

SHAMS POWER COMPANY
ENGINEERING DIVISION
INSPECTION & CORROSION SECTION
SHAMS 1

LOCATION : R1MAG10AH001

KKS :

- 1- **R1MAG10AH001 (AIR COOLER)**
- 2- **R1MAG10BZ001 (EXPANSION BELLOW)**
- 3- **R1MAG10BZ002 (EXPANSION BELLOW)**
- 4- **R1MAG10BZ003 (EXPANSION BELLOW)**

CERTIFICATE OF INSPECTION

The equipment detailed below was examined in accordance with the SHAMS code of practice for plant inspection,

ITEM : Air cooler 10

Location : SHAMS Plant

Type of Inspection : Major

Date of Inspection : March, 2020

Place of Inspection : IN-SITU

Date of Last Inspection : Jan, 2019

REPORT :

1.0. Summary

The above air cooler was taken off line, isolated, opened, vented & cleaned for major external & internal inspections.

2.0. Subject

2.1. This is a horizontal air tube connected to incline fined tubes receiving water vapor from turbine through 20 " pipe protected by three expansion joint.

Size	
Design pressure	0.49 bar
Design temperature	460 c
Operation pressure	0.3bara
Operation temperature	100c
Fluid characteristics @ 141 c	Steam- condensate

.....
The above equipment is/ ~~is not~~ considered suitable for further service under the present operating conditions

Next Major Inspection Due: Jan. 2024

Inspected: Osman Ismail

Reviewed: Ali Al Masabai

Endorsement: 48 Months

3.0 History

This air cooler was commissioned in 2013. Periodical inspection records since Oct.'2014 are available.

4.0. Scope of Inspection

- 4.1 Visual inspection.
- 4.2 Ultrasonic thickness measurement.
- 5.2 Dye –penetrant

5.0. Conditions Found

5.1. External –

- 5.1.1 All painting surfaces found intact without any evidence of peel off for external surfaces.
- 5.1.2 All three attached expansion bellows found satisfactory with no evidence of cracks or mechanical damage.
- 5.1.3 All aluminum fins found clean and in satisfactory condition with no evidence of any deposits or mechanical damaged.
- 5.1.4 Water dust blower found in satisfactory condition.
- 5.1.5 All ladders, stairways and handrails found in satisfactory condition.
- 5.1.6 All concrete support found in satisfactory condition without evidence of cracking or spalling.
- 5.1.8 Manhole found in satisfactory condition without evidence of any corrosion.
- 5.1.9 All external piping insulation found in satisfactory condition.
- 5.1.10 All earthing lugs found in satisfactory condition.

5.2. Internal –

- 5.2.1 All internals found in satisfactory condition without evidence of fallen down, damage or corrosion.
- 5.2.2 All internal surfaces of shell and heads found in satisfactory condition, apart from normal carbon steel very thin hydroxide layer.
- 5.2.3 All welds of shell and heads found in satisfactory condition without evidence of heavy corrosion
- 5.2.4 All internal surfaces of connected nozzles and manway found in satisfactory condition without evidence of sever corrosion.
- 5.2.5 All thermos wells found in satisfactory condition.

5.8.1. Ultrasonic Testing

Ultrasonic thickness measurement was carried out on the internal pipe surfaces and heads found satisfactory. See attached thickness measurement report.

6.0. Recommendations

It is recommended to open air cooler after 4 years as per SHAMS Code of Practice.

10. Inspection Grade and Interval

In accordance with the latest revision of SHAMS Code of Practice, this **air cooler** was endorsed for 48 months for next Major Inspection.

Frequency : 48 Months.
Endorsement : 48 Months
Next Major Insp. due : January 2024

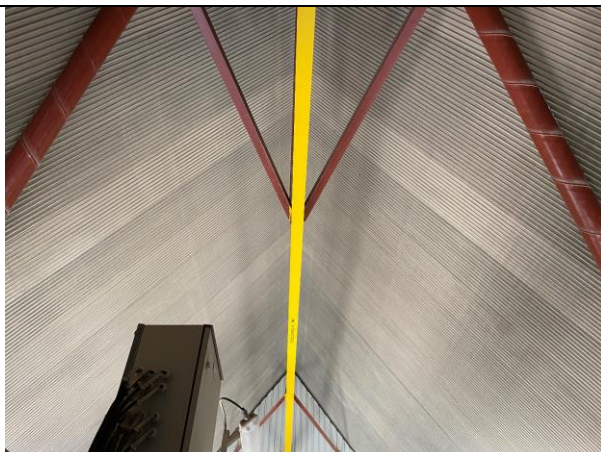
Photos



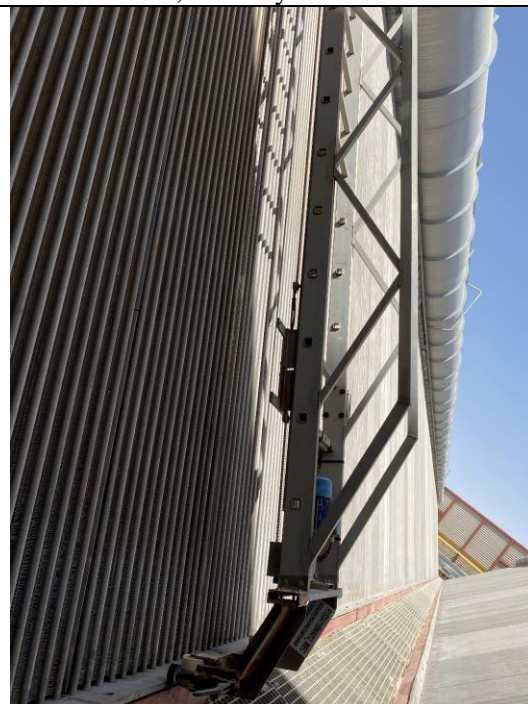
Air cooler -10 main door



Ladder, stairways and handrail



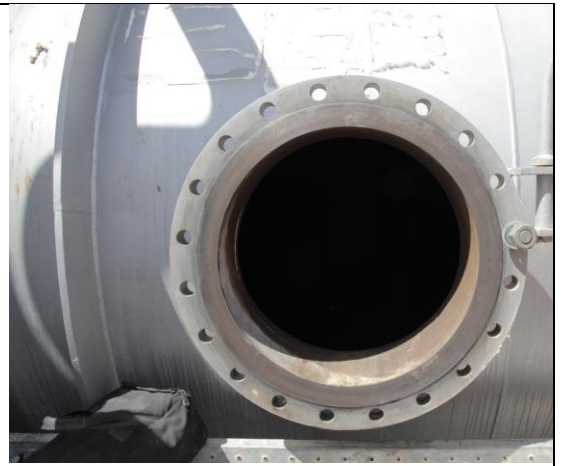
Internal walls surfaces in good condition



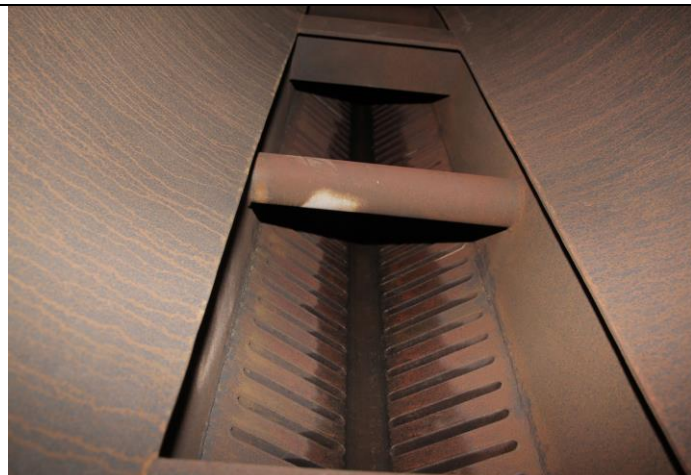
Water dust blower in good condition



Aluminum fins in good condition



Manway gasket seat and internal surfaces in good condition



Internal surface of tubes in good condition



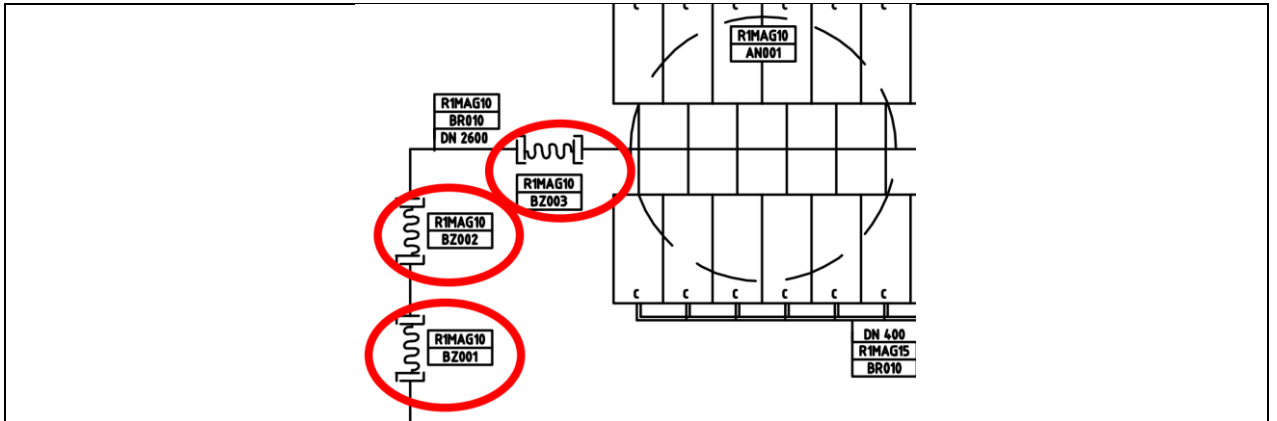
Internals in good condition



Internal surface in good condition



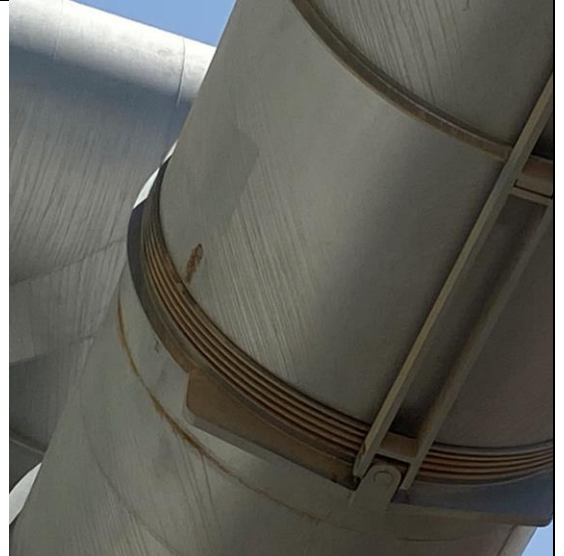
Pivot and manway cover in good condition



Three expansion joints connected to air cooler -10



Bellows in good condition



Bellows in good condition

Form No.: IN-QSF-36 Rev. 05E Dtd.: 20-10-2018

ULTRASONIC THICKNESS GAUGING REPORT


Client:	SHAMS POWER COMPANY		
Date:	06.03.2020	Report No.:	AD / 466
Project:	SHAMS OUTAGE MARCH 2020	Job No.:	N/A
Location:	MADINAT ZAYED	Drawing No.:	N/A
Item ID:	ACC BLOWER	Material:	CS
Ref/ Procedure No:	INSPEC/UTG/001 Rev.10	Ref. Standard:	ASME SEC V
UTG Equipment Model/ Manufacturer:	USM 35 X DAC / GE	Serial No.:	7292a
Calibration Block No.:	STEP WEDGE, IIW V2 BLOCK	EQPT Calibration Certificate & Due Date:	INS/UT/CAL-043/19/AUH
Probe Type/ Size/Frequency:	WK TR 0° PROBE/ 10mm DIA / 5 MHz	Couplant Brand Name & Type:	POLYCELL + WATER
Connecting Cable Type & Length:	LEMO TO MICRODOT & 2 MTR	Special Attachment/ Equipment/ Block:	STEP WEDGE BLOCK (SL NO : AZB270)
Test Temperature:	AMBIENT	Surface Condition:	AS CLEANED
Inspection Date:	06.03.2020	Page:	1 of 3

Description:

ULTRASONIC THICKNESS GAUGING WAS CARRIED OUT ON THE FOLLOWING ITEM

FOR THICKNESS DETAILS REFER CONTINUATION SHEET

REPORT FORMAT APPLICABLE ONLY FOR AUH & FUJ FACILITY

LEVEL II TECHNICIAN		CLIENT REPRESENTATIVE		AI / TPI	
Name :	AFZAL ANSARI	Name :		Name :	
Sign :		Sign :		Sign :	
Date :	06.03.2020	Date :		Date :	

Dubai Branch
Sharjah Branch
Abu Dhabi Branch
Fujairah Branch
Oman Branch
Registered Office

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For Complaints & Suggestions:
Please email to: suggestions.inspec@intertek.com

Please see terms & conditions. This report is valid only if signed and stamped (Numbered Stamp) by Level II / Level III.

Form No.: IN-QSF-36A Rev. 05E Dtd.: 20-10-2018

ULTRASONIC THICKNESS SCANNING REPORT
(CONTINUATION SHEET)

Date:	06.03.2020	Report No.:	AD- 466	Page:	2	Of	3
LOCATION	ORIENTATION	ORIGINAL THICKNESS	MEASURED THICKNESS MINIMUM (mm)	DIMINUTION IN mm	DIMINUTION IN %	REMARK	
1	-	-	16.29	-	-		
1	-	-	16.14	-	-		
1	-	-	16.03	-	-		
1	-	-	15.98	-	-		
1	-	-	16.21	-	-		
2	-	-	15.68	-	-		
2	-	-	15.79	-	-		
2	-	-	16.00	-	-		
2	-	-	15.88	-	-		
2	-	-	15.93	-	-		
2	-	-	15.92	-	-		
3	-	-	20.29	-	-		
3	-	-	20.32	-	-		
3	-	-	20.31	-	-		
3	-	-	20.13	-	-		
3	-	-	20.14	-	-		
3	-	-	20.19	-	-		
4	-	-	20.02	-	-		
4	-	-	20.21	-	-		
4	-	-	20.32	-	-		
4	-	-	20.13	-	-		
4	-	-	20.14	-	-		
4	-	-	20.17	-	-		
4	-	-	20.19	-	-		
5	-	-	20.20	-	-		
5	-	-	19.73	-	-		
5	-	-	20.01	-	-		
5	-	-	19.78	-	-		
5	-	-	19.73	-	-		
5	-	-	19.43	-	-		
5	-	-	20.12	-	-		
6	-	-	15.83	-	-		
6	-	-	15.87	-	-		
6	-	-	16.01	-	-		
6	-	-	15.97	-	-		
6	-	-	15.88	-	-		

REPORT FORMAT APPLICABLE ONLY FOR AUH & FUJ FACILITY

LEVEL II TECHNICIAN SHYMAL PAUL Level II No. 660 05.03.2020		CLIENT REP. Name : Sign : Date :		AI/TPI Name : Sign : Date :	
Dubai Branch Sharjah Branch Abu Dhabi Branch Fujairah Branch Oman Branch Registered Office		P.O. BOX 50535, Dubai, U.A.E. Tel: 04 3241955 P.O. BOX 6150, Sharjah, U.A.E. Tel: 06 596969 P.O. BOX 41207, Abu Dhabi, U.A.E. Tel: 02 625820 P.O. BOX 7507, Fujairah, U.A.E. Tel: 09 2238754 P.O. BOX 195, P.O. 151, Sultanate of Oman Tel: 00968 2448 2391		Fax: 04 3241957 Fax: 06 5361173 Fax: 02 6225830 Fax: 09 2238754 Fax: 00968 2448 5855	
Email: inspec.dxbcoor@intertek.com Email: inspec.shjcoor@intertek.com Email: inspec.adhcoor@intertek.com Email: inspec.fujcoor@intertek.com Email: inspec.muscat@intertek.com		INSPEC IS PART OF INTERTEK GROUP For Complaints & Suggestions: Please email to: suggestions.inspec@intertek.com			

33-37 Athol Street, Douglas, IM1, 1LB, Isle of Man. Company Number 010728V.

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ULTRASONIC THICKNESS SCANNING REPORT

(CONTINUATION SHEET)

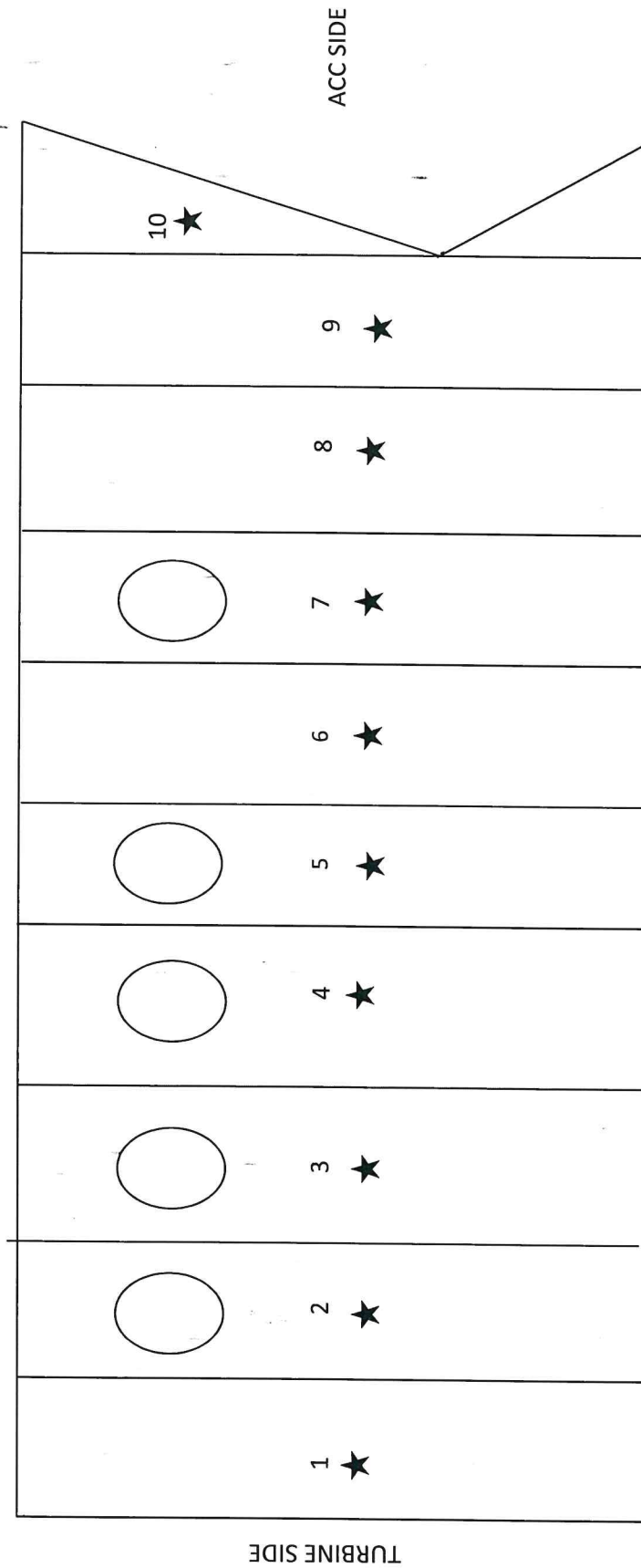
Date:	06.03.2020	Report No.:	AD- 466	Page:	3	Of	3
LOCATION	ORIENTATION	ORIGINAL THICKNESS	MEASURED THICKNESS MINIMUM (mm)	DIMINUTION IN mm	DIMINUTION IN %	REMARK	
6	-	-	15.89	-	-		
6	-	-	16.20	-	-		
7	-	-	15.98	-	-		
7	-	-	15.86	-	-		
7	-	-	15.87	-	-		
7	-	-	15.99	-	-		
7	-	-	15.88	-	-		
8	-	-	20.93	-	-		
8	-	-	20.94	-	-		
8	-	-	20.99	-	-		
8	-	-	21.05	-	-		
8	-	-	21.05	-	-		
8	-	-	21.21	-	-		
9	-	-	20.78	-	-		
9	-	-	20.93	-	-		
9	-	-	20.24	-	-		
9	-	-	20.39	-	-		
9	-	-	2.43	-	-		
10	-	-	20.73	-	-		
10	-	-	20.73	-	-		
10	-	-	29.30	-	-		
10	-	-	29.50	-	-		
10	-	-	29.60	-	-		

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LEVEL II TECHNICIAN		CLIENT REP.		AI/TPI
Name :	SHYMAL PAUL	Name :		Name :
Sign :		Sign :		Sign :
Date :	05.03.2020	Date :		Date :
<small>Dubai Branch : P.O. Box 3023, Dubai, U.A.E. Tel: 06 5361173 Fax: 06 5361173</small> <small>Sharjah Branch : P.O. Box 4127, Sharjah, U.A.E. Tel: 06 6258200 Fax: 06 6258200</small> <small>Abu Dhabi Branch : P.O. Box 1907, Abu Dhabi, U.A.E. Tel: 09 2238754 Fax: 09 2238754</small> <small>Fujairah Branch : P.O. Box 195, P.O. 151, Sultanate of Oman Tel: 00968 2448 2391 Fax: 00968 2448 5855</small> <small>Registered Office : 33-37 Athol Street, Douglas, IM1, 1LB, Isle of Man. Company Number 010728V.</small>		<small>Email: Inspect.dxbcoor@intertek.com</small> <small>Email: Inspect.shjcoor@intertek.com</small> <small>Email: Inspect.adhcoor@intertek.com</small> <small>Email: Inspect.fujcoor@intertek.com</small> <small>Email: Inspect.muscat@intertek.com</small>		<small>INSPEC IS PART OF INTERTEK GROUP</small> <small>For Complaints & Suggestions: Please email to: suggestions.inspec@intertek.com</small>

ULTRASONIC THICKNESS SCANNING DRAWING SHEET

ACC BLOWER



★ UTG LOCATION

LEVEL II TECHNICIAN

Name: AFZAL ANSARI

Sign :-

Date :- 06.03.2020