



## Index

1. Scope
2. References
3. Responsibilities
4. Procedure
5. Attachment

## 1. Scope:

1.1. This procedure describes Welders and Welding Operators Qualifications.

## 2. References:

2.1. AWS D 1.1- Edd.2010-Section 4- Part(C).

## 3. Responsibility:

3.1. The Welding engineer is responsible for control of Welders and Welding Operators Qualification and Making Tests To Determine Welder's and Welding Operator's Ability To Produce Sound Weld.

## 4. Procedure:

4.1. Making Test Specimen (Butt Joint(PJP, CJP)) For Welder and Welder Operator.

4.2. Making Test Specimen (T JOINT) For Tack Welders.

### 4.3. For Welders and Welding Operators:

4.3.1. Qualified Welding Position For Welders and Welding Operators shall be In Conformance With Table (4.1).

4.3.2. Number and type of specimens and range of thickness and diameter qualified shall be In Conformance With Table (4.11).

### 4.4. For Tack Welders:

4.4.1. Qualification For Tack Welders by Making Test Plate In Each Position In Which The Tack Welding is to Performed.

4.4.2. When Using Tubular Diameter Thickness shall be Greater Than (3mm).

4.5. The Second Step After Finishing Specimen For Welder, Welding Operator and Tack Welders Is Tests For Welder.

4.5.1. Tests Divided To Two Types(Mechanical Test and non Destructive Examination).

4.5.2. Visual Inspection (Use WPS Requirements).

4.5.3. Bend Testing (Face, Root, Side). (Use WPS Requirements).

4.5.4. Fillet Weld Fracture Testing.

4.6. Except For Joint Made by GMAW. Radio graphic Examination Of Welder and Welding Operator Qualification Test Plate Or Test Pipe May Be In Lieu Of Bend Test.

4.7. A Tack Welder Who Passes The Fillet Weld Fracture Testing shall be Qualified To Tack All Types Of Joints (Except CJP groove Welded From One Side Without Backing; e.g. Butt Joint and T, Y).

**QUALIFICATION PROCEDURE**  
**ASF -QP**

Revision

0

Page

4 of 6

**4.8.** Description Of Test Specimen: Shall be Prepared By Cutting The Test Plate Pipe Or Tubing As Shown In Figures ( 4.21, 4.30, 4.31, 4.32, And 4.33) For Welders Qualification Or Figures (4.22, 4.33, or 4.36) For Welding Operator Qualification. These Specimen shall Be Approximately Rectangular In Cross Section and Prepared For Test.

**4.9. Preparation of Performance Qualification Forms:**

The Welding Personnel shall Follow a WPS Applicable to the Qualification Test Required. All Of the WPS Essential Variable Limitation Of 4.7 shall Apply. In Addition to the Performance Variables of 4.22. The Welding Performance Qualification Record (WPQR) Shall Serve As Written Verification and shall List All Of The Applicable Essential Variables Of Table (4.12).

**5. Attachment.**

- Table (4.1).
- Table (4.12).
- Table (4.13).
- Figure (4.21)

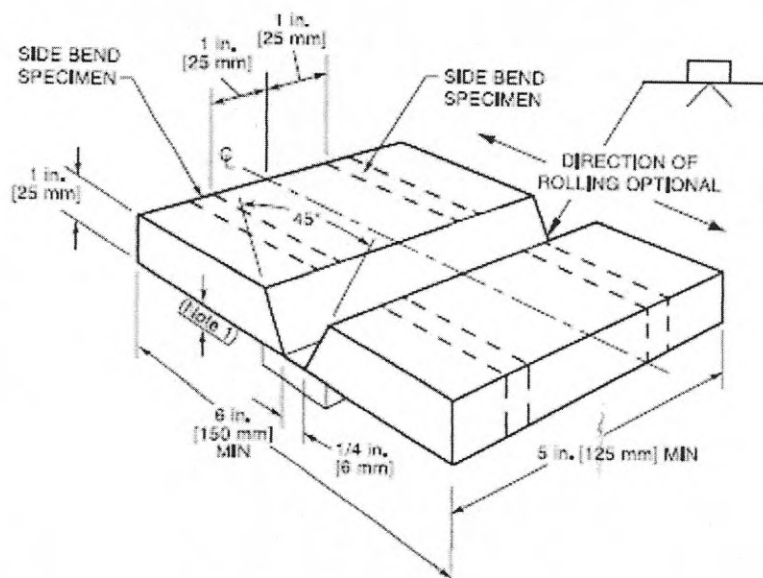


### Attachments.

Table 4.1  
WPS Qualification—Production Welding Positions Qualified by Plate, Pipe, and Box Tube Tests (see 4.3)

Qualification Test		Production Plate Welding Qualified			Production Pipe Welding Qualified					Production Box Tube Welding Qualified				
Weld Type	Positions	Groove CJP	Groove PJP	Filler <sup>o</sup>	Butt-Groove		T-, Y-, K-Groove		Filler <sup>o</sup>	Butt-Groove		T-, Y-, K-Groove		Filler <sup>o</sup>
					CJP	PJP	CJP	PJP		CJP	PJP	CJP	PJP	
P L A T E	CJP Groove <sup>1</sup>	1G	F	F	F	F			F	F	F			F
		2G	F, H	F, H	F, H	F, H			F, H	F, H	F, H			F, H
		3G	V	V	V	V			V	V	V			V
		4G	OH	OH	OH	OH			OH	OH	OH			OH
	Filler <sup>2</sup>	1F		F	(Note 2)	(Note 2)			F					F
		2F		F, H					F, H					F, H
		3F		V					V					V
		4F		OH					OH					OH
	Plug/Slot	Qualified Plug/Slot Welding for Only the Positions Tested												
T U B U L A R	CJP Groove	1G Rotated	F	F	F	F			F	F	F			F
		2G	F, H	F, H	F, H	(F, H) <sup>3</sup>			F, H	F, H	(F, H) <sup>3</sup>			F, H
		5G	F, V, OH	F, V, OH	F, V, OH	(F, V, OH) <sup>3</sup>			F, V, OH	F, V, OH	(F, V, OH) <sup>3</sup>			F, V, OH
		(2G + 5G)	All	All	All	All <sup>3</sup>	All	All <sup>3</sup>	All <sup>7</sup>	All	All <sup>3</sup>	All	All <sup>6</sup>	All <sup>7, 8</sup>
		6G	All	All	All	All <sup>3</sup>	All	All <sup>7</sup>	All	All	All <sup>3</sup>	All	All <sup>6</sup>	All <sup>7, 8</sup>
	Filler	1F Rotated		F					F					F
		2F		F, H					F, H					F, H
		2F Rotated		F, H					F, H					F, H
		4F		F, H, OH					F, H, OH					F, H, OH
		5F		All					All					All

CJP—Complete Joint Penetration  
PJP—Partial Joint Penetration



General Note: When RT is used, no tack welds shall be in test area.

Note:

- The backing thickness shall be 1/4 in. [6 mm] min to 3/8 in. [10 mm] max; backing width shall be 3 in. [75 mm] min when not removed for RT, otherwise 1 in. [25 mm] min.

Figure 4.21—Test Plate for Unlimited Thickness—Welder Qualification (see 4.23.1)

# QUALIFICATION PROCEDURE ASF -QP

Revision

0

Page

6 of 6

**Table 4.12**  
**Welding Personnel Performance Essential Variable Changes**  
**Requiring Requalification (see 4.22)**

Essential Variable Changes to WPQR Requiring Requalification	Welding Personnel		
	Welders <sup>2</sup>	Welding Operators <sup>2,3</sup>	Tack Welders
(1) To a process not qualified (GMAW-S is considered a separate process)	X	X	X
(2) To an SMAW electrode with an F-number (see Table 4.12) higher than the WPQR electrode F-number	X		X
(3) To a position not qualified	X	X	X
(4) To a diameter or thickness not qualified	X	X	
(5) To a vertical welding progression not qualified (uphill or downhill)	X		
(6) The omission of backing (if used in the WPQR test)	X	X	
(7) To multiple electrodes (if a single electrode was used in the WPQR test) but not vice versa		X <sup>1</sup>	

**General Notes:**

- An "x" indicates applicability for the welding for the welding personnel; a shaded area indicates nonapplicability.
- WPQR = Welding Performance Qualification Record.
- See Table 4.9 for positions qualified by welder WPQR.
- See Table 4.10 for ranges of diameters or thicknesses qualified.

**Notes:**

1. Not for ESW or EGW.
2. Welders qualified for SAW, GMAW, FCAW or GTAW shall be considered as qualified welding operators in the same process(es) and subject to the welder essential variable limitations.
3. A groove weld qualifies a slot weld for the WPQR position and the thickness ranges as shown in Table 4.10.

**Table 4.13**  
**Electrode Classification Groups**  
**(see Table 4.12)**

Group Designation	AWS Electrode Classification
F4	EXX15, EXX16, EXX18, EXX48, EXX15-X, EXX16-X, EXX18-X
F3	EXX10, EXX11, EXX10-X, EXX11-X
F2	EXX12, EXX13, EXX14, EXX13-X
F1	EXX20, EXX24, EXX27, EXX28, EXX20-X, EXX27-X

General Note: The letters "XX" used in the classification designation in this table stand for the various strength levels (60 [415], 70 [485], 80 [550], 90 [620], 100 [690], 110 [760], and 120 [830]) of electrodes.

**END OF DOCUMENT**

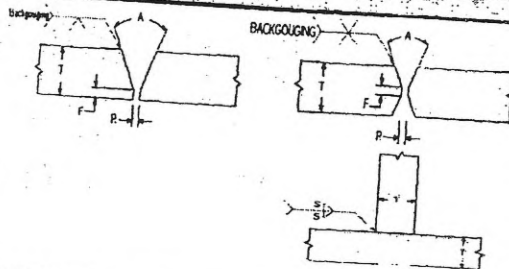
**WELDING PROCEDURE SPECIFICATION**  
ACCORDING TO ASME IX (2004)  
CONSTRUCTION CODE: ASME VIII DIV. 1

Date: 07/12/2006  
Sheet No. 1 of 1

CLIENT: TECHINET S.P.A  
WPS No.: 18  
WELDING PROCESS: SMAW  
PROJECT: EMETHANEX-DAMIETA1- EGYPT (DEAERATOR)  
REV.: 0  
SUPPORTING PQR No.: 26  
ASF JOB NO.: 527/08

JOINT QW-402

TYPE: ☒ Manual ☐ Semi-auto ☐ Auto ☐ Machine



Groove angle (A)  
Root face (F)  
Root opening (R)  
Weld size (S)  
as per construction drawings

Backing: ☒ Yes ☐ NO  
Type: ☐ Base metal ☒ Weld metal  
Retainers: ☐ Yes ☒ NO

BASE METAL QW-403

P No. ☒ S No. 8  
Group No. 1  
Material spec. 304L  
TO Material spec. 304L  
Group No. 1

Thickness Range qualified:

plate thickness 5 mm to 50 mm  
pipe diameter All

T Limit impact

T/t limits > 200 mm

t pass > 13 mm

NA  
NO  
NO

PREHEAT QW-406

Preheat Temp. Min. (C): NA  
Preheat Method: NA  
Interpass Temperature Max.: 175°C  
Measuring method: digital thermometer or tempstick

POST WELD HEAT TREATMENT QW-407

Type: NA  
Temperature Range (C):  
Holding Time Range:  
Heating Rate:  
Cooling Rate:  
Free cooling Temp.:

FILLER METAL QW-404

Process SMAW  
Type Manual  
SFA No. 5.4  
AWS Class E 308L-16  
Electrode brand name NC 308L (CHOSUN)  
F No. 5  
A No. 8  
Electrode diameter 2.5 - 3.25 mm  
Thickness qualified (T) 5 mm - 50 mm  
Max. deposited weld metal (t) 5 mm - 50 mm  
Flux wire class NA  
Solid/metal/flux cored NA  
Supplemental NA  
Sup. Powder NA  
Alloy elements NA  
Alloy Flux NA  
Flux Designation NA  
Recrushed slag NA  
Flux Type NA  
Flux (brand name) NA  
Consumable Insert NA  
Others NA

POSITION QUALIFIED QW-405

Groove ALL  
Fillet ALL  
Progression ALL  
Technique QW-410 UP

String / Weave

Cleaning String and weave  
Backgouging Grinding & brushing  
Peening Grinding & brushing  
Oscillation Not permitted

Tube-work distance None  
Single / multi pass NA  
Single / multi electrode Multi  
Orifice / gas cup size Single

Tungsten Electrode size NA  
Electrode wire feed speed NA

GAS QW-408

Shielding Type & composition Flow rate L/min  
Backing  
Trailing

ELECTRICAL CHARACTERISTICS QW-409

WELD LAYER	PROCESS	POSITION	FILLER METAL CLASS.	DIAMETER	POLARITY	CURRENT AMP.	VOLTAGE RANGE	TRAVEL SPEED(cm/min)	HEAT INPUT (kJ/mm)
ROOT PASS	SMAW	All	E 308L-16	2.5	DCEP	60-100	22-30	5-10	
FILLING	SMAW	All	E 308L-16	3.25	DCEP	80-130	22-30	10-15	
CAP	SMAW	All	E 308L-16	3.25	DCEP	80-130	22-30	10-15	
BACK WELD	SMAW	All	E 308L-16	3.25	DCEP	80-130	22-30	10-15	

REMARKS

Signature

Date

Reviewed by

Approved by

Prepared by  
Welding Eng.  
Sign.  
Date.

Owner



# EGYPTIAN ELECTRICITY HOLDING COMPANY

Contractor

THE CONSORTIUM OF

## SIEMENS

## ELSEWEDY ELECTRIC

PSP

Sub-Contractor

STAMP



ARAB STEEL FABRICATION COMPANY S.A.E  
EL SEWEDY IND.  
10th of Ramadan City, Zone A-3, Egypt

Project

### 2015/No.21-Beni Suef Combined Cycle Power Plant

PC

1020

UNID

447063255

DCC/UA Type

MDC080

Contents code

Variant

Serial no. 514001

GAD

Origin no.

Created with

Dept.

2	7/3/2016	H.M		H.R		ISSUED FOR APPROVAL
1	6/3/2016	H.M		H.R		ISSUED FOR APPROVAL
0	1/3/2016	H.M		H.R		ISSUED FOR APPROVAL
Rev.	Date	Coord.		Checked		Details of revision
Weight	NA	Format	A4	Scale		Specs.
	Date	Name		Title		
Draw.	10/3/2016	H.M		Inspection Test Plan for Raw Water Tank		
Coord.	13/3/2016	H.M				
Checked	17/3/2016	H.R				

Copyright © ELSEWEDY PSP 2015  
All Rights Reserved

Handling

Restricted

## ELSEWEDY ELECTRIC

PSP

Drawing/Doc-No.

### 1020-GAD-&MDC080-514001

Rev.

0

Sheet-No

1



# ASF scope of supply



ELSEWEDY  
INDUSTRIES

S.No	Qty.	Item description	Tag No.	Material	weight Kg	Receiving Date
<b>lime kiln</b>						
1	1	<b>Common Bunker Charging Plant</b>	11.1.4		18,600	16/07/2015
2	1	Charging Bunker	11.1.401	St.37	5790	16/07/2015
3	1	Skip	11.1.403	St.37	2268	16/07/2015
4	1	Track Framework	11.1.404	St.37	8077	16/07/2015
5	1	Set of Rope Return Pulleys	11.1.405	St.37	1088	16/07/2015
6	1	Delivery Chute	11.1.407	St.37		
7	1	Set of Fastenings	11.1.411	St.37		
8	1	<b>Bunker Plant</b>	11.1.6		111,000	
9	1	Overhead Bunker	11.1.601	St.37	113031	16/07/2015
10	1	Footbridge	11.1.602	St.37	873	16/07/2015
11	2	<b>Skip Charging Plants</b>	11.2.4		6,700	
12	1	Outlet Funnel	11.2.401	St.37	1493	16/07/2015
13	1	Support	11.2.405	St.37	840	16/07/2015
14	1	Collecting Funnel	11.2.406	St.37	901	16/07/2015
15	1	Guardrail	11.2.407	St.37	370	16/07/2015
16	1	Belt Conveyor	11.2.408	St.37		
17	1	Support	11.2.410	St.37	3448	16/07/2015
18	3	<b>Lime Kiln Type G 135</b>	11.3.4		450,000	
19	1	Lime Kiln Shell	11.3.401	St.37	146584	16/07/2015
20	7	Combustion Chambers	11.3.405	St.37	9010	16/07/2015
21	1	Bearing Ring	11.3.409	St.37	13320	16/07/2015
22	1	Set of Platforms, Stairs and Guardrails	11.3.411	St.37	137992	16/07/2015
23	1	Track Framework	11.3.417	St.37	53153	16/07/2015
24	1	Skip	11.3.420	St.37	4593	16/07/2015
25	1	Delivery Chute	11.3.424	St.37	3452	16/07/2015
26	1	Feeding Hopper	11.3.425	St.37	8035	16/07/2015
27	1	Set of Ring Mains	11.3.429	St.37		
28	1	Lime Weighing Basin	11.3.431	St.37	3834	16/07/2015
29	1	Waste Gas Suction Beam	11.3.437	St.st.	3257	16/07/2015
30	1	Half-Ring Main	11.3.438	St.st.	5192	16/07/2015
31	1	Chimney	11.3.439	St.37	2178	09/08/2015
32	1	Waste Gas Line	11.3.440	St.st.	9543	09/08/2015
33	1	Recirculation Gas Line	11.3.441	St.37	1193	09/08/2015
34	1	Recirculation Gas Ring Main	11.3.442	St.37	12090	09/08/2015
35	1	Primary Air Line DN 250	11.3.443	St.37		
36		Cyclone for removal dust in the waste gas	11.3.451	St.37	2936	09/08/2015
37		Cyclone for addetional de dusting of back gas	11.3.452	St.37	351	09/08/2015
38	1	Set of Fastenings	11.3.453	St.37		
39	1	<b>Conveying System for Burnt Lime</b>	11.5.4		19,100	
40	1	Supporting Structure for trough conveyor 5.403	11.5.404	St.37	486	09/08/2015
41	1	Chain trough conveyor	11.5.407	St.37		
42	1	Supporting Structure for chain conveyor 5.407	11.5.408	St.37	2601	09/08/2015
43	1	Temporary storage Bunker	11.5.409	St.37	14676	16/07/2015
44	1	Conveyor Troughs 650x approx. 1750 mm	11.5.410	St.37		
45	1	Belt Conveyor	11.5.411	St.37		
46	1	Discharge chute	11.5.411	St.37	1291	16/07/2015



ARAB STEEL FABRICATION CO.

## INSPECTION AND TEST PLAN (WORK SHOP)

CLIENT : EISEWEDY ELECTRIC (PSP)		ITEM : RAW water Tank		I.T.P NO : 1058/2016	
PROJECT: Beni Suef Combined Cycle Power Plant		CONSTRUCTION CODE : AWWA (D-100)		REV NO : 0	
ASF JOP NO : 1058-16				DATE: 13/03/2016	
MANUFACTURER SERIAL NO:				Page: 1 of 4	
Inspected by	1-Fabricator (ASF )				
	2-Clinet, EISEWEDY ELECTRIC (PSP)				
References codes	AWWA D 100. 2005		EN 10025		
	ASME BPVC Sec.V		ISO 12944		
	ASME B16.5		ISO 1461		
Applicable procedures	VISUAL TEST PROCEDURE (ASF-VT) Rev.0		RADIOGRAPHIC TEST PROCEDURE (ASF-RT) Rev.0		ELECTRODE HANDLING PROCEDURE(ASF-EHP) Rev.0
	PAINTTING PROCEDURE(ASF-PP) Rev.0		LIQUID PENETRANT TEST PROCEDURE (ASF-PT) Rev.0		ULTRA SONIC TEST PROCEDURE (ASF-UT) Rev.0
	PNUMATIC TEST PROCEDURE (ASF-PnT) Rev.0		HYDROSTATIC PROCEDURE (ASF-HSP) Rev.0		
Identification of inspection points	HP : Hold Point		DR : Dimentional Report		PnT : Pnumatic test
	WP : Witness Point		VR : Visual Report		NDE : Non Destructive Examination
	M :Monitoring		PTR : PT Report		UT : Ultrasonic Test
	RD : Review Document		MTO: Material Take off		MRIR: Material Receiving
Remarks					
REV.NO.	PREPARED BY		REVIEWED BY		
0	Eng :	Eng. Ahmed Massoud	Eng :	Eng. Islam Aktham Ibrahim	Eng :
	SIGN :		SIGN :		SIGN :
DATE: 13/03/2016	DATE :		DATE :		DATE :

# ASF scope of supply



S.No	Qty.	Item description	Tag No.	Material	weight Kg	Receiving Date
20	1	Water separation Box	03.10	St.37	600	11/01/2016
21	1	Sand trap	03.11	St.37	1,500	11/01/2016
22	1	Tail belt conveyor, Steel Structure, drum, roller supports, handrail, greating	03.12	St.37	6,500	
23	1	Belt conveyor to distributing beet above hopper, Steel Structure, drum, roller supports, handrail, greating	03.13	St.37	81,000	
24		Set of connecting chute	03.16	St.37	30,000	
25	1	Belt conveyor under weed catcher, Steel Structure, drum, roller supports, handrail, greating	04.13	St.37	1,800	11/01/2016
26	1	Belt conveyor under .4.11 as emergency, Steel Structure, drum, roller supports, handrail, greating	04.14	St.37	2,600	11/01/2016
27	1	Belt conveyor after 04.12 (69m), Steel Structure, drum, roller supports, handrail, greating	04.15	St.37	5,000	
28		Set of connection chutes	04.17	St.37	8,100	
29	1	Clean Beet belt conveyor Steel Structure, drum, roller supports, handrail, greating		St.37	21,000	
30	1	Beet Hopper	15.01	St.37	20,000	11/01/2016
31	1	Cosettes belt conveyor under slicers, Steel Structure, drum, roller supports, handrail, greating		St.37	28,600	
32		Connecting Chutes below the slicers		St.37	3,600	
	1	Caustic brine decanter 10 m3		St.37	2,000	
Total of beet preparation					918,496	
Pulp press						
1	1	Belt conveyor length for pressed pulp approx. 30 m (± 1 m) Steel structure, drum, roller supports, handrail, greating		St.37	25,000	
2	1	Slide gate valve		St.37	200	
3	1	Belt conveyor length 30 m from diffuser to wet pulp screw conveyor steel structure, drum, roller supports, handrail, greating		St.37	12,000	
4	1	Screen for press water fines.		St.st.	500	
5	5	Chutes		St.37	5000	
				St.st.	7000	
Total of pulp presses station					49,700	



ARAB STEEL FABRICATION CO.

**ININSPECTION AND TEST PLAN (WORK SHOP)**

CLIENT : EISEWEDY ELECTRIC (PSP)	ITEM : RAW water Tank	I.T.P NO : 1058/2016
PROJECT: Beni Suef Combined Cycle Power Plant	CONSTRUCTION CODE : AWWA (D-100)	REV NO : 0
ASF JOP NO : 1058-16		DATE: 13/03/2016
MANUFACTURER SERIAL NO:		Page: 2 of 4

ser.					1			2					
	DESCRIPTION	Reference Document	Acceptance criteria	Verifying document	ASF QC			client					
					INSP. POINTS	SIG.	DATE	INSP. POINTS	SIG.	DATE			
Befor Manufacturing													
1	Review And Approval of Fabrication Drawings	Design& DWG, Spec	AWWA (D-100).API 650	DWG	HP			RD					
2	Review of I.T.P	DWG, Spec,Code	Drawings & Technical Specification	Client approval	HP			RD					
3	Review of WPS & Supporting PQR & weld typical	Welding Procuder& ASME IX	ASME IX, Specs	Client approval	HP			RD					
4	Document Submittals	DWG, Spec,Code	DWG, Spec,Code	Client approval	HP			HP					
Materials													
5	Review mill test certificates of plates	DWG & MTO	EN 10204 3.1 & Specs.	NA	HP			RD					
6	Review mill test certificates of pipe.	DWG & MTO	EN 10204 3.1 & Specs.	NA	HP			RD					
7	Review mill test certificates of flange,	DWG & MTO	EN 10204 3.1 & Specs.	NA	HP			RD					
8	welding consumable	WPS & PQR	EN 10204 3.1 & Specs.	NA	HP			RD					
9	Material Reciving	Material reciving inspection Procedure.	EN 10025 & ASTM	MRIR	HP			RD					



CLIENT : EISEWEDY ELECTRIC (PSP)	ITEM : RAW water Tank	I.T.P NO : 1058/2016
PROJECT: Beni Suef Combined Cycle Power Plant	CONSTRUCTION CODE : AWWA (D-100)	REV NO : 0
ASF JOP NO : 1058-16		DATE: 13/03/2016
MANUFACTURER SERIAL NO:		Page: 3 of 4

ser.	DESCRIPTION	Reference Document	Acceptance criteria	Verifying document	1			2					
					ASF QC			client					
					INSP. POINTS	SIG.	DATE	INSP. POINTS	SIG.	DATE			

**During manufacturing-Marking,Cutting,Beveling and Grinding**

10	Cutting and beveling of The Bottom Plates	Fabrication Procuder-Drawing & Spec	DWG	Visual& Dimension Report	HP			RD					
11	Cutting and beveling of shell Course Plates.	Fabrication Procuder-Drawing & Spec	DWG	Visual& Dimension Report	HP			RD					
12	Cutting and beveling of The Roof Plates.	Fabrication Procuder-Drawing & Spec	DWG	Visual& Dimension Report	HP			RD					
13	Reinforcement Pads	Fabrication Procuder-Drawing & Spec	DWG	Visual& Dimension Report	HP			RD					
14	Manhole Nozzle Neck (FromPlates)	Fabrication Procuder-Drawing & Spec	DWG	Visual& Dimension Report	HP			RD					
15	Pipe For Nozzles	Fabrication Procuder-Drawing & Spec	DWG	Visual& Dimension Report	HP			RD					
16	Internal or External Supports (If Any)	Fabrication Procuder-Drawing & Spec	DWG	Visual& Dimension Report	HP			RD					
17	Sumps (If Any)	Fabrication Procuder-Drawing & Spec	DWG	Visual& Dimension Report	HP			RD					

CLIENT : EISEWEDY ELECTRIC (PSP)	ITEM : RAW water Tank	I.T.P NO : 1058/2016
PROJECT: Beni Suef Combined Cycle Power Plant	CONSTRUCTION CODE : AWWA (D-100)	REV NO : 0
ASF JOP NO : 1058-16		DATE: 13/03/2016
MANUFACTURER SERIAL NO:		Page: 4 of 4

ser.	DESCRIPTION	Reference Document	Acceptance criteria	Verifying document	1			2					
					ASF QC			client					
					INSP. POINTS	SIG.	DATE	INSP. POINTS	SIG.	DATE			

**During manufacturing-Forming and Rolling**

18	Rolling of shell Course Plates.	Fabrication Procuder-Drawing & Spec	DWG	Visual& Dimension Report	HP			RD					
19	Manhole Nozzle Neck (FromPlates)	Fabrication Procuder-Drawing & Spec	DWG	Visual& Dimension Report	HP			RD					
20	Sumps (If Any)	Fabrication Procuder-Drawing & Spec	DWG	Visual& Dimension Report	HP			RD					

**PAINTING**

21	Surface preparation	Painting Procuder& Specs	Client Specs ISO 12944-3	inspection report	HP			RD					
22	inspection of finished painting			PAINTING report	HP			RD					

**final inspection and documentation**

23	Final Visual and inspection of packing and shipping condition+picking List	ASF Procuder & Client Specs	Client Specs & Code	Final DR & VT	HP			WP					
24	Reviw of final documents	Documents	Client Specs	SIGNATURE ON I.T.P	HP			WP					

<b>aperam</b> Correspondentieadres: Aperam Genk Swinnenwijerweg 5, Poort Genk 7523 3600 Genk, Belgium Tel. +32 (0)89 30 21 11		<b>MILL CERTIFICATE BS EN 10204/3.1</b> <b>CERTIFICAT DE RECEPTION NF EN 10204/3.1</b> <b>ABNAHMEPRUEFZEUGNIS DIN EN 10204/3.1</b>		N-Nr-N 15K0024668-01 V01	
		Certified acc. PED 97/23/EC Annex I § 4.3 by Certification Body 0036 of TÜV SÜD Industrie Service GmbH with cert. No.: 314/2007/MUC. Renounced of counter signature agreed by TÜV SÜD (9/5/2007). Approved acc. AD 2000-Merkblatt W0/TRD 100 by TÜV SÜD Industrie Service GmbH. Confirmation letter from TÜV SÜD Industrie Service GmbH of 07/05/2010 about the uniformity of coils acc. AD 2000 W2 § 4.1.1			
Manufacturer's works order number N° de la commande usine productrice Werksauftragsnummer <b>80258958/01-20454/084/01</b>		Surveyor's mark Cachet de l'expert Stempel des Werksachverständigen <b>GNKI</b>		Purchaser and/or consignee Client et/ou destinataire Besteller und/oder Empfänger <b>SIGMA SUPPLIES CO.</b>	
Product - Produit - Erzeugnis SHEETS, HOT ROLLED, ANNEALED + PICKLED TOILES, LAMINEES A CHAUD, RECUITS + DECAPES BLECHE, WARMGEWALZT, GEGLUEHT + GEBEIZT		SIGMA SUPPLIES CO. 5 STE CATHERINE SQUARE EGYPT EGYPT		Purchaser's order number de commande client Kundenbestellnummer <b>E15012</b>	
Steel designation Désignation de l'acier Stahlbezeichnung EN 10028-7-2008 1.4307 / 1.4301 EN 10088-2-2014 1.4307 / 1.4301 ASTM A 240-2015 TYPE 304L / 304 ASME SA 240-2013 TYPE 304L / 304		Finish Présentation Ausführung 1D 1D NO 1 NO 1		Product delivery condition Etat de livraison du produit - Lieferzustand Solution treated: Hypertempe: <b>1050 °C</b> Lösungsgegl. abgeschreckt	
NACE MR 0175 / ISO 15156-1 / ISO 15156-3 -- NACE MR 0103 // NACE MR 0175 / ISO 15156-1 / ISO 15156-3 // ASTM A 480 / A 480M -- ASME SA 480 / SA 480M //		Any supplementary requirements Prescriptions supplémentaires - Zusätzliche Anforderungen		Forced air-water/air forced-eau Gebläse Luft-Wasser	
CORROSION TEST: ASTM A262-E OK					
<b>Identification of the product</b> Identification du produit - Identifizierung des Erzeugnisses MELTED IN BELGIUM, MADE IN BELGIUM					
Coil n. N. Bobine - Band Nr. <b>51114744</b>		Heat n. N. Coulée - Schmelz Nr. <b>511147</b>		Dimensions Dimensions Abmessungen Thickness Epaisseur - Stärke <b>6.00 mm</b> Width Largeur - Breite <b>1500.00 mm</b> Length Longueur - Länge <b>6000.00 mm</b>	
Number of pieces Nb de pièces - Stückzahl <b>47</b>		Net weight Poids net - netto Gewicht <b>20059 KG</b>			
<b>CHEMICAL ANALYSIS - ANALYSE CHIMIQUE - CHEMISCHE ZUSAMMENSETZUNG</b>					
Required - Exigé Anforderung.		C Si Mn Ni Cr Mo Ti N S P			
Cast Analysis Analyse coulée Analyse Schmelze		0.030 0.75 2.00 8.00 17.50 0.100 0.015 0.045			
Positive material identification carried out: OK Tests de vérification de la conformité de la nuance fournie: OK Verwechslungsprüfung wurde durchgeführt: OK		C71 C72 C73 C74 C75 C76 C77 C78 C79 C80 C81 C82 C83 C84 C85 C86			
<b>Location (1)</b> <b>MECHANICAL PROPERTIES - PROPRIETES MECANQUES - MECHANISCHE WERTE</b> EN ISO 6892-1 B					
Room temperature - Température ambiante - Raumtemperatur					
Direction (2) Direction (2)		Test temperature (°C):			
Required Exigé Anforderung		Yield or proof strength Limite d'élasticité Dehngrenze MPa		Tensile strength Résistance à la traction Zugfestigkeit MPa	
mini maxi		Rp0.2% Rp1%		Rm	
Obtained Obtenus Ergebnisse		332 372		640	
Impact strength test Essai de résilience Kerbschlagzähigkeitstest		Corrosion test Test de corrosion Korrosionstest		EN ISO 3651/2 - A:OK	
C40 C41 C42		C11 C14 C12 C13 C15 C31 C16 C17 C18 C19		C51 C52 C53 C54 C55 C56	
Location of the sample (1) Emplacement de l'échantillon Lage des Probenabschnittes 1. Front - Début - Anfang 2. Back - Fin - Ende 3. Middle - Milieu - Mitte		The delivery is in accordance with the order La fourniture est conforme aux exigences de la commande Die Lieferung entspricht den Bestellbedingungen		Organisation inspection Organisme et/ou service contrôle Überwachungsabteilung	
Direction of the test pieces (2) Orientation des éprouvettes Probenrichtung T. Transverse - Travers - Quer L. Longitudinal - Long - Längs		Packing list Avis d'expédition Lieferscheinnummer <b>150500659-20454</b>		Quality Department <b>21/5/2015</b> The inspector Le responsable <b>D. Raemackers</b>	
ZSC701 - PS5		Marking, inspection and measurement: without objection Contrôle de marquage, d'aspect et de dimensions: satisfaisants Prüfung der Stempelung, des Oberflächenaspekts und der Abmessungen: ohne Beanstandung		D01	

# Arab Steel Fabrication ASF

Production Planning And Follow-Up Dpt.

28-Jan-16

1:10:39 PM

Job No. GR23 / 15

Job Description 30\*100 - 40\*5 - 6 MM

Client Name ARCHIRODON EL SHABAB POWER ST

## DWG Progress

DWG No.	DWG Specification	Area		Pre-Fabrication			Fabrication			Shipping			Received Date	Completion Date	Type
	Mesh	Qty	M2	Qty	M2	%	Qty	M2	%	Qty	M2	%			
SH-CB-G2	30MM*100MM(PLAIN)	86	121.407	86	121.407	100%	86	121.407	100%	86	121.407	100%	20-Dec-15		Grating
SH-EB-G3	30MM*100MM(PLAIN)	60	83.428	60	83.428	100%	60	83.428	100%	60	83.428	100%	20-Dec-15		Grating
SH-RW-G7	30MM*100MM (SERR	294	411.783												Grating
SH-STG1-G6	30MM*100MM(PLAIN)	11	20.359										27-Jan-16		Grating
SH-STG2-G11	30MM*100MM(PLAIN)	11	20.359										27-Jan-16		Grating
Total		462	657.336	146	205	31%	146	205	31%	146	205	31%			
SH-CB-G1	30MM*100MM (PLAIN	240	83.280	240	83.280	100%	240	83.280	100%	240	83.280	100%	30-Nov-15		Stair
SH-EB-G4	30MM*100MM(PLAIN)	145	50.315	145	50.315	100%	145	50.315	100%	145	50.315	100%	20-Dec-15		Stair
Total		385	133.595	385	134	100%	385	134	100%	385	134	100%			
Grand Total		847	790.931	531	338	43%	531	338	43%	531	338	43%			





ARAB STEEL FABRICATION CO.  
QUALITY CONTROL DEPT

## INSPECTION AND TEST PLAN for structural steel Work

CLIENT: East Delta Electricity Production Company (EDEPC)		CONSTRUCTION CODE : AWS D1.1		ITP NO : ALSIV001	
PROJECT : AL SHABAB POWER Project Phase II Converting existing Simple Cycle to Combined Cycle 10066A-CP-106				REV NO : 0	
ASF Job No : 1057-15	Contractor Code No. :	REFERENCE : 0552AXVVEP003 AWS D1.1		DATE: 21/02/2016	
Document No. : A0VVG002					
Inspected By	1- ASF QC 2- ANSALDO ENERGIA 3- Client				
Reference Codes	AWS D1.1 EN10204-3.1 EN10034 EN ISO 13920	ASTM A578 ASTM E1417 A 307/ A 307M A 325/A 325M	A 490/A 490M 0552AXVVEP003 EN10025-2		
Applicable Procedures	VISUAL TEST PROCEDURE (ASF-VT) LIQUID PENETRANT TEST PROCEDURE (ASF-PT) ULTRASONIC TEST PROCEDURE (ASF-UT)		PAINTING PROCEDURE(ASF-PP) ELECTRODE HANDLING PROCEDURE(ASF-EHP) MATERIAL RECEIVING PROCEDURE(ASF- MRP)		
Identification Of Inspection Points	HP : Hold Point WP : Witness Point RI :Random inspection RD : Review Document		DR : Dimensional Report VR : Visual Report MRIR: Material receiving Inspection Report NDE : NonDestructive Examination		
Quality Control Record Code(Q.C.R.C)	A	B	C	D	
	SPECIFIC TEST CERTIFICATE	MILL CERTIFICATE (ORIGIN)	CERTIFICATE OF COMPLIANCE	TYPE TEST CERTIFICATE	
REV.NO.	PREPARED BY		REVIEWED BY		
0	Eng :	Ahmed Massoud	Eng :	Islam Aktham Ibrahim	
	SIGN :		SIGN :		
21/02/2016	DATE :		DATE :		





ARAB STEEL FABRICATION CO.  
QUALITY CONTROL DEPT

## INSPECTION AND TEST PLAN for structural steel Work

for structural steel work															
No.	DESCRIPTION	Reference	Acceptance criteria	Verifying document	Q.C.R.C	1			2			3			Remarks
						ASF			ANSALDO ENERGIA			Client			
						INSP. POINTS	SIG.	DATE	INSP. POINTS	SIG.	Date	INSP. POINTS	SIG.	Date	
	Pre-inspection meeting	PIM agenda		MINUTES OF MEETING											
Engineering And Pre-commencement approval															
1	Review of ITP	Document No. : AOVVGC002	Client Approval	SIGNATURE ON ITP Cover	A	HP			RD			RD			
2	Review of WPS & Supporting PQR	AWS D1.1	AWS D1.1	APPROVD WPS& PQR	A	HP			RD			RD			
3	Review / Approval of procedures (NDE, fabrication, painting and Repiar procedures)	AWS D1.1	AWS D1.1	APPROVED PROSEDURE	A	HP			RD			RD			
MATERIALS															
4	Material Identification	EN 10204-3.1	EN 10204-3.1	CERTIFICATES & MRIR	B	HP			RD			RD			
5	Material receiving	Material Receiving procedures	EN 10025-2 & EN 10034	MRIR	A	HP			RD			RD			
PLATES															
6	VISUAL CHECK	Material Receiving procedures	EN 10025-2	MRIR	A	HP			RD			RD			
7	ULTRASONIC EXAMINATION (UT)	ASTM A578	ASTM A578	UT Report	A	HP			RD			RD			foundation plates with thickness >=20 mm- 100% - level C
STRUCTURAL SHAPE															
8	VISUAL & DIMENSIONAL CHECK	Material Receiving procedures	EN10034	MRIR	A	HP			RD			RD			
ANCHOR BOLTS															
4	VISUAL & DIMENSIONAL CHECK	Material Receiving procedures	Material Receiving procedures	CERTIFICATES	A	HP			RD			RD			
5	DYE PENETRANT EXAMINATION (PT)	ASTM E1417	ASTM E1417	PT Report	A	HP			RD			RD			100% welding
BOLTS															
9	VISUAL CHECK	Material Receiving procedures	check intact packaging	MRIR	A	HP			RD			RD			
10	COMPLIANCE TO TYPE	ASTM A307 - ASTM A325 - ASTMA490	ASTM A307 - ASTM A325 - ASTMA490	CERTIFICATES of Compliance	C	HP			RD			RD			





ARAB STEEL FABRICATION CO.  
QUALITY CONTROL DEPT

## INSPECTION AND TEST PLAN for structural steel Work

### fabrication sequences

No.	DESCRIPTION	Procedure	Acceptance criteria	Verifying document	Q.C.R.C	1			2			3			Remarks
						ASF			ANSALDO ENERGIA			Client			
						INSP. POINTS	SIG.	DATE	INSP. POINTS	SIG.	Date	INSP. POINTS	SIG.	Date	
Welding Joints															
11	VISUAL CHECK OF WELDS (VT)	AWS D1.1	AWS D1.1	Sign in VT	A	HP			RD			RD			100%
12	MAGNETIC PARTICLES EXAMINATION (MT)	AWS D1.1	AWS D1.1	MT Report	A	HP			RD			RD			10% fillet welds and partial penetration welds - 100% length
13	DYE PENETRANT EXAMINATION (PT)	AWS D1.1	AWS D1.1	PT Report	A	HP			RD			RD			alternative to MT
14	ULTRASONIC EXAMINATION (UT)	AWS D1.1	AWS D1.1	UT Report	A	HP			RD			RD			100% Full Penetration Weld - excluding stairs and walkway
BOLTS Joints															
11	VISUAL & DIMENSIONAL CHECK	drawings specification	drawings specification	SIGNATURE ON I.T.P	A	HP			RD			RD			holes
12	MARKING CHECK	drawings specification	drawings specification	SIGNATURE ON I.T.P	A	HP			RD			RD			
PAINTING															
16	SURFACE PREPARATION CHECK	(ASF-PP) SA 2 1/2	0552AXVVEP003 - PAINTING SPECIFICATION	Painting Report	A	HP			RD			RD			
17	THICKNESS CHECK	0552AXVVEP003.	0552AXVVEP003 - PAINTING SPECIFICATION	Painting Report	A	HP			RD			RD			
18	PAINTING CHECK	0552AXVVEP003.	0552AXVVEP003 - PAINTING SPECIFICATION	Painting Report	A	HP			RD			RD			
19	GALVANIZATION CHECK	0552AXVVEP003.	0552AXVVEP003 - PAINTING SPECIFICATION& HDG PROCEDURE	galvanize Report	A	HP			RD			RD			
Final Documentation															
20	Final inspection Documentation.	according to AEN STD 26004	CLIENT ACCEPTANCE	PACKING LIST	A	HP			WP			WP			
Verification Point Legend :      HP : Hold Point (attendance required & signature to proceed) WP : Witness Point (Attendance expected & signature to proceed if in attendance ONLY) RD : Review Document ( review of record / Certificate ONLY)															



ПАО "ММК ИМ. Ильича"  
PJSC "ILYICH IRON & STEEL WORKS OF MARIUPOL"

СЕРТИФИКАТ КАЧЕСТВА N  
QUALITY CERTIFICATE N 24411

От

Date 13.10.14

Лист

Из

ф. 34 эксп  
Листов  
Sheet 1 Of 1 Sheets

ISO 9001:2008

ДСТУ ISO 9001:2009

Система обеспечения качества подтверждена TÜV SÜD Industrie Service GmbH (Per.No0036) и соответствует Директиве 97/23/ЕС по оборудованию, работающему под давлением, и Памятке AD 2000 W0

The Quality Assurance System is certified by TÜV SÜD Industrie Service GmbH (No.0036) and in accordance with the Pressure Equipment Directive 97/23/EC and AD 2000-Merkblatt W0

Украина 87504, г. Мариуполь, ул. Левченко, 1. факс 38(0623)87-91-66, e-mail office@ilyichsteel.com

Levchenko str. 1, Mariupol, 87504, Ukraine факс 38(0623)87-91-66, e-mail office@ilyichsteel.com

Свидетельство о приемочных испытаниях

EN 10204:2004-3.1

Inspection certificate

Контракт N 12EXP/12-02 Заказ N  
Contract N Order N LF2-120033100327  
Заказчик METINVEST INTERNATIONAL S.A.  
Customer

Варон N Спецификация No  
RW-Car No 66485202 Specification No 3310LF Lot No 5  
Lot No

Наименование товара Горячекатаный толстый лист  
Description of goods Hot Rolled Plate

Марка стали Стандарты EN 10025-1,2:2004  
Grade of steel Standards EN 10029:2010 Class A, Class N  
S355JR+N EN 10163:2005 Part 1,2 Class A, Subclass 3

Состояние поставки Нормализующая прокатка  
Delivery condition Normalizing rolled

Маркировка Trade Mark, Made in Ukraine, Grade of steel, Cast No,  
Marking Test No, Dimensions mm, Sp.3310LF, Lot5, CE, ONE Green  
STRIP IN TWO SIDES

Клеймо Trade Mark, Cast No  
Hard stamp

Позиция Item No	Плавка N Cast No	Партия N Test No	Размеры, мм Dimensions, mm			Кол-во, шт. Quantity, pcs	Теоретическая масса, тн Theoretical
			Толщина Thickness	Ширина Width	Длина Length		
	245798-2	25273	18	2500	12000	5	21.195
	245798-2	25274	18	2500	12000	1	4.239
						6	25.434

Выплавка Конвертерный способ производства  
Steelmaking process Made by the BOF Process

Химический состав, % Chemical composition, %

Плавка Cast No	C	Mn	Si	S	P	Cr	Ni	Cu	Ti	Al	As	N	Mo	V	Nb	Ca	B	Ceq	Pcm
	x100			x1000			x100			x1000			x100			x100			
245798-2	16	140	21	13	14	2	1	2	15	27	2	6	2	5	35	-	-	40	-

Результаты испытаний

Test results

Партия N Test No	Номер изделия Product No	Размеры		Направление отб обр Direction	Темп. испыт. Test temperature	Предел текучести Yield point		Предел прочности Tensile strength	Отн. удлинение Elongation	Отн. сужение Reduction of are	Тип надреза Cut type	Энергия удара Impact energy	Энергия удара Impact energy	Энергия удара Impact energy	Среднее значение Average value	Изгиб Bend
		Толщина/диаметр Thickness/diameter	Ширина Width			ReH	Rm									
25273	5-1	18	25	t	+20	422	489	25.5	-	-	-	-	-	-	-	-
25274	8-1	18	25	t	+20	400	518	25.5	-	-	-	-	-	-	-	-

S-начало полосы/strip start; E-конец полосы/strip end L,l-продольное/Longitudinal; T,t-поперечное/Transverse  
"Определение "Предел прочности" соответствует определению "прочность на разрыв" и временное сопротивление разрыву"  
Definition "tensile strength" corresponds to definitions "ultimate strength" and "ultimate stress limit"

Примечание / Note

Поставка соответствует условиям заказа. Осмотр поверхности без замечаний. Размеры проката в пределах допусков. Delivery conforms to conditions of the order. Surface examination without remarks. Rolled product dimensions within the tolerance limit.

It is hereby certified that the quality of goods mentioned in this certificate is in conformity with the standards and specifications and the goods may be exported.

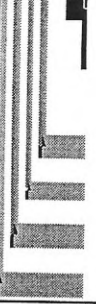
CE

0036  
05  
0036-CPR-M-56-2012

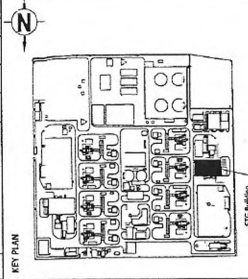
Подпись Ф.И.О. должность Штамп эксперта  
Signature Name Position Receiving agent's stamp

*Signature*



 <p>الشركة العربية للمصناعات الحديدية</p> <p>ARAB STEEL FABRICATION Co.</p>	<p>ASF</p>	<p>ELSEWEDY</p> <hr/> <p>INDUSTRIES</p>
--	------------	---

1	Raw material receiving and inspection
2	Plate cutting , punching and drilling
3	Profiles /Hot rolled section cutting and drilling
4	Built up section (BUS) made
5	Rolling plates
6	Assembly
7	Welding
8	Blasting and painting
9	Dispatch to site

[illegible]

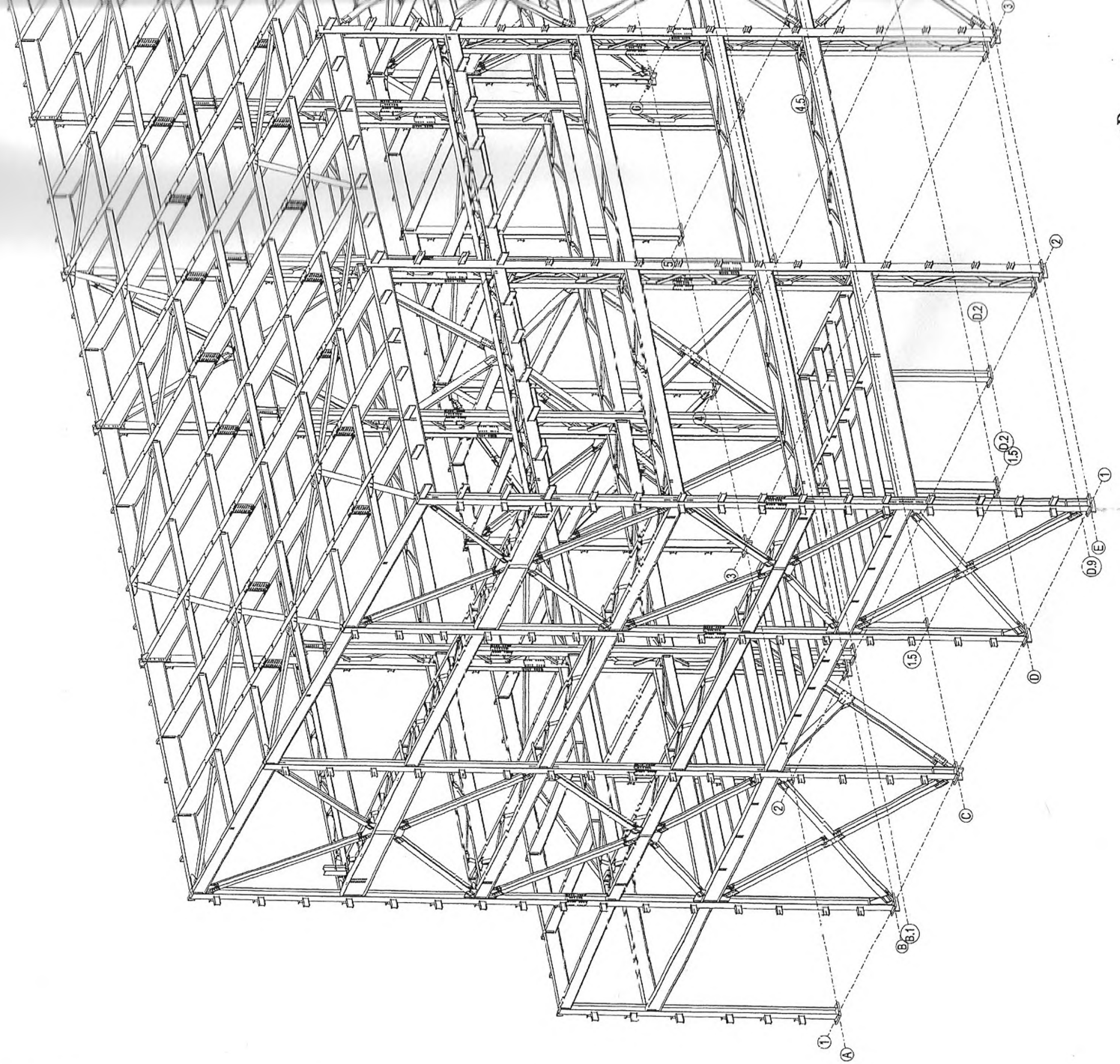
PROJECT MANAGER:

PROJECT: AL SHABAB POWER PROJECT  
PHASE II - CONVERTING  
EXISTING SIMPLE CYCLE TO COMBINED CYCLE

DRAWING TITLE:

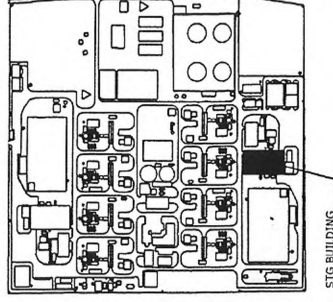
ORIGINATOR	DATE	SCALE	FORMAT	SHEET No.
WILCOXSON CONSTRUCTION (OVERSEAS) S. A.	10.10.2015	N.T.S.	AU	1
DRAWING NUMBER				
CONTRACT No.	PRD. No.	AREA	TYPE	STAGE
10066A-CF-102	E9026	STG	SS	SD
				REV.
				00

A



3D

1- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.  
2- ALL LEVELS ARE IN METER.  
3- DO NOT SCALE FROM DRAWINGS.

[illegible]

PROJECT MANAGER:



CONTRACTOR



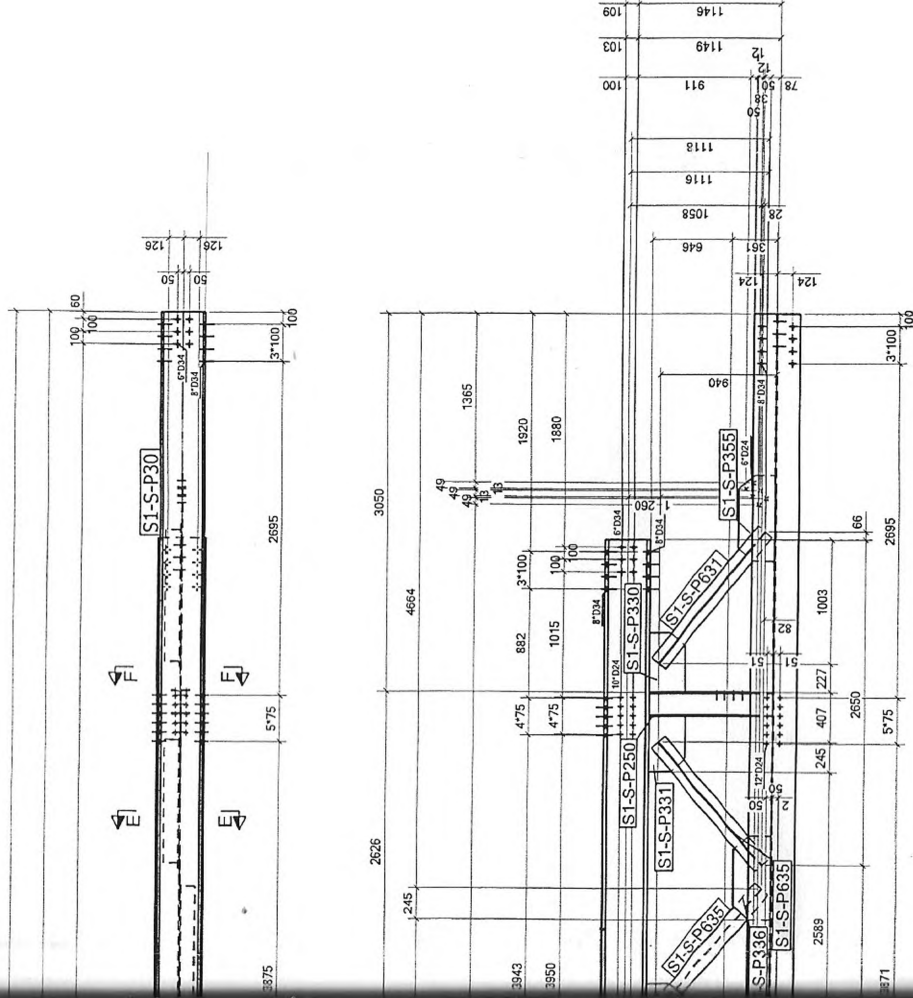
ARCHIRODON CONSTRUCTION  
(OVER SEAS) Co. S.A.  
شركة اركيرون لا دنيا (لما وراء البحار) ش.م.م.

شركة اركسبرودون لا دنغا. (كما ورا. البحار) شي. م.

AL SHABAB POWER PROJECT  
PHASE II - CONVERTING  
EXISTING SIMPLE CYCLE TO COMBINED CYCLE

STEAM TURBINE AREA  
ASSEMBLY SHOP DRAWING  
DETAIL OF MARK No. :S1-S2-C1

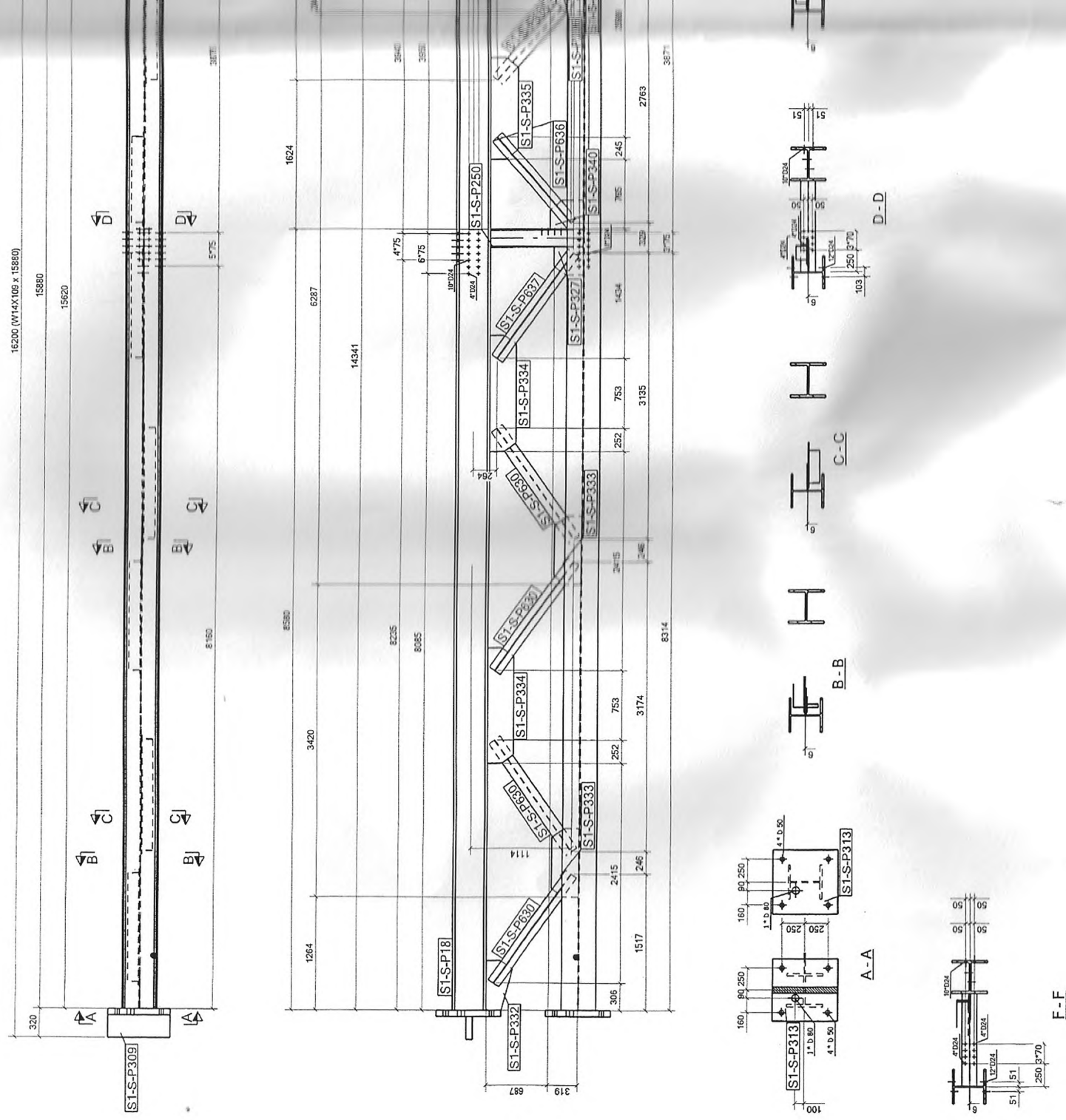
ORIGINATOR	DATE	SCALE	FORMAT	SHEET No.
ARCHROON CONSULTING (PVT) LTD.	10.10.2015	N.T.S.		1
DRAWING NUMBER				
CONTRACT No.	PRO. No	AREA	STAGE	REV
10056-CP-102	09026	STG	SD	001

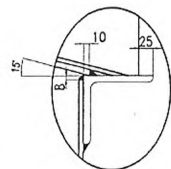


SHOP MATERIAL LIST FOR 1 ASSEMBLY FROM										ASSEMBLY	SERIAL LOCATION	LEVEL
										3152421	88.1	+10.00
										S1-S2-C1		
Mark	Profile	No.	Length	Area	Weight							
S1-S-P30	WT4X100	A570360	1	15860	34.8							
S1-S-P16	WT4X145	A570360	1	14060	32.2							
S1-S-P250	WNX24	A570360	2	1006	1.1							
S1-S-P309	PL70*250	A570360	1	700	0.5							
S1-S-P313	PL70*700	A570360	2	700	1.2							
S1-S-P327	PL12*314.5	A36	1	319	0.8							
S1-S-P330	PL12*206.5	A36	1	474	0.3							
S1-S-P331	PL12*297.9	A36	1	452	0.3							
S1-S-P332	PL12*288.6	A36	1	559	0.3							
S1-S-P333	PL12*291.8	A36	2	751	0.4							
S1-S-P334	PL12*288.6	A36	2	1258	0.7							
S1-S-P335	PL12*297.9	A36	1	1103	0.7							
S1-S-P336	PL12*301	A36	1	683	0.4							
S1-S-P340	PL12*312	A36	1	361	0.2							
S1-S-P355	PL12*202.2	A36	1	688	0.4							
S1-S-P630	WT5X13	A570360	4	1479	0.8							
S1-S-P631	WT5X13	A570360	1	1369	0.8							
S1-S-P635	WT5X13	A570360	2	1327	0.7							
S1-S-P636	WT5X13	A570360	1	1235	0.7							
S1-S-P637	WT5X13	A570360	1	1431	0.8							
					Total	84.0						
					6776.5							

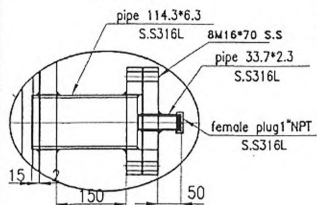
MARKED S1-S2-C1



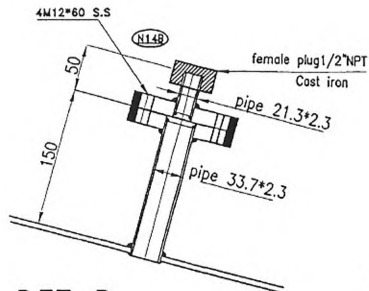
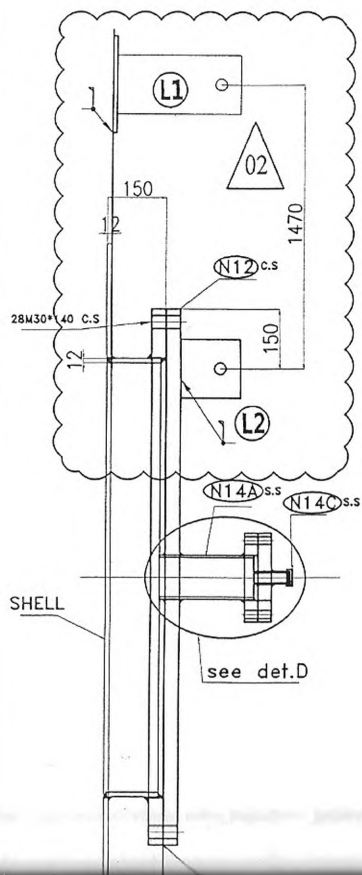




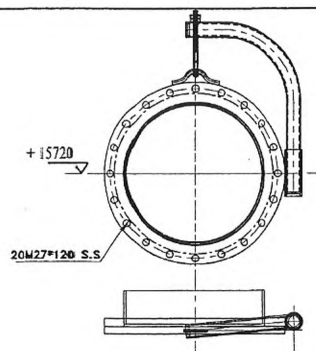
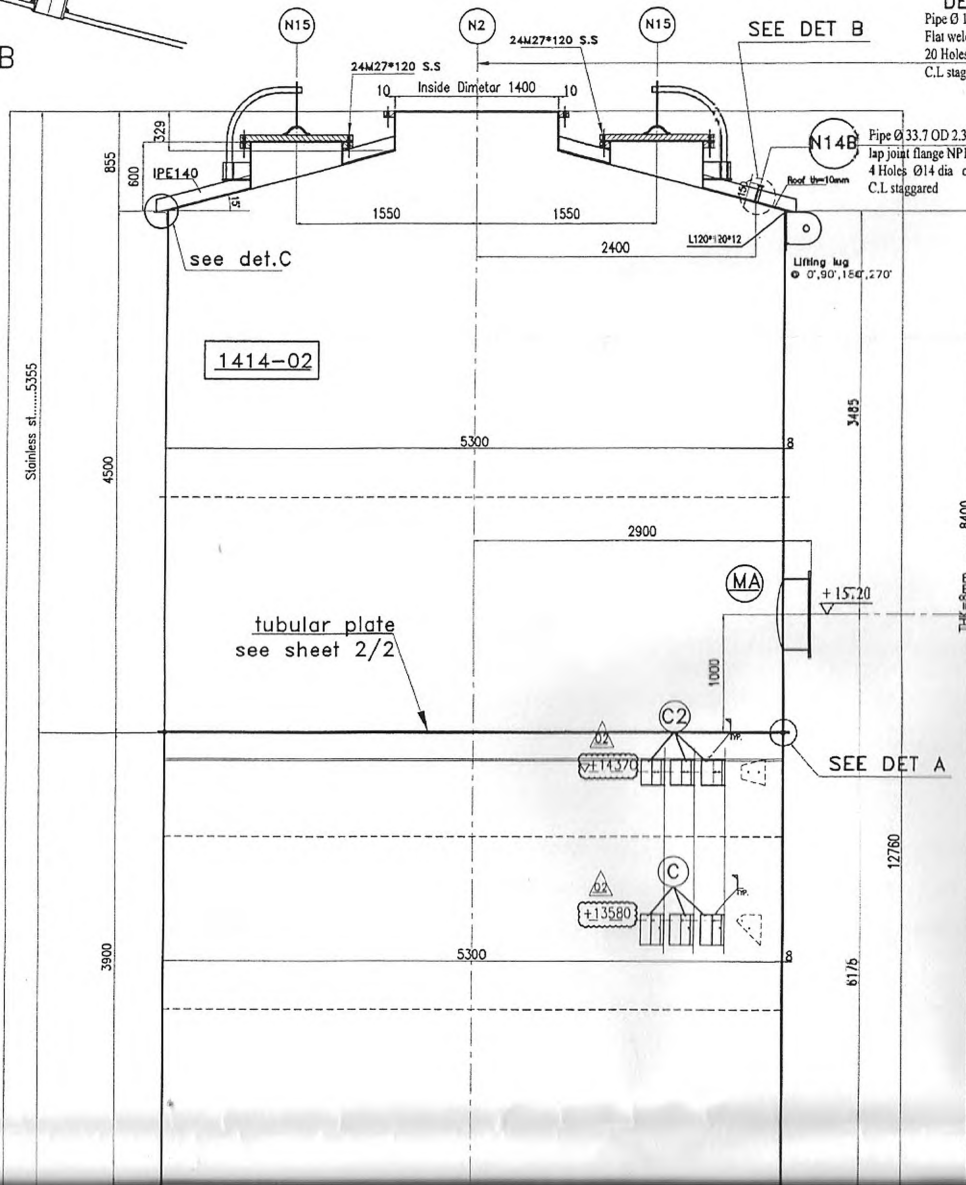
det.C



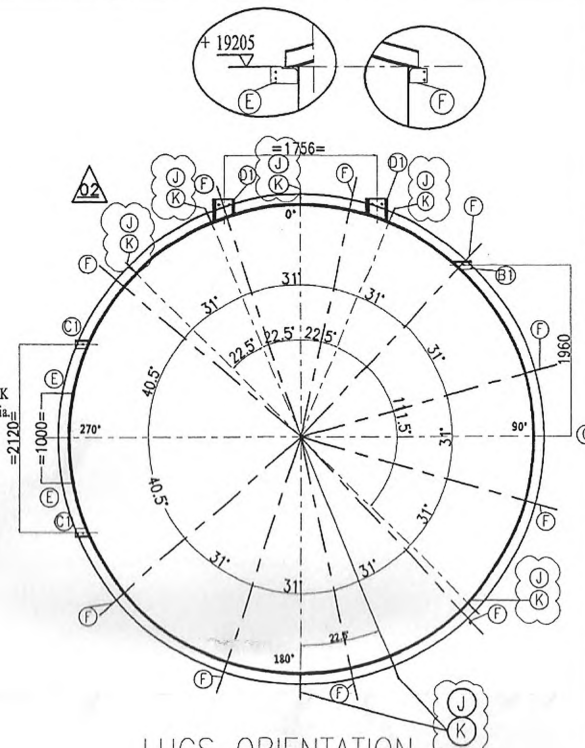
see det.D



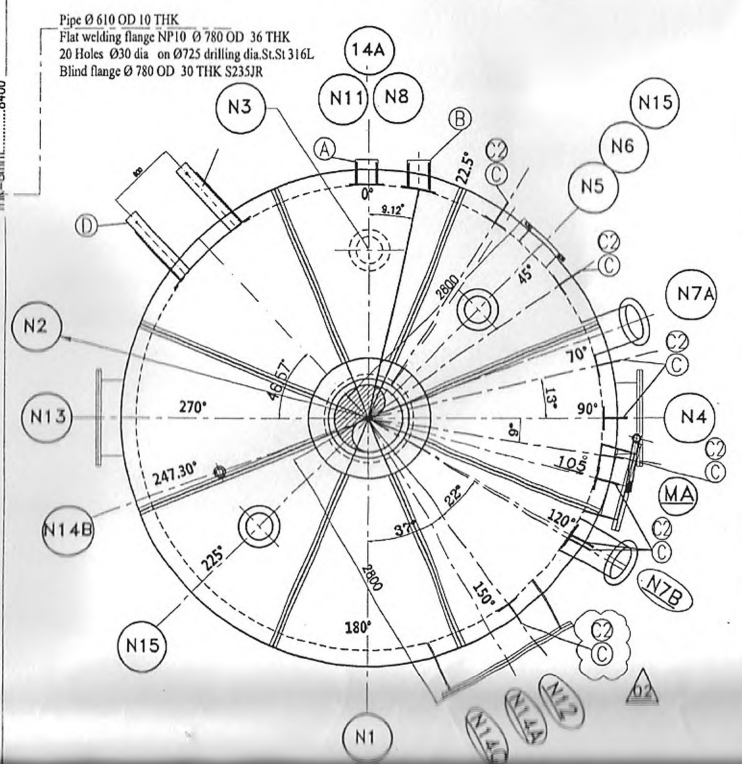
DET B



DET.MA



LUGS ORIENTATION



CLADING 2mm S.S316

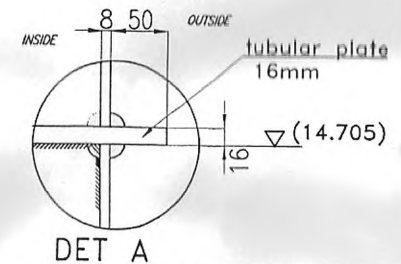
## DET.NOZZLE N12

**(N12)** Pipe Ø 1098 OD 12 THK  
Flat welding flange NP10 Ø1290 OD 44 THK  
28 Holes Ø33 dia on Ø1190 drilling dia.  
Blind flange 38 THK  
C.L. staggered

**(N14A)** Pipe ND100 (OD 114.3 THK 6.3)  
Flat welding flange NP10  
C.L. staggered

**(N14C)** Pipe ND35 (OD 33.7 THK 2.3)  
Flat welding flange NP10  
C.L. staggered

## NOZZLES ORIENTATION



REV.	DATE	DESCRIPTION	DRAWN	CHECKED
02	29/11/15	new bracket	NABIL	N.F
01	25/11/15	new bracket-1795	NABIL	N.F
00	08/11/15	FIRST ISSUE	NABIL	N.F

### STEEL STRUCTURE CONTRACTOR

**ASF**

Arab Steel Fabrication Co.S.A.E

N15	2	800 NP6	812 O.D 8TH	Man Hole	S.S
N14B	1	25 NP10	33.7 O.D 2.3TH	Pressure control	S.S
N14C	1	25 NP10	33.7 O.D 2.3TH		S.S
N14A	1	100 NP10	114.3 O.D 6.3TH		S.S
N13	1	300 NP10	323.9 O.D 7.1TH	Water Inlet	
N12	1	ND1100 NP10	1098 O.D 12TH	Peep Hole with Lighting Device	
N11	1	300 NP10	323.9 O.D 7.1TH	Vent Pump	
N8	1	300 NP10	323.9 O.D 7.1TH	By Pass Pump	
N7B	1	300 NP10	323.9 O.D 7.1TH		
N7A	1	300 NP10	323.9 O.D 7.1TH	Level Control	
N6	1	300 NP10	323.9 O.D 7.1TH	Titrimeter Return	
N5	1	300 NP10	323.9 O.D 7.1TH	Crossing	
N4	1	600 NP10	610 O.D 10TH	Acid Distribution	
N3	1	600 NP10	610 O.D 10TH	Suction Pump	
N2	1	1400	1420 O.D 10TH	Gas Outlet	S.S
N1	1	1700 NP6	1724 O.D 12TH	Gas Inlet	

### NOZZLES

ALL Flanges orientation middle of 2holes

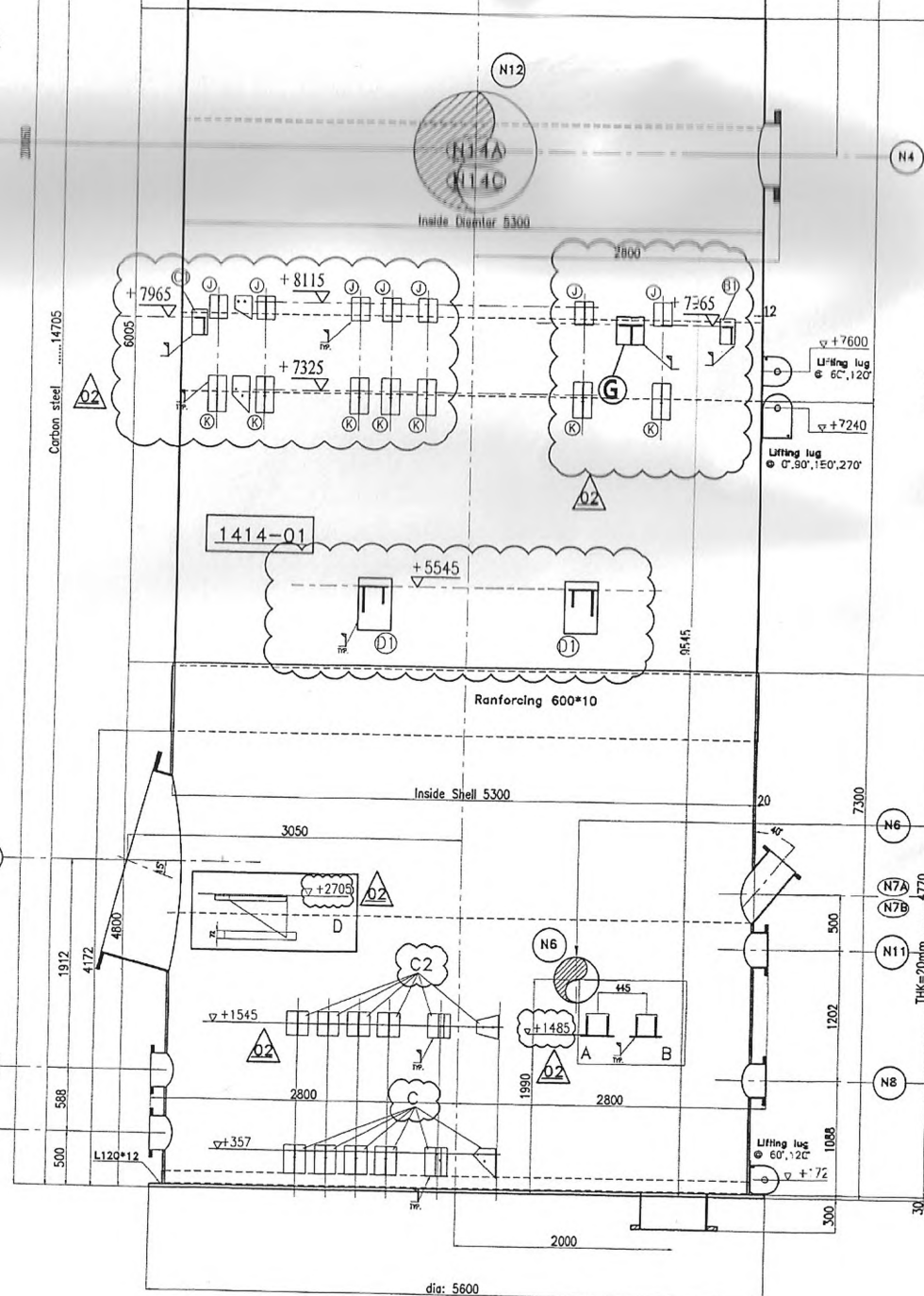
ABU ZAABAL FERTILIZERS  
AND  
CHEMICAL COMPANY

SECTION 1400  
ERECTION FINAL ABSORPTION TOWER  
PLATE WORK  
ITEM 1414

61 RUE POUCHET-75017  
TEL 228-60-60 TELEX 280 480

1:20

Dwg No- 1411 sh 1/2



Pipe Ø 1724 OD 12 THK NP6  
Flat welding flange Ø 2045 OD 36 THK  
44 Holes Ø39 dia on Ø1970 drilling dia.staggered

Pipe Ø 323.9 OD 7.1 THK  
Flat welding flange NP10 Ø 445 OD 28 THK  
12 Holes Ø22 dia on Ø400 drilling dia.

Pipe Ø 323.9 OD 7.1 THK  
Flat welding flange NP10 Ø 445 OD 28 THK  
12 Holes Ø22 dia on Ø400 drilling dia.

Pipe Ø 610 OD 10 THK  
Flat welding flange NP10 Ø 780 OD 36 THK  
20 Holes Ø30 dia on Ø725 drilling dia.  
C.L. staggered

Pipe Ø 323.9 OD 7.1 THK  
Flat welding flange NP10 Ø 445 OD 28 THK  
12 Holes Ø22 dia on Ø400 drilling dia.staggered  
Pipe Ø 323.9 OD 7.1 THK  
Flat welding flange NP10 Ø 445 OD 28 THK  
12 Holes Ø22 dia on Ø400 drilling dia.staggered

Pipe Ø 323.9 OD 7.1 THK  
Flat welding flange NP10 Ø 445 OD 28 THK  
12 Holes Ø22 dia on Ø400 drilling dia.staggered

Pipe Ø 610 OD 10 THK  
Flat welding flange NP10 Ø 780 OD 36 THK  
20 Holes Ø30 dia on Ø725 drilling dia.