

	MATLA POWER STATION SCOPE OF WORK	Template Identifier	240-43921898	Rev	6
		Document Identifier	14593	Rev	4
		Effective Date	22 October 2019		
		Review Date	October 2022		

PLANT AREA: Unit 1 – 6 Boiler

TITLE: U1 – 6 Boiler NDT (Acid Etching, Replicas and Wall Thickness Measurements) **5** year Contract

REF: MEB-054552		Reference Rev No: 0		MULTIDISCIPLINARY: No		Plant Level: 1
COMPILED BY	Name: Moment Makhukhula EIT	Signature: 		Date: 2022-10-31		
REVIEWED BY	Name: Thapelo Makofane System Engineer	Signature: 		Date: 2022-10-31		
APPROVED	Name: John Makuleka Line Manager	Signature: 		Date: 31/10/2022		
APPROVED	Name: Lindokuhle Ngobese Engineering Group Manager	Signature: 		Date: 31/10/2022		
REVIEWED	Name: Environmental Department	Signature: n/a		Date:		
REVIEWED	Quality Department	Signature: n/a		Date:		
ACCEPTED	Name: Lucas Nyambe Outage Manager	Signature: 		Date: 28.02.2023		
REVIEWED	Name: AIA	Signature: n/a		Date:		

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NB: Do not tamper with the template.

1. GENERAL

- Data books, reviews, reports and diagrams/drawings shall be submitted to Engineering after the completion of the work. Engineering to forward the data books to Quality Department (Document Control)
- All QCP's to be submitted to Engineering and Quality for approval prior to outage/project or maintenance work commencement.

	SCOPE OF WORK DESCRIPTION / ACTIVITY	PROCEDURE, SPECIFICATION, ENG. REQUIREMENTS / DOCUMENTATION		HOLD POINTS, WITNESS, REPORTS	RESPONSIBLE PARTY
1.1	Safety	- All work is to be done in accordance with Matla plant procedures and safety regulations. (GGR 0992). - Matla power station induction must be done before any work commences.		Eskom to witness.	Contractor

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		- Permit to work must be in place before any work commences. - Worker's register must be completed, and daily risk assessment conducted before any work commences.			
1.2	Environmental Management.	- All activities listed in the National Environmental Act 107 of 1998, EIA Regulations as amended, must have environmental AUTHORISATION before commencement of work. - The contractor shall comply with all applicable legal and other requirements. - The polluter pays principle will be applied. - The contractor manager shall ensure compliance with Eskom Matla Environmental procedures to ensure the prevention of pollution (refer: OMOP 4090 and 4402).		Eskom to witness.	Contractor

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		- The last payment will be processed based on the status of the last housekeeping check sheet (Annexure C: OMOP 4402) of designated area. - EMS file based on ISO14001 will be required.			
1.3	Quality Management	- The contractor/executioner of work will be responsible for drawing up all QCP documentation and this must be approved by engineering and authorised by the Quality Department before commencing with the work. - Contractors/executioner to adhere to QM 58 and OMOP4497 requirements - Number of NCR issued can affect your next tendering process. - The QCP shall be signed progressively by the Engineer/Supervisor, Eskom QC Inspector, Contractor QC Inspector and/or AIA.		Hold point	Contractor

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		- No procuring of outage items without the approval of scopes by quality - All outage scopes creep and scopes addition should be approved by quality - No contractor should be in the possession of scopes for execution without the scopes approved by quality - The contractor is subjected to quality auditing at any point in time during execution of scope			
1.4	Inputs from other departments	Contractors/executioner to adhere to the following Replication Eskom Standards: Standard for Metallographic Replication Applicable to High Temperature High Pressure Components on Eskom Plant (240-75109745).			

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		- Standard for Metallographic Replication Applicable to High Temperature High Pressure Turbine and Generator Components on Eskom Plant (240-75114345).			
1.5	Inputs from other departments	N/A			
1.6	Commissioning reference	N/A			

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2. SCOPE OF WORK

	SCOPE OF WORK DESCRIPTION / ACTIVITY	PROCEDURE, SPECIFICATION, ENG. REQUIREMENTS / DOCUMENTATION	HOLD POINTS, WITNESS, REPORTS	RESPONSIBLE PARTY
2.1	<u>General (Scope Boundaries):</u> The scope will be for performing NDT (Replicas, Wall Thickness Measurements and Acid Etching) required for Matla Power Station. The NDT will be required for evaluation of component conditions as per the requirements of the individual scopes of work. These inspections shall be performed during the following cases: • During outage activities • During investigation or failure analysis activities		Hold point	Contractor
2.2	<u>Employers Objective and Purpose for the Scope:</u>		Hold point	Contractor

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	The purpose of this contract is to provide NDT's (Replicas, Wall Thickness Measurements and Acid Etching) for Matla Power Station Boilers, Turbines, and all associated auxiliaries. The Employer and the Contractor must be committed to the following - Safety (Zero Harm Policy) - Eskom Life Saving Rules - Matla Life Saving Rules The parties respond to changing needs whilst also pursuing the parties' long-term goals. Performance is measured by the employer against those areas which contribute to the Employer's business needs. Areas of measurement include the employer's key business indicators, as defined from time to time. The contractor must share the same sentiments on performance as that of the Employer.			
2.3	<u>Employer's Requirements for the Non-Destructive Testing:</u> The contractor will be required to render the services as stipulated in this scope of work. In addition to the SOW, the following shall apply:		Reports	Contractor

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	- An authorized NDT report shall be generated for each component which is inspected. All supporting documents pertaining to the inspection shall also be attached to the report and send to the respective systems engineer. - NDT restrictions and limitations shall be referred to Eskom by the suppliers NDT level III. Where restrictions or limitations cannot be eliminated, they shall be fully recorded by the NDT contractor. - All inspection qualifications shall be in accordance with Standard for Non-Destructive Testing on Eskom Plant 240-83539994.			
2.4	<u>Constraints on Performing Work:</u> The contractor shall take its own permits as per the plant safety regulations and the permit to work system. They will have a responsible person on each shift and on standby. The contractor will be responsible for its own transport. No passengers will be allowed on the back of an LDV even if fitted with a canopy.		Reports	Contractor

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2.5	The contractor is further expected to liaise daily with the maintenance supervisors and outage coordinators to plan the work for the day. The contractor is expected to perform NDT wherever required on Matla Power Station. Areas where NDT is required on the boiler side shall be the following: • Thick Wall Component and HP Piping: • Main Steam, Hot Re-heat, and associated drains • Penthouse Components (Stub boxes, outlet pipes and manifolds) • Interconnecting piping (Superheat and Reheat circuit) The contractor shall conform to all rules and regulation applicable to Plant Safety & High Voltage Regulations and shall complete the Workers Register prior to working on the plant. The Employer shall, on request, make available a copy of the latest revision of the Plant Safety Regulation & High Voltage Regulations to the Contractor.			
	<u>Non-Destructive Testing Tasks:</u>		Hold point	Contractor

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	The contractor will be required to perform the following inspections: • Acid etching: The etched surface is examined visually to determine if weld material is evident or not. • Replication: As per Eskom Standards' requirements (i.e. 240-75109745 and 240-75114345) mentioned on page 5. • Wall Thickness measurement: The wall thickness measurement to determine various degrees of corrosion/erosion where replicas are to be taken. All the above-mentioned techniques shall be performed in accordance with approved procedures within the contractor's company. These procedures shall be in accordance with the required construction codes and acceptance standards. The contractor shall be required to perform the inspections/ tests during the following instances: • GO's • MGO's • IR's			
2.6	Total Number of Components to be Tested:		Report	Contractor

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	Outage	System	Number of Components			
	GO	HP Piping: Replicas, WT, Acid etching	700			
		Penthouse: Replicas, WT, Acid etching	1030			
		Turbine Loop pipes and components: Replicas, WT, Acid etching	485			
	MGO	HP Piping, Replicas, WT, acid etching	700			
		Penthouse, Replicas, WT, acid etching	<u>1030</u>			
		Turbine Loop pipes and components: Replicas, WT, Acid etching	<u>180</u>			
	IR	HP Piping, Replicas, WT, acid etching	<u>100</u>			
		Penthouse, Replicas, WT, acid etching	<u>100</u>			
		Turbine Loop pipes and components: Replicas, WT, Acid etching	<u>64</u>			
2.5	Personnel and Work Execution: Any work which should be performed on site shall be required to ensure that they have all the information which they need for the work. Additional meetings may be scheduled with the respective engineer in order to ensure that all expectations are clear and any uncertainties are addressed.				Hold point	Contractor

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	The contractor shall ensure that the following personnel numbers are allocated to Matla Power Station for the duration of the contract: • 3 x Level 1 Replication Technicians, 3 X Level 1 UT Operators for Wall Thickness Measurements. • 2 x Level 2 Replication Technicians, 2 X Level 2 UT Operators for Wall Thickness Measurements. • 1 x Safety Personnel • 1 x Project Coordinator • 1 x Metallurgist to perform internal replica quality checks and screening • 1 x Site manager • 1 x NDT Level III who will be made available to Matla as and when necessary. The contractor shall ensure that the required number of personnel are authorised to take permits for performing work on Matla Power Station as highlighted in section 3.3. It is important that the contractor has a safety file which is updated on a regular basis.			
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3. BILL OF MATERIAL

	Full description Material/Spares/Equipment	Specifications of Material/Spares/Equipment	Stock No	Part Number	Required Quantity
	N/A				

Scope Compilation References				
SOURCE & Ref No.	Yes	No	N/A	Comments
Previous outage service reports		X		
Return to service data packages		X		
Maintenance Strategy with Rev number	X			
SAP defects (attach list as appendix)		X		
GHRMS (STEP) reports (Generation Heat Rate Management System)		X		
Online Condition Monitoring		X		

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Pre-outage performance test results		X		
Post outage performance test results		X		
GPSS/ Plant Performance data on UCLF incurred		X		
OMS / IIRMS recommendations (Audits Reports)		X		
Risk controls (IRM system)		X		
Previous audits and reviews (e.g., ERAP)		X		
Engineering Change Requests (Projects)		X		
LOPP strategy reports		X		
URS		X		
Philosophy (Outage)	X			
Condition Monitoring Report		X		
VA/PHD Viewer trends		X		
Corrective Actions		X		
CARAB reports		X		
Statutory Requirements		X		

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Grid code requirements		X		
Waivers and Exemptions		X		
Calibration requirements		X		
Previous Outage SOW variations		X		
Post Mortems Actions from previous outages		X		
Pre-Outage plant walks		X		
Risk based inspection (RBI) report	X			
Simulation, TOIs, OON, SI		X		

COMMENTS

Compiled by: Moment Makhukhula 2022-10-31

Reviewed by: Thapelo Makofane 2022-10-31

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