

DOCUMENT SUBMISSION STATUS: FF						
NOTE:						
0	Sep. 13, 2016	FOR FINAL	Wu Haifeng	Wang Jihong	Wang Guanghua	
H	Jan. 30, 2015	FOR APPROVAL	Wang Shanyu	Wang Jihong	Wang Guanghua	
G	Sep.26.2014	FOR APPROVAL	Wu Haifeng	Wang Jihong	Wang Guanghua	
F	Apr.4.2014	FOR APPROVAL	Wu Haifeng	Wang Jihong	Wang Guanghua	
E	Jan.25,2014	FOR APPROVAL	Wu Haifeng	Wang Jihong	Wang Guanghua	
D	Nov.26,2013	FOR APPROVAL	Wu Haifeng	Wang Jihong	Wang Guanghua	
C	Apr.10.2013	FOR APPROVAL	Wu Haifeng	Wang Jihong	Wang Guanghua	
B	Dec. 29,2012	FOR APPROVAL	Chen Shuaishuai	Wang Jihong	Wang Guanghua	
REV.	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED	APPROVED
OWNER  VIETNAM OIL AND GAS GROUP (PVN)			OWNER'S CONSULTANT  FICHTNER  PVPOWER PCC			
EPC CONTRACTOR  PETROVIETNAM CONSTRUCTION JOINT STOCK CORPORATION (PVC)			EPC CONSTRCTOR'S CONSULTANT  WORLEYPARSONS			
POWER ISLAND PACKAGE SUPPLIER  SOJITZ CORPORATION  DAELIM INDUSTRIAL CO., LTD.						
PROJECT TITLE THAI BINH 2 THERMAL POWER PLANT 2 x 600MW						
DRAWING / DOCUMENT TITLE BOILER AND AUXILIARIES - COATING & PAINTING SCHEDULE						
BIP SUPPLIER:  BABCOCK & WILCOX BEIJING COMPANY LTD.			FUNCTION	NAME	SIGN	DATE
			DRWN	Wang Shanyu	吴海风	Sep 13, 2016
			CHKD	Wang Jihong	王纪红	Sep 13, 2016
			APPD	Wang Guanghua	王光华	Sep 13, 2016
DOCUMENT NO: TB2-SDC.VP101-00100-M-M1A-DAS-0004			No of page: 10		Scale	Rev.0



P.O NO.	110180-1600-101-001-A01
ITEM NO.	ALL
ITEM DESCRIPTION	BOILER AND BOILER BOP
DOCUMENT NO.	TB2-SDC.VP101-00100-M-M1A-DAS-0004
DOCUMENT TITLE	BOILER AND AUXILIARIES - COATING & PAINTING SCHEDUL
REV NO.	0

Daelim's Approval Status

Daelim Industrial Co., Ltd.	
Job No.	110180
	A - APPROVED
	B - APPROVED WITH COMMENTS
	C - RETURNED FOR CORRECTION
	D - REJECTED
	N - NOT APPLICABLE(REFERENCE ONLY)
SIGNED BY :	DATE :
DIC'S PERMISSION TO PROCEED OR REVIEW TAKEN ON VENDOR PRINTS SHALL NOT RELIEVE VENDOR FROM ITS RESPONSIBILITIES OR LIABILITIES UNDER THE PURCHASE ORDER.	

BIP SUPPLIER:



BABCOCK & WILCOX BEIJING COMPANY LTD.



Document Review Comment Sheet

DIC Ref. No : TB2-DIC-BWBC-T-1932

Doc. No & Title : TB2-SDC.VP101-00100-M-M1A-DAS-0004 BOILER AND AUXILIARIES - COATING & PAINTING SCHEDULE

No.	Daelim's Comments	Vendor's Response	Remarks
1	TB2-SDC.VP101-00100-M-M1A-DGA-0004 Coating & Painting Schedule		
1.1	Please refer to the following: 1.Packing and Marking Specification. (TB2-SDC-00100-QA-G1-PRO-0003). 2.Specification for Painting. (TB2-SDC.-00100-P-G1-SPC-0003)	Noted	
1.2	Painting shall be done under the weather conditions on the working area as recommended by the paint manufacturer. Unless otherwise specilied by the paint manufacturer, painting shall be performed when the following temperature, relative humidity limits and conditions are satiseified; A. Temperature Paint materials shall not be applied over metal surfaces having temperatures less than 3°C above the dew point or in excess of 40°C B. Humidity No.painting shall be done when the relative humidity is higher than 85%	Noted	
1.3	8. 4 After Completion of Painting 8. 4. 1 Dry film thickness (DFT) measurement DFT shall be measured with electromagnetic type film meter at each step of coating to meet the specified DFT and shall be checked and confirmed according to the procedure specified in SSPC-PA2. 8. 4. 2 Adhesion The adhesion of the primer to the steel substrate and the intercoat adhesion of the subsequent coat (s) after curing shall be determined by the application of either a crosscut test or X-cut. 8. 4. 3 Color of final coat The final top coat shall be visually checked in accordance with ANNEX-II"Marking of Identification and Paintim Color Code".	Noted	





Transmittal

Ref No. TB2-PEB-SDC-M1A-TVI- 08912

Date: 24 Apr 2015

Refer to: TB2-SDC-PEB-TV-6683

Issued by: Engineering Dept. *[Signature]*

To: Sojitz-Daelim Consortium

Attn.: Mr. Y. H. Kim

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ISSUED DOCUMENT TRANSMITTAL LIST

No.	Document No.	Rev.	Title	Doc Type	Approval status	No. of Copy
1	TB2-SDC.VP101-00100-M-M1A-DAS-0004	H	Boiler and auxiliary coating & painting schedule	AP	A	N/A

Notes: Please see the Attachment: 01. PEB/Owner/PMC's comment sheet for above document.

Approval Status

For AP: A: Approved
B: Approved With Comments
C: Return for Correction
D: Rejected
For RE: I: Accepted for Reference
R: Return for Correction

Doc. Type:

AP: For Approval
RE: For Reference
FC: For Construction
AB: As Built
INFO: Preliminary for Information Only

Best Regards



[Signature]
Phan Van Hanh

Deputy Project Director

IN COMING

2015.05.06

DAELIM

[Signature]
Steven Blue

Steven Blue

Project Manager

PLEASE RETURN A COPY AS ACKNOWLEDGEMENT TO THE SENDER

Received by (Name & Signature):

Date

Document Review Comment Sheet			Ref. No TB2-SDC-PEB-TV-6683			
No.	Document No.	Rev	Title	Purpose	Approval	
					In	Out
1	TB2-SDC.VP101-00100-M-M1A-DAS-0004	H	Boiler and auxiliary coating & painting schedule	AP		A
No	TB2PEB/Owner's Comments	Item status	Contractor's Response			
	No comment					

Legend

Contractor Purpose:

AP = For Approval
 RE = For Reference
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 INFO = For Information

TB2PEB Approval Status:

For AP:

A = Approved
 B = Approved with Comments
 C = Returned for Correction
 D = Rejected

For RE:

I=Accepted for Reference
 IB=Accepted for Reference with Comments
 R= Returned for Correction



Schedule of Paint Systems For Boiler and Auxiliary System

Item			Painting Schedule											Finish Color Federal Standard 595 or ANSI Color No.	Plant Code	Remarks
			Surface Preparation	Manufacturer	1st primer coat		2nd primer coat		intermediate coat		finish coat		Total			
					Brand Name / Type	Minimum DFT(um)	Brand Name / Type	Minimum DFT(um)	Brand Name / Type	Minimum DFT(um)	Brand Name / Type	Minimum DFT(um)	Minimum DFT(um)			
1	Boiler Steel Structure, Platform structure & Stair Stringers	Exposed to air	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	zinc phosphate	75			High build epoxy	100	Polyurethane	50	225	RAL. 5010(Gentian blue)		
2	Steel Structure, Platform structure & Stair Stringers (of coal bunker bay, Auxiliary Boiler and the area of Boiler BOP)	Exposed to air	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Zinc ethyl silicate	15	zinc phosphate	60	High build epoxy	100	Polyurethane	50	225	RAL. 5010(Gentian blue)		
3	Buckstays	Exposed to air	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	zinc phosphate	75			High build epoxy	100	Polyurethane	50	225	RAL. 5010(Gentian blue)		
4	Embedded Steel Works & Foundation Anchor Bolts	Embedded	SSPC SP-3 (SIS St3)	No paint												
5	Grating & Stair Treads	Exposed to air	SSPC SP-8 (Pickling)	galvanized (Min 70, average 85)										Silver-gray		
6	Handrails, guardrail support posts & ladders	Exposed to air	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	zinc phosphate	75			High build epoxy	100	Polyurethane	50	225	1007 Yellow		
7	delete															
8	Furnace panels	Insulated & Exposed to gas	SSPC SP-2 (SIS St2)	Shenyang Union Coating Co.LTD	Red rust- inhibitive primer	40			Red rust- inhibitive primer	40			80	Red	BP4	
9	Pressure parts (Drum,Headers, Sections, downcomer pipings, downcomer bottles, riser pipings, furnace suppliers, economizer recirculated piping, superheater interconnecting pipings etc.)	Insulated & Exposed to gas	SSPC SP-2 (SIS St2)	Shenyang Union Coating Co.LTD	Red rust- inhibitive primer	40			Red rust- inhibitive primer	40			80	Red		
10	Non-pressure parts (casing, hoppers, duct work, include damper and expansion joint, cooling air system etc.)	Insulated & Exposed to gas	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Red rust- inhibitive primer	40			Red rust- inhibitive primer	40			80	Red		
		Exposed to air	SSPC-SP 6 (Sa 2)	Jotun Coating Co.	Micropoxy® Epoxy mastic	125					Polyurethane Enamel Topcoat or High Solids Acrylic Polyurethane	75	200	30475(Rawhide)		

Schedule of Paint Systems For Boiler and Auxiliary System

11	Piping	Insulated	SSPC SP-6 (SIS Sa2)	Jotun Coating Co./Shenyang Union Coating Co.LTD	Red rust-inhibitive primer	40			Red rust-inhibitive primer	40			80	Red	BP1	
		Underground	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Modified abrasion resistant epoxy (Jotamastic 87)	300					Modified abrasion resistant epoxy (Jotamastic 87)	300	600	Piping Color Code See Attachment 1	BP2	
		Uninsulated	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Micropoxy® Epoxy mastic	125					Polyurethane Enamel Topcoat or High Solids Acrylic Polyurethane	75	200	Piping Color Code See Attachment 1	BP3	
12	Supports	inner spring element	SSPC SP-10 (SIS Sa2.5)	Manufacturer's Standard												
		Exposed to air	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	zinc phosphate	90			High build epoxy	100	Polyurethane	60	250	RAL 5010(Gentian blue)		
		Exposed to gas (U-cap stevee installation)	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	Red rust-inhibitive primer	30	Red rust-inhibitive primer	30	Red rust-inhibitive primer	30	Red rust-inhibitive primer	30	120	Red		
		Insulated & Exposed to gas (Steel Plates, etc.)	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co./Shenyang Union Coating Co.LTD	Red rust-inhibitive primer	30	Red rust-inhibitive primer	30	Polyurethane	30	Polyurethane	30	120	RAL 5010(Gentian blue)		
13	Lagging over Insulation	Exposed (Aluminum alloy or galvanized plate)	SSPC SP-6 (SIS Sa2)	No paint												
14	Burners	Insulated & Exposed to gas	SSPC SP-2 (SIS St2)	Shenyang Union Coating Co.LTD	Red rust-inhibitive primer	40			Red rust-inhibitive primer	40			80	Red		
15	Pulverizer(Except Control Cabinet)	Exposed to air	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	Epoxy Zinc Rich Primer (Zinc 77%)	60	High build MIO epoxy	100	Acrylic Polyurethane	35	Acrylic Polyurethane	30	225	30475(Rawhide)		
		Inner surface	SSPC SP-6 (SIS Sa2)	Manufacturer's Standard										Manufacturer's Standard		



Schedule of Paint Systems For Boiler and Auxiliary System

16	Miscellaneous Equipment	Exposed to air (Except safety cover of pumps, motors, etc.)	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	zinc phosphate	75			High build epoxy	100	Polyurethane	50	225	30475(Rawhide)		
		Exposed to air (Safety cover of pumps, motots, etc.)	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	zinc phosphate	75			High build epoxy	100	Polyurethane	50	225	RAL1021(Yellow)		
		Insulated	SSPC SP-6 (SIS Sa2)	Manufacturer's Standard										Manufacturer's Standard		
17	Valves & actuator	Exposed to air	Manufacturer's Standard	Manufacturer's Standard										Manufacturer's Standard		
18	Instruments	Exposed to air	Manufacturer's Standard	Manufacturer's Standard										Manufacturer's Standard		
19	Cabinets Enclosures Junction Box (except the pulverizer scope) (located inside of ventilated building)	Exposed to air	Manufacture's Standard	Manufacturer's Standard										ANSI No.61(Grey)		
20	Cabinets Enclosures Junction Box (except the pulverizer scope) (located outside of building (including boiler house and turbine building))	Exposed to air	Manufacture's Standard	Manufacturer's Standard										Munsell 7.5GY 7/4.5 or stainless natural color		
21	Cabinets Enclosures Junction Box of pulverizer (exterior surfaces)	Exposed	Manufacture's Standard	Manufacturer's Standard										ANSI No.61(Grey)		
22	Cabinets Enclosures Junction Box of pulverizer (interior surfaces)	Exposed	Manufacture's Standard	Manufacturer's Standard										ANSI No.61(Grey)		
23	Cabinets Enclosures Junction Box of air preheate (exterior surfaces)	Exposed	Manufacture's Standard	Manufacturer's Standard										RAL 7032		Revised per MOM dated 27th Feb
24	Cabinets Enclosures Junction Box of air preheater (interior surfaces)	Exposed	Manufacture's Standard	Manufacturer's Standard										RAL 7032		Revised per MOM dated 27th Feb



Schedule of Paint Systems For Boiler and Auxiliary System

25	Air Preheater	Body (insulated&internal),Air Seal Cover	SSPC SP-6 (SIS Sa2)	Manufacturer's Standard										Manufacturer's Standard		
		Support and Guide Bearing Housing, Body (un-insulated), Footing	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	Epoxy Zinc Rich Primer (Zinc 77%)	60	High build MIO epoxy	100	Acrylic Polyurethane	40	Acrylic Polyurethane	40	240	RAL. 5010(Gentian blue)		
26	Coal Silo	Exposed to air	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	zinc phosphate	75			High build epoxy	100	Polyurethane	50	225	30475(Rawhide)		
27	Blowdown Tanks	Insulated	SSPC SP-2 (SIS St2)	Jotun Coating Co.	Red rust- inhibitive primer	40			Red rust- inhibitive primer	40			80	Red		
28	Auxiliary Boiler	Exposed to air	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	Micropoxy® Epoxy mastic	125					Polyurethane Enamel Topcoat or High Solids Acrylic Polyurethane	75	200	30475(Rawhide)		
		Insulated & Exposed to gas	SSPC SP-6 (SIS Sa2)	Manufacturer's Standard										Manufacturer's Standard		
		Chimney Out-surface	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	SOLVALITT	140							140	ALUMINIUM	Chimney working temperature is very high(design temperature is higher than 300C, Jotun recommend this paint.	
		Chimney inner- surface	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	SOLVALITT	80							80	ALUMINIUM		
29	PA/ID/FD Fans	Exposed to air (Except safety cover of fans)	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	Micropoxy® Epoxy mastic	125					Polyurethane Enamel Topcoat or High Solids Acrylic Polyurethane	75	200	30475(Rawhide)		
		Exposed to air (Safety cover of fans)	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	zinc phosphate	75			High build epoxy	100	Polyurethane	50	225	RAL1021(Yellow)		
		Insulated & Exposed to gas & Internal Surface	SSPC SP-6 (SIS Sa2)	Manufacturer's Standard										Manufacturer's Standard		
30	Coal Feeder	Outer surface /Exposed to air	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	Micropoxy® Epoxy mastic	125					Polyurethane Enamel Topcoat or High Solids Acrylic Polyurethane	75	200	30475(Rawhide)		
		Inner surface & Internal Parts	SSPC SP-6 (SIS Sa2)	Manufacturer's Standard										Manufacturer's Standard		



Schedule of Paint Systems For Boiler and Auxiliary System

31	delete															
32	SCAH	Outer surface /Exposed to air	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	Micropoxy® Epoxy mastic	125					Polyurethane Enamel Topcoat or High Solids Acrylic Polyurethane	75	200	30475(Rawhide)		
		Inner surface & Internal Parts	SSPC SP-6 (SIS Sa2)	Manufacturer's Standard										Manufacturer's Standard		
33	Indoor/Outdoor transformers, Isolated phase busduct, MV switchgear & MCC, LV switchgear & MCC, etc)	Exposed to air	SSPC SP-6 (SIS Sa2)	Manufacturer's Standard										ANSI 61 Gray		
		Inner surface & Internal Parts	SSPC SP-6 (SIS Sa2)	Manufacturer's Standard										ANSI 61 Gray		
33	Sootblower	Normal temperature area (Sootblower) (-25°C ~ 45°C)	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	Barrier 77 Rich Epoxy Primer	65			Penguard Express	100	Hardtop XP polyurethane	60	225	RAL7032 Gray		
		High temperature area (Gooseneck and poppet valve Assy.) (250°C ~ 500°C)	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Resist 78	50					Solvalitt	30	80	RAL9006 Aluminum		
34	Ignitor	Exposed to air	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	Red Penguard Primer	50	Red Penguard Primer	50	Hardtop XP polyurethane	60	Hardtop XP polyurethane	60	220	RAL7037 Dusty grey		

<Note>

- 1 D.F.T: Dry Film Thickness
- 2 SP1-Solvent Cleaning. SP2-Hand Tool Cleaning. SP3-Power Tool Cleaning. SP5-White Metal Blast Cleaning. SP6-Commercial Blast Cleaning. SP7-Brush-off Blast Cleaning. SP8-Picking. SP10-Near-White Blast Cleaning.
- 3 BP1,BP2,BP3 are the plant code of piping. BP is the abbreviation of "Boiler and Boiler BOP PIPING".
- 4 This painting schedule is for the surface need to be painted. The stainless steel surface will not be painted.



Schedule of Paint Systems For Ash Handling System

Item			Painting Schedule											Finish Color Federal Standard 595 or ANSI Color No.	Plant Code	Remarks
			Surface Preparation	Manufacturer	1st primer coat		2nd primer coat		intermediate coat		finish coat		Total			
					Brand Name / Type	Minimum DFT(um)	Brand Name / Type	Minimum DFT(um)	Brand Name / Type	Minimum DFT(um)	Brand Name / Type	Minimum DFT(um)	Minimum DFT(um)			
1	Equipment (Silo, Ash Pump, Air Tank, Pumps, Blower, Compressor, Fans etc.)	Exposed to air	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Micropoxy® Epoxy mastic	125					Polyurethane Enamel Topcoat or High Solids Acrylic Polyurethane	75	200	30475(Rawhide)		
2	Ash Pumps for ECO, Electric heater	Insulated	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Red rust-inhibitive primer	40			Red rust-inhibitive primer	40			80	Red		
3	Carbon Steel Piping	<93℃ Uninsulated	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Micropoxy® Epoxy mastic	125					Polyurethane Enamel Topcoat or High Solids Acrylic Polyurethane	75	200	Piping Color Code See attachment 1	AH 1	
4	Carbon Steel Piping	93℃~150℃ Uninsulated	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Aluminium powder polyurethane	30	Aluminium powder polyurethane	30	Polyurethane	30	Polyurethane	30	120	Piping Color Code See attachment 1	AH 2	
5	Carbon Steel Piping	150℃~400℃ Uninsulated	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Inorganic zinc rich	30	Inorganic zinc rich	30	Organic silicon aluminium powder	25	Organic silicon aluminium powder	25	110	Piping Color Code See attachment 1	AH 3	
6	Carbon Steel Piping	Underground	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Modified abrasion resistant epoxy (Jotamastic 87)	300					Modified abrasion resistant epoxy (Jotamastic 87)	300	600	Piping Color Code See Attachment 1	AH 4	
7	Piping	Insulated	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Red rust-inhibitive primer	40			Red rust-inhibitive primer	40			80	Red	AH 5	
8	Steel Structure, Platform Structure & Stair Stringers	Exposed to air	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Zinc ethyl silicate	15	zinc phosphate	60	High build epoxy	100	Polyurethane	50	225	RAL. 5010(Gentian blue)		
9	Handrails, guardrail support posts & Ladders	Exposed to air	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Zinc ethyl silicate	15	zinc phosphate	60	High build epoxy	100	Polyurethane	50	225	Yellow 1007		
10	Grating, Stair Treads & Checkered Plate	Exposed to air	SSPC SP-6 (SIS Sa2)	galvanized (Min 70, average 85)										Silver-gray		
11	Anchor Bolts, High-strength Bolts, Nuts & Washers	Exposed to air / Contact with concrete	SSPC SP-6 (SIS Sa2)	No paint												
12	Clinker rushers (Primary&Secondary)	Exposed to air	Manufacturer's Standard	Manufacturer's Standard										Manufacturer's Standard		



Schedule of Paint Systems For Ash Handling System

13	Valves & actuator	Exposed to air	Manufacturer's Standard	Manufacturer's Standard	Manufacturer's Standard		
14	Instruments	Exposed to air	Manufacturer's Standard	Manufacturer's Standard	Manufacturer's Standard		
15	Cabinets Enclosures Junction Box (located inside of ventilated building)	Exposed to air	Manufacturer's Standard	Manufacturer's Standard	ANSI No.61(Grey)		
16	Cabinets Enclosures Junction Box (located outside of building (including boiler house and turbine building))	Exposed to air	Manufacturer's Standard	Manufacturer's Standard	Munsell 7.5GY 7/4.5 or stainless natural color		

<Note>

- 1 D.F.T: Dry Film Thickness
- 2 SP1-Solvent Cleaning. SP2-Hand Tool Cleaning. SP3-Power Tool Cleaning. SP5-White Metal Blast Cleaning. SP6-Commercial Blast Cleaning. SP7-Brush-off Blast Cleaning. SP8-Picking. SP10-Near-White Blast Cleaning.
- 3 AH1,AH2,AH3 are the plant code of piping. AH is the abbreviation of "Ash Handling".
- 4 This painting schedule is for the surface need to be painted. The stainless steel surface will not be painted.



Schedule of Paint Systems For FGD System

Item			Painting Schedule											Finish Color Federal Standard 595 or ANSI Color No.	Plant Code	Remarks
			Surface Preparation	Manufacturer	1st primer coat		2nd primer coat		intermediate coat		finish coat		Total			
Brand Name / Type	Minimum DFT(um)	Brand Name / Type			Minimum DFT(um)	Brand Name / Type	Minimum DFT(um)	Brand Name / Type	Minimum DFT(um)	Brand Name / Type	Minimum DFT(um)	Minimum DFT(um)				
	FGD System															
1	Absorber	Exposed to air	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Micropoxy® Epoxy mastic	125					Polyurethane Enamel Topcoat or High Solids Acrylic Polyurethane	75	200	30475(Rawhide)		
2	Limestone Silo	Exposed to air	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Micropoxy® Epoxy mastic	125					Polyurethane Enamel Topcoat or High Solids Acrylic Polyurethane	75	200	30475(Rawhide)		
3	Tank	Exposed to air	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Micropoxy® Epoxy mastic	125					Polyurethane Enamel Topcoat or High Solids Acrylic Polyurethane	75	200	30475(Rawhide)		
4	Flue gas duct	Insulated & Internal to gas	SSPC SP-2 (SIS St2)	Jotun Coating Co.	Red rust- inhibitive primer	40			Red rust- inhibitive primer	40			80	Red		
5	Carbon Steel Piping	Exposed to air	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Micropoxy® Epoxy mastic	125					Polyurethane Enamel Topcoat or High Solids Acrylic Polyurethane	75	200	Piping Color Code See Table C	FGD1	
6	Piping	Insulated	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Red rust- inhibitive primer	40			Red rust- inhibitive primer	40			80	Red	FGD2	
6a	Supports	Exposed to air	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	zinc phosphate	90			High build epoxy	100	Polyurethane	60	250	RAL. 5010(Gentian blue)		
7	Steel Structure, Platform Structure & Stair Stringers	Exposed to air	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	Zinc ethyl silicate	15	zinc phosphate	60	High build epoxy	100	Polyurethane	50	225	RAL. 5010(Gentian blue)		
8	Handrails, guardrail support posts & Ladders	Exposed to air	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	Zinc ethyl silicate	15	zinc phosphate	60	High build epoxy	100	Polyurethane	50	225	Yellow 1007		
9	delete															
10	Grating, Stair Treads & Checkered Plate	Exposed to air	SSPC SP-8 (Pickling)	Hot-dip Galvanizing shall be in accordance with ASTM A123. Minimum average coating thickness shall be 85µm.										Silver-gray		
11	Anchor Bolts, High-strength Bolts, Nuts & Washers	Exposed to air / Contact with concrete	SSPC SP-8 (Pickling)	Hot-dip Galvanizing shall be in accordance with ASTM A153. Minimum coating thickness for average of specimens tested and any individual specimen shall be respectively 53µm and 43µm.										Silver-gray		



Schedule of Paint Systems For FGD System

12	Embedded Steel Works & Foundation	Exposed to air	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	zinc phosphate	75			High build epoxy	100	Polyurethane	50	225	RAL 5010(Gentian blue)		
		Contact with concrete	SSPC SP-2 (SIS St2)	Jotun Coating Co.	Red rust-inhibitive primer	40			Red rust-inhibitive primer	40			80	Red		
13	Non-pressure parts (casing, hoppers, duct work, include damper and expansion joint etc.)	Internal to gas	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Red rust-inhibitive primer	40			Red rust-inhibitive primer	40			80	Red		
		Exposed to air	SSPC-SP 6 (Sa 2)	Jotun Coating Co.	zinc phosphate	75			High build epoxy	100	Polyurethane	50	225	30475(Rawhide)		
		Insulated	SSPC SP-6 (SIS Sa2)	Jotun Coating Co.	Red rust-inhibitive primer	40			Red rust-inhibitive primer	40			80	Red		
14	Lagging over Insulation	Exposed (Aluminum alloy or galvanized plate)	SSPC SP-6 (SIS Sa2)	No paint												
15	Miscellaneous Equipment (Motor, pump, air blower, wet ball mill, vacuum belt filter etc., Include Gear Box and baseframe, except safety cover)	Exposed to air	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	zinc phosphate	75			High build epoxy	100	Polyurethane	50	225	30475(Rawhide)		
16	Miscellaneous Equipment (safety cover of pumps, fans and air blowers)	Exposed to air	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	zinc phosphate	75			High build epoxy	100	Polyurethane	50	225	RAL1021 (Yellow)		
17	Miscellaneous Equipment (Motor, pump, air blower etc.)	Insulated	SSPC SP-6 (SIS Sa2)	Manufacturer's Standard										Manufacturer's Standard		
18	Valves & actuator	Exposed to air	Manufacturer's Standard	Manufacturer's Standard										Manufacturer's Standard		
19	Instruments	Exposed to air	Manufacturer's Standard	Manufacturer's Standard										Manufacturer's Standard		
20	Cabinets Enclosures Junction Box (located inside of ventilated building)	Exposed to air	Manufacturer's Standard	Manufacturer's Standard										ANSI No.61(Grey)		
21	Cabinets Enclosures Junction Box (located outside of building (including boiler house and turbine building))	Exposed to air	Manufacturer's Standard	Manufacturer's Standard										Munsell 7.5GY 7/4.5 or stainless natural color		



Schedule of Paint Systems For FGD System

22	GGH	Body (insulated)	SSPC SP-6 (SIS Sa2)	Manufacturer's Standard										Manufacturer's Standard		
		Support and Guide Bearing Housing, Body (un-insulated), Footing	SSPC SP-10 (SIS Sa2.5)	Jotun Coating Co.	zinc phosphate	75			High build epoxy	100	Polyurethane	50	225	30475(Rawhide)		

<Note>

- 1 D.F.T: Dry Film Thickness
- 2 SP1-Solvent Cleaning. SP2-Hand Tool Cleaning. SP3-Power Tool Cleaning. SP5-White Metal Blast Cleaning. SP6-Commercial Blast Cleaning. SP7-Brush-off Blast Cleaning. SP8-Picking. SP10-Near-White Blast Cleaning.
- 3 FGD1, FGD2 are the plant code of piping.
- 4 This painting schedule is for the surface need to be painted. The stainless steel surface will not be painted.



ATTACHMENT 2

PAINTING AND INSPECTION SPECIFICATION FOR THAI BINH2 PROJECT



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1 SCOPE

This specification regulates the technical requirement of painting process and inspection for boiler and its auxiliaries.

2 GENERAL REQUIREMENT

- 2.1 The painting and inspection should be safe, reliable, cost-effective and nice-looking, painting in proper ways and under protection based on contract requirement, product type, and storage and transportation conditions.
- 2.2 It should be ensured that severe rust and corrosion will not occur under favorable storage and handling conditions within the period stipulated in the contract.

3 SURFACE PREPARATION

- 3.1 All surfaces to be painted shall be cleaned and prepared in accordance with the Steel Structure Painting Manual (SSPC)-Chapter 2, the Steel Structure Painting Manual.
- 3.2 Notable or harmful corrosion rust shall be removed by suitable surface preparation.
- 3.3 Use all tools carefully. No burrs or spikes could be left on the surface.
- 3.4 After the surface preparation, painting should be applied before the corrosion or rust comes out again. If the surface corrodes or rusts, then a second time surface preparation is needed.
- 3.5 The SSPC-6 shall be followed if there are no specific requirements for blasting cleanliness.
- 3.6 For surfaces required liquid penetrating nondestructive testing, gravel, sand, beads, or soft glass beads blasting are not allowed to be applied unless there will be a grinding or re-processing after the blasting.
- 3.7 For surfaces required ultrasonic nondestructive testing, gravel or beads blasting are not allowed to be applied unless there will be a grinding or re-processing after the blasting.
- 3.8 For surface required ultrasonic nondestructive testing, sand and soft glass beads blasting can be applied.
- 3.9 For inner surface of pressure parts, sand blasting or soft beads blasting are not allowed to be applied.
- 3.10 For stainless steel surface and inconel material surface, iron free alumina grit and sand blasting shall be applied.
- 3.11 For austenitic material surface glass bead blasting shall be applied.
- 3.12 All the machined surfaces shall be fully covered to avoid any damage during



blasting.

- 3.13 Openings which the blasting material may fall into and openings which are difficult to inspect or clean inside shall be blocked.
- 3.14 Oil and grease residue should be removed by proper solvent before blasting.
- 3.15 Completely get rid of the old sandblasting materials left in the blasting equipment before the blast cleaning to inconel materials.
- 3.16 All the gravel, sand, beads, glass beads, etc. shall be cleaned up after blasting, especially in the dead ends and depression corners.

4 PAINTING WORK

4.1 Environment Condition

Painting shall be done under the weather conditions on the working area as recommended by the paint manufacturer. Unless otherwise specified by the paint manufacturer, painting shall be performed when the following temperature, relative humidity limits and conditions are satisfied.

A. Temperature

Paint materials shall not be applied over metal surfaces having temperatures less than 3°C above the dew point or in excess of 40°C.

B. Humidity

No painting shall be done when the relative humidity is higher than 85%

Outside painting work should not be carried out in heavily sunny, windy, foggy, rainy or snowy days. If the painting work is interrupted, surfaces should be cleaned and dried before restart. Painting work should be avoided carrying out under a chimney or in dusty venues. Appropriate methods should be taken if the temperature doesn't meet the requirement specified herein.

4.2 Anti-Rust Treatment

- 4.2.1 For machined sealing surface (such as the flange contact surfaces, etc.), when anti-rust protection is needed, but painting is not allowed, proper rust-proof oil or other anti-rust methods should be applied to ensure 6 months' inland outside storage or 2 years' inside or with cover storage. If storage time exceeds the interval specified herein, anti-rust treatment shall be applied again.

- 4.2.2 For metal pipes except the stainless steel and nickel alloy ones, weldable paint should be applied to welding grooves to protect the machined surface. The weldable paint area shall be over 50mm from the pipe end for the outer groove and over 10mm for the inner groove. Re-coating may be applied for long-term storage. The weldable paint should withstand continuous environment temperature up to 82 °C.

- 4.2.3 Anti-rust oil should be applied to thread machined surfaces to ensure the metal



could be stored outside for 5 months on inland, or could be stored for 2 years indoor or with cover. The anti-rust oil shall be able to be washed away by petroleum solvents or hot alkaline. If storage time exceeds the interval specified herein, anti-rust treatment shall be applied again.

4.2.4 Heat-resistant grease should be applied on the assembling surface and sliding surface to avoid the contact between the metals and any corrosion.

4.2.5 The temperature for anti-rust grease processing should be no lower than 7°C.

4.3 Paint Application

4.3.1 General Requirement

4.3.1.1 Only the parts and components that have passed the manufacturer quality inspection shall be painted.

4.3.1.2 Painting shall be applied on dry, clean, adequately prepared surfaces and under favorable conditions.

4.3.1.3 Painting shall be performed by brush, dipping and roller.

4.3.1.4 The paint should be often stirred during painting application.

4.3.1.5 Each layer of primer or topcoat should not be too thick. If thick film coat is required, the layers of paint shall be increased.

4.3.1.6 If two or more layers of coat are applied, the overcoating should be performed in accordance with paint Manufacturer's product specification. The subsequent coating shall be applied when the previous paint film is dry and clean.

4.3.1.7 Painting shall be applied in accordance with Schedule of Paint System (TB2-SDC.VP101-00100-M-M1A-DAS-0004).

4.3.2 Equipment & Tools

Equipment: Automatic welding machine

Tools: Sandpaper, iron brush, brush, paint case, foot box and other suitable tools for painting and surface processing

4.3.3 Brush Application

4.3.3.1 The order of paint application shall be from the top to the bottom, from the inside to the outside. Areas that are difficult to be painted shall be painted first.

4.3.3.2 The last painting of vertical surfaces should be top-down.

4.3.3.3 The last painting of horizontal surfaces should be painted along the light direction.

4.3.4 Rust primer Application (Quick-drying rust primer)



4.3.4.1 The prepared surface should be painted anti-rust primer the same day after passing the inspection.

4.3.4.2 Each primer coating intervals shall be as following. 8 hours when temperature is 0 ~ 10 °C. 6 hours when temperature is 10 ~ 25 °C. 4 hours when temperature is more than 25 °C.

4.3.5 Surface Painting Application (Quick-drying surface painting)

4.3.5.1 Surface painting should be performed when primer is dry and the primer surface is free from dust, moisture, grease or other dirt.

4.3.5.2 Each surface painting intervals shall be as following. 8 hours when temperature is 0 °C -10 °C. 6 hours when temperature is 18-25 °C. 4 hours when temperature is more than 25 °C.

5 IDENTIFICATION MARK AND PACKING MARK

5.1 Identification Mark

Identification mark shall be painted before packaging based on component drawing, part list and packing list. It includes part number, quantity, positive and negative parts, the material, the baseline and other necessary information. Parts with small size that cannot be painted should use hang labels.

5.2 Packing Mark

Products to be shipped shall be painted packing mark after packaging. Packing mark shall include product mark, packaging storage and transportation graphic symbol and shipping mark.

5.2.1 Product Mark

5.2.1.1 Product mark mainly includes:

- Name and model of product
- Manufacturing number (or contract number)
- Maximum boundary dimension (length x width x height), cm
- Gross and net weight, kg
- Made in B&WBC

5.2.1.2 Product mark is painted in both Chinese and English. If limited by dimension, the product mark can be printed only in English except for the product name and made in B&WBC.

5.2.2 Packaging Storage and Transportation Graphic Symbol

5.2.2.1 There are three kinds of dimension for packaging storage and transportation graphic symbol (Table 1). If the packing size is extra large or small, the symbol size is not limited.

Table 1

No.	Length	Width
-----	--------	-------



1	105	74
2	148	105
3	210	148

5.2.2.2 There are 9 items of packaging storage and transportation graphic symbol (Table 2), and the corresponding graphs are shown in Figure 1. Name and border of the symbol are not necessary during mark painting. The two symbols “Lift here” and “Center of gravity”, should be painted at the actual position on the package (like packing container, packing frame etc.).

Table 2

NO.	Name	Description
1	FRAGILE	Used for fragile goods
2	DON'T USE HOOK	Used for goods that can't move by hook
3	UP	Used for goods that can't be upside down
4	KEEP COOL	Used for goods that can't stand heat
5	LIFT HERE	Used for pointing out the position of sling or rope
6	KEEP DRY	Used for goods that can't stand wet
7	CENTER OF GRAVITY	Used for pointing out the center of gravity
8	DON'T FLIP OVER	Used for goods that can't be flipped over
9	STACK LIMIT	Used for pointing out the maximum stacking weight

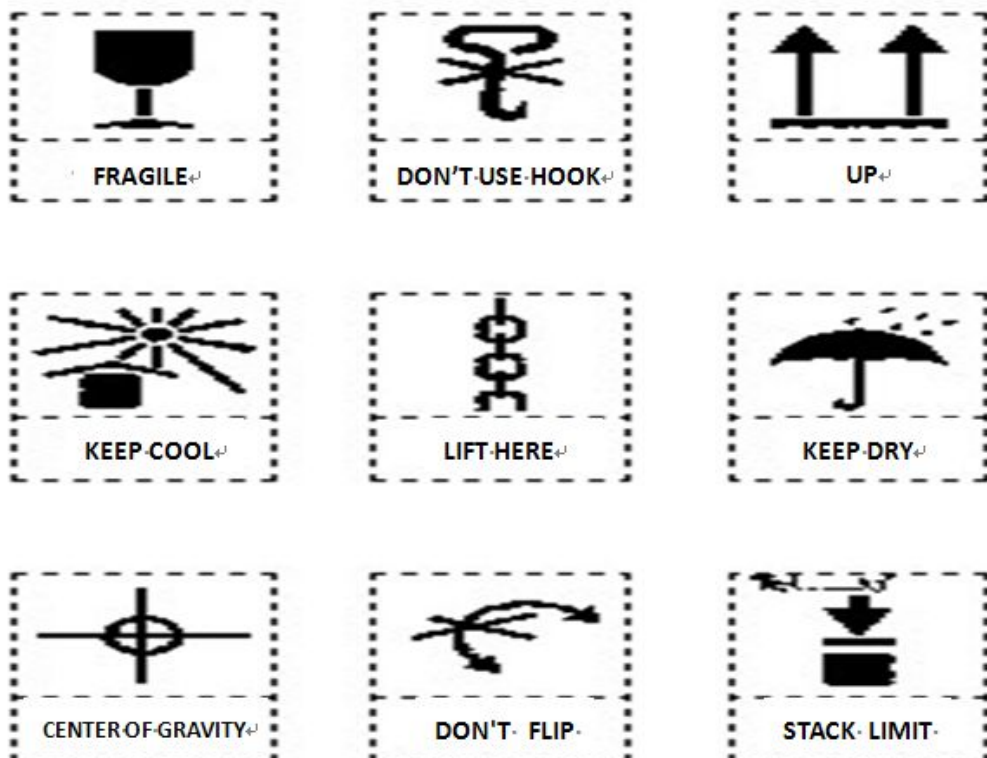


Figure 1



5.2.3 Shipping Mark

Shipping mark should be painted at the appropriate position in accordance with contract.

5.3 Process Requirements

5.3.1 Packing mark and identification mark shall be red background with white characters. If it is not applicable, the mark can be other color according to the package color.

5.3.2 The marks shall be painted or written on either side or end of package using paint or ink by stencil printing or moulage.

5.3.3 The marks shall be accurately and clearly painted by fadeless paint or ink.

5.3.4 Marks shall be painted at proper position on product or package container.

5.3.4.1 Unpacked shipping products: Identification mark and packing mark shall be painted at obvious position of the product.

5.3.4.2 Product packed in bundles: Identification mark and packing mark shall be painted at proper position in accordance with the requirement of packing list.

5.3.4.3 Open shipped product: Identification mark and packing mark shall be painted at proper position in accordance with the requirement of packing list.

5.3.4.4 Frame packing product: Identification mark shall be painted on product and packing mark shall be painted on the frame.

5.3.4.5 Boxed product: Identification mark shall be painted on product. Parts with small size that cannot be painted shall use hang labels. Packing mark shall be painted on the out surface of box.

6 PAINTS (MATERIALS)

6.1 Paint material and manufacturer shall be selected in accordance with Schedule of Paint System (TB2-SDC.VP101-00100-M-M1A-DAS-0004). Finish color for part, component and equipment shall be in accordance with Annex 7 of contract unless otherwise noted.

6.2 Expired paints and coatings are not allowed to use.

7 PAINT MIXING

7.1 Paint mixing should be strictly in accordance with paint Manufacturer's product specification.

7.2 After opening the paint bucket the paint shall be thoroughly stirred with a tool until bottom sediment is completely stirred up, so that the entire bucket of paint is evenly mixed.

7.3 The paint raw materials must be added first. The thinner shall be added for three times instead of once. After each thinner addition the paint shall be



thoroughly stirred until the thinner is finished and the paint is fully mixed.

- 7.4 The paint color should be from light to dark during mixing, the lighter color adding to the main color for mixing instead of otherwise.
- 7.5 The viscosity of the mixed paint should be in accordance with manufacturer product specification.
- 7.6 The mixed paint should be filtered by 80 - 120 mesh screen to remove impurities and paint debris.

8 TEST AND INSPECTION

Prior to, during and after completion of the painting work, the following tests and inspections shall be performed.

8.1 Prior to Painting

8.1.1 Material

Painting materials shall be confirmed to meet the requirements of contract and this specification.

8.1.2 Surface Preparation

- 8.2 Prepared surface shall be checked to meet the requirements in this specification. The prepared surface should be dry enough, without oil, sand, iron filings, rust, easily peeling oxide skin, welding splattering or any other things that will affect the quality of the painting. The oxide skins of hot rolled and bent parts must be removed. The inside of drum, header and attemperator must be clean. Painting and rust treatment could only be processed after inspection.

8.3 During Painting

If two or more layers of painting will be applied, the dryness of previous paint film shall be checked. The subsequent coating shall be applied when the previous paint film is dry and clean. Use a thumb to press on the film, if there is no thumb-print, the film is actually dry.

8.4 After Completion of Painting

The inspections shall be carried out after paint is completely dry.

8.4.1 Appearance

- 8.4.1.1 It shall be checked visually that the coat is well-done and intact.

- 8.4.1.2 The identification mark and packing mark shall be checked to meet the requirements of this specification.

- 8.4.1.3 It shall be check that the paint surface should not have exposure spot, miss coating and hanging marks. Film should be uniform and without bubbles,



inclusions, cracks, peeling, wrinkled skin, variegation or other defects

8.4.2 Dry film thickness (DFT) measurement

Random tests shall be taken to inspect film thickness after completion of painting.

DFT shall be measured with electromagnetic type film meter at each step of coating to meet the specified DFT and shall be checked and confirmed according to the procedure specified in SSPC-PA2.

8.4.3 Adhesion

The adhesion of the primer to the steel substrate and the intercoat adhesion of the subsequent coat (s) after curing shall be determined by the application of either a crosscut test or X-cut.

8.4.4 Color of final coat

The final top coat shall be visually checked in accordance with Attachment1.

9 HEALTHY AND SAFETY

- 9.1 Smoking and open flames are forbidden at painting ground.
- 9.2 Paint and residual materials should be placed in designated locations and be capped as anti-dust and anti-fire measures.
- 9.3 Pay attention to painters' feelings to prevent poisoning. Painters should leave the painting area if they have headache, dizziness, nausea and other physical discomfort.
- 9.4 The painter must properly wear work clothes and protective equipment. Remove the paint promptly if it sticks on skin.

10 REFERENCE DOCUMENT

- 10.1 TB2-SDC-00100-QA-G1-PRO-0003 PACKING AND MARKING SPECIFICATION
- 10.2 TB2-SDC-00100-P-G1-SPC-0003 SPECIFICATION FOR PAINTING

