
	PAH Hot End 35ml	Inspect	The air heater gas inlet expansion joints are expected to be cracked in the corners Grind off the old welds and re-weld Allow for 2meters of welding.	Contractor	QCP/WPS	W
		Inspect	The area under the expansion joint at the hot end inlet is expected to be leaking Cover the leaking area with either an angle iron (3m of 80x80x3mm) or flat bar (3m of 80x3mm) and seal weld The repair method depends on the location of the leak	Contractor	QCP/WPS	W
		Inspect	Inspect the tube plate and the tubes near the expansion joints for any damage - Leaking tubes are to be plugged on both ends (up to 600 tubes) - Apply epoxy on the eroded tube sheet (20l)	Contractor	QCP/WPS	W
	PAH Hot End 9.5ml	Inspect	Cut out the expansion joint shield to allow for full inspection of the PAH Hot End gas outlet expansion joint	Contractor	QCP/WPS	W
		Inspect	Inspect the PAH Hot End gas outlet expansion joint for cracks and holed areas especially on the corners and in between the leaves or convolutions Perform patch repairs on the holed areas (2m of 100x3mm flat bar) and crack repairs where applicable (1m of welding repairs)	Contractor	QCP/WPS	W
	PAH Throat Area	Inspect	Inspect the stiffeners and their erosion shields on the PAH "throat" for erosion Replace the eroded shields (5m of 50x5mm flat bar) Also inspect the expansion joint and drain on the throat for any erosion and repair	Contractor	QCP/WPS	W
	PAH Cold End 9.5ml	Inspect	Inspect the tubes at the inlet of the second bank (cold end) for erosion and holes Holed tubes are to be plugged (up to 600 tubes to be plugged on the inlet and outlet)	Contractor	QCP/WPS	W

SCOPE		MAINTENANCE OF DUCTING AND DAMPERS				
SUBSYSTEM		PRIMARY AIR HEATER				
COMPONENT ACTIVITIES					GOVERNING DOCUMENTS	
No	COMPONENT DESCRIPTION	ACTIVITY TYPE (INSPECT / TEST/ REFURBISH / REPLACE)	DETAILED ACTIVITY DESCRIPTION	RESPONSIBLE PARTY	WORK SPEC & CHECK SHEET NO.	INTERVENTION POINTS (H/W/S/R)
	PAH Cold End 16ml	Inspect	Inspect the air heater tubes on the inner parts for holes Plug all the tubes found to have holes (up to 600 tubes to be plugged on the inlet and outlet)	Contractor	QCP/WPS	R
		Inspect	Inspect the PAH outlet ducting towards the PAH gas outlet damper for excessive wear and cracks Repair all worn areas including the stiffening channels and turning vanes (1m ² of 6mm plate)	Contractor	QCP/WPS	H
	General	Inspect	Inspect the air heater casing for any wear or holes This includes the air path in between the two banks (hot end and cold end tubes) Allow for 1m ² patches with 6mm plate	Contractor	QCP/WPS	S
		Inspect	All door seals are to be replaced (both frame to ducting seal and frame to door seal)	Contractor	QCP	W
		Close	Close all access doors			