



Our Ref.: NT/103321/18-09

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 Report No: BFTT/RT-56/18

RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client :	Bukit Fraser Thermal Technology Sdn Bhd	Procedure No:	NT/RT/ASME Rev 6.0
Project :	Frames Separation Technologies B.V / SBM Offshore - Liza Destiny - FPSO EPCI	IQI type :	ASTM 1B
Job No:	BFTT 17-638	Film Manufacturer/Type :	FUJI 100/class II
Material:	SA 182 F51 / SA 240 UNS S31803	Density :	2.0 - 4.0
Welding Process :	GTAW / SMAW	Sensitivity:	0.33mm(5 wires visible)
Examination Code :	ASME V	Source to Object Distance :	406.4mm
Acceptance Code:	ASME Sect. VIII Div.1 2015 Ed.	Source Side of Object to Film Distance:	(12.7+3)mm
Examination Date:	26 March 2018	No of Radiograph(exposure) :	Single Exposure
		No. of Film Each Cassette :	1 Film
		Radiographic Technique :	SWSI
		Film Viewing Technique :	Single Wall Viewing
		Source Type/Size :	Iridium192 (3.2mm)
		Location Markers :	Film Side

Radiographic Examination Result

Weld Reference (Welder No)	WT	RT	Pipe Diameter	Material Thickness	Film Position	Film Interpretation	Result	Remarks
	(mm)	(mm)	(mm)	(mm)				
124-VESE-0210								
N2 - JT1 (WN-005)	15.7	3	406.4	12.7	0 - 1	Por	Accept	
					1 - 2	Por	Accept	
					2 - 3	Por	Accept	
					3 - 4	Por	Accept	
					4 - 0	NRI	Accept	

_____ End Of Report _____

Legend:

TI: Tungsten Inclusion	NRI: No Relevant Indication	Uc: Undercut	Por: Porosity	WT: Weld Thickness
SI: Slag Inclusion	LP: Lack of Penetration	Con: Concavity	BT: Burn Through	RT: Reinforcement Thickness
LF: Lack of Fusion	EP: Excess Penetration	AR: Artifact	Sur: Surface	

Personnel Particulars

Radiographer : Emirsham - NDT Lev. II

Client Representative:

Interpreted & Evaluated By: Amat Hamidi - NDT Lev. II

Date: 27 March 2018



Name:
Date:



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RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client :	Bukit Fraser Thermal Technology Sdn Bhd	Procedure No:	NT/RT/ASME Rev 6.0
Project :	Frames Separation Technologies B.V / SBM Offshore - Liza Destiny - FPSO EPCI	IQI type :	ASTM 1B
Job No:	BFTT 17-638	Film Manufacturer/Type :	FUJI 100/class II
Material:	SA 182 F51 / SA 790 UNS S31803	Density :	2.0 - 4.0
Welding Process :	GTAW / SMAW	Sensitivity:	0.33mm(5 wires visible)
Examination Code :	ASME V	Source to Object Distance :	168.3mm
Acceptance Code:	ASME Sect. VIII Div.1 2015 Ed.	Source Side of Object to Film Distance:	(10.97+3)mm
Examination Date:	26 March 2018	No of Radiograph(exposure) :	Single Exposure
		No. of Film Each Cassette :	1 Film
		Radiographic Technique :	DWSI
		Film Viewing Technique :	Single Wall Viewing
		Source Type/Size :	Iridium192 (3.2mm)
		Location Markers :	Film Side

Radiographic Examination Result

Weld Reference (Welder No)	WT	RT	Pipe Diameter	Material Thickness	Film Position	Film Interpretation	Result	Remarks
	(mm)	(mm)	(mm)	(mm)				
124-VESE-0210								
N4 - JT1 R1 (WN-005)	13.97	3	168.3	10.97	0 - 1	Por	Accept	
					2 - 0	Por	Accept	

End Of Report

Legend:

TI: Tungsten Inclusion	NRI: No Relevant Indication	Uc: Undercut	Por: Porosity	WT: Weld Thickness
SI: Slag Inclusion	LP: Lack of Penetration	Con: Concavity	BT: Burn Through	RT: Reinforcement Thickness
LF: Lack of Fusion	EP: Excess Penetration	AR: Artifact	Sur: Surface	

Personnel Particulars

Radiographer : Emirsham - NDT Lev. II

Client Representative:

Interpreted & Evaluated By: Amat Hamidi - NDT Lev. II

Date: 27 March 2018

Name:

Date:





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RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client :	Bukit Fraser Thermal Technology Sdn Bhd	Procedure No:	NT/RT/ASME Rev 6.0
Project :	Frames Separation Technologies B.V / SBM Offshore - Liza Destiny - FPSO EPCI	IQI type :	ASTM 1B
Job No:	BFTT 17-638	Film Manufacturer/Type :	FUJI 100/class II
Material:	SA 790 UNS S31803 / SA 815 UNS S31803	Density :	2.0 - 4.0
Welding Process :	GTAW	Sensitivity:	0.33mm(5 wires visible)
Examination Code :	ASME V	Source to Object Distance :	88.9mm
Acceptance Code:	ASME Sect. VIII Div.1 2015 Ed.	Source Side of Object to Film Distance:	(7.62+3)mm
Examination Date:	26 March 2018	No of Radiograph(exposure) :	Single Exposure
		No. of Film Each Cassette :	1 Film
		Radiographic Technique :	DWSI
		Film Viewing Technique :	Single Wall Viewing
		Source Type/Size :	Iridium192 (3.2mm)
		Location Markers :	Film Side

Radiographic Examination Result

Weld Reference (Welder No)	WT	RT	Pipe Diameter	Material Thickness	Film Position	Film Interpretation	Result	Remarks
	(mm)	(mm)	(mm)	(mm)				
124-VESE-0210								
N7B - JT2 (WN-005)	10.62	3	88.9	7.62	0 - 1	NRI	Accept	
					1 - 2			Reshoot
					2 - 0	Por	Accept	

_____ End Of Report _____

Legend:

TI: Tungsten Inclusion	NRI: No Relevant Indication	Uc: Undercut	Por: Porosity	WT: Weld Thickness
SI: Slag Inclusion	LP: Lack of Penetration	Con: Concavity	BT: Burn Through	RT Reinforcement Thickness
LF: Lack of Fusion	EP: Excess Penetration	AR: Artifact	Sur: Surface	

Personnel Particulars

Radiographer : Emirsham - NDT Lev. II

Client Representative:

Interpreted & Evaluated By: Amat Hamidi - NDT Lev. II

Name:

Date: 27 March 2018

Date:





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RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client :	Bukit Fraser Thermal Technology Sdn Bhd	Procedure No:	NT/RT/ASME Rev 6.0
Project :	Frames Separation Technologies B.V / SBM	IQI type :	ASTM 1B
Job No:	Offshore - Liza Destiny - FPSO EPCI	Film Manufacturer/Type :	FUJI 100/class II
Material:	BFTT 17-638	Density :	2.0 - 4.0
	SA 790 UNS S31803 / SA 815 UNS S31803	Sensitivity:	0.33mm(5 wires visible)
Welding Process :	GTAW	Source to Object Distance :	88.9mm
Examination Code :	ASME V	Source Side of Object to Film Distance:	(7.62+3)mm
Acceptance Code:	ASME Sect. VIII Div.1 2015 Ed.	No of Radiograph(exposure) :	Single Exposure
Examination Date:	26 March 2018	No. of Film Each Cassette :	1 Film
		Radiographic Technique :	DWSI
		Film Viewing Technique :	Single Wall Viewing
		Source Type/Size :	Iridium192 (3.2mm)
		Location Markers :	Film Side

Radiographic Examination Result

Weld Reference (Welder No)	WT	RT	Pipe Diameter	Material Thickness	Film Position	Film Interpretation	Result	Remarks
	(mm)	(mm)	(mm)	(mm)				
124-VESE-0210								
K2B - JT2 R1 (WN-005)	10.62	3	88.9	7.62	1 - 2	NRI	Accept	

_____ End Of Report _____

Legend:

TI: Tungsten Inclusion	NRI: No Relevant Indication	Uc: Undercut	Por: Porosity	WT: Weld Thickness
SI: Slag Inclusion	LP: Lack of Penetration	Con: Concavity	BT: Burn Through	RT: Reinforcement Thickness
LF: Lack of Fusion	EP: Excess Penetration	AR: Artifact	Sur: Surface	

Personnel Particulars

Radiographer : Emirsham - NDT Lev. II

Client Representative:

Interpreted & Evaluated By: Amat Hamidi - NDT Lev. II

Date: 27 March 2018



Name:
Date:



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RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client :	Bukit Fraser Thermal Technology Sdn Bhd	Procedure No:	NT/RT/ASME Rev 6.0
Project :	Frames Separation Technologies B.V / SBM Offshore - Liza Destiny - FPSO EPCI	IQI type :	ASTM 1B
Job No:	BFTT 17-638	Film Manufacturer/Type :	FUJI 100/class II
Material:	SA 240 UNS S31803	Density :	2.0 - 4.0
Welding Process :	SMAW / SAW	Sensitivity:	0.33mm(5 wires visible)
Examination Code :	ASME V	Source to Object Distance :	1500mm
Acceptance Code:	ASME Sect. VIII Div.1 2015 Ed.	Source Side of Object to Film Distance:	(15+3)mm
Examination Date:	26 March 2018	No of Radiograph(exposure) :	Single Exposure
		No. of Film Each Cassette :	1 Film
		Radiographic Technique :	SWSI
		Film Viewing Technique :	Single Wall Viewing
		Source Type/Size :	Iridium192 (3.2mm)
		Location Markers :	Film Side

Radiographic Examination Result

Weld Reference (Welder No)	WT	RT	Pipe Diameter	Material Thickness	Film Position	Film Interpretation	Result	Remarks
	(mm)	(mm)	(mm)	(mm)				
124-VESE-0210								
CS - 3 R1 (WN-009/008)	18	3	3000	15	27 - 28	NRI	Accept	
CS - 3 RS (WN-009/008)	18	3	3000	15	29 - 30	NRI	Accept	

End Of Report

Legend:

TI : Tungsten Inclusion	NRI : No Relevant Indication	Uc : Undercut	Por : Porosity	WT : Weld Thickness
SI : Slag Inclusion	LP : Lack of Penetration	Con : Concavity	BT : Burn Through	RT : Reinforcement Thickness
LF : Lack of Fusion	EP : Excess Penetration	AR : Artifact	Sur : Surface	

Personnel Particulars

Radiographer : Emirsham - NDT Lev. II

Client Representative:

Interpreted & Evaluated By: Amat Hamidi - NDT Lev. II

Date: 27 March 2018

Name:
Date:





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RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client :	Bukit Fraser Thermal Technology Sdn Bhd	Procedure No:	NT/RT/ASME Rev 6.0
Project :	Frames Separation Technologies B.V / SBM	IQI type :	ASTM 1B
Job No:	Offshore - Liza Destiny - FPSO EPCI	Film Manufacturer/Type :	FUJI 100/class II
Material:	BFTT 17-638	Density :	2.0 - 4.0
	SA 240 UNS S31803	Sensitivity:	0.33mm(5 wires visible)
Welding Process :	GTAW / SMAW	Source to Object Distance :	400mm
Examination Code :	ASME V	Source Side of Object to Film Distance:	(15+3)mm
Acceptance Code:	ASME Sect. VIII Div.1 2015 Ed.	No of Radiograph(exposure) :	Single Exposure
Examination Date:	26 March 2018	No. of Film Each Cassette :	1 Film
		Radiographic Technique :	SWSI
		Film Viewing Technique :	Single Wall Viewing
		Source Type/Size :	Iridium192 (3.2mm)
		Location Markers :	Film Side

Radiographic Examination Result

Weld Reference (Welder No)	WT	RT	Pipe Diameter	Material Thickness	Film Position	Film Interpretation	Result	Remarks
	(mm)	(mm)	(mm)	(mm)				
124-VESE-0210								
N2 - L1 (WN-005)	18	3	-	15	0 - 1	Por	Accept	

End Of Report

Legend:

Ti : Tungsten Inclusion	NRI : No Relevant Indication	Uc : Undercut	Por : Porosity	WT : Weld Thickness
Sl : Slag Inclusion	LP : Lack of Penetration	Con : Concavity	BT : Burn Through	RT : Reinforcement Thickness
LF : Lack of Fusion	EP : Excess Penetration	AR : Artifact	Sur : Surface	

Personnel Particulars

Radiographer : Emirsham - NDT Lev. II

Client Representative:

Interpreted & Evaluated By: Amat Hamidi - NDT Lev. II

Name:

Date: 27 March 2018

Date:





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RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client :	Bukit Fraser Thermal Technology Sdn Bhd	Procedure No:	NT/RT/ASME Rev 6.0
Project :	Frames Separation Technologies B.V / SBM	IQI type :	ASTM 1B
	Offshore - Liza Destiny - FPSO EPCI	Film Manufacturer/Type :	FUJI 100/class II
Job No:	BFTT 17-638	Density :	2.0 - 4.0
Material:	SA 240 UNS S31803	Sensitivity:	0.33mm(5 wires visible)
		Source to Object Distance :	400mm
		Source Side of Object to Film Distance:	(13+3)mm
Welding Process :	GTAW / SMAW	No of Radiograph(exposure) :	Single Exposure
Examination Code :	ASME V	No. of Film Each Cassette :	1 Film
Acceptance Code:	ASME Sect. VIII Div.1 2015 Ed.	Radiographic Technique :	SWSI
		Film Viewing Technique :	Single Wall Viewing
Examination Date:	26 March 2018	Source Type/Size :	Iridium192 (3.2mm)
		Location Markers :	Film Side

Radiographic Examination Result

Weld Reference (Welder No)	WT (mm)	RT (mm)	Pipe Diameter (mm)	Material Thickness (mm)	Film Position	Film Interpretation	Result	Remarks
124-CPHY-0110								
N2A - L1 (WN-005)	16	3	-	13	0 - 1	NRI	Accept	

End Of Report

Legend:

Ti : Tungsten Inclusion	NRI : No Relevant Indication	Uc : Undercut	Por : Porosity	WT : Weld Thickness
SI : Slag Inclusion	LP : Lack of Penetration	Con : Concavity	BT : Burn Through	RT : Reinforcement Thickness
LF : Lack of Fusion	EP : Excess Penetration	AR : Artifact	Sur : Surface	

Personnel Particulars

Radiographer :	Emirsham - NDT Lev. II	Client Representative:	
Interpreted & Evaluated By:	Amat Hamidi - NDT Lev.II	Name:	
Date:	27 March 2018	Date:	





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RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client :	Bukit Fraser Thermal Technology Sdn Bhd	Procedure No:	NT/RT/ASME Rev 6.0
Project :	Frames Separation Technologies B.V / SBM	IQI type :	ASTM 1B
Job No:	Offshore - Liza Destiny - FPSO EPCI	Film Manufacturer/Type :	FUJI 100/class II
Material:	BFTT 17-638	Density :	2.0 - 4.0
	SA 790 UNS S31803 / SA 815 UNS S31803	Sensitivity:	0.33mm(5 wires visible)
Welding Process :	GTAW	Source to Object Distance :	400mm
Examination Code :	ASME V	Source Side of Object to Film Distance:	(60.3)mm
Acceptance Code:	ASME Sect. VIII Div.1 2015 Ed.	No of Radiograph(exposure) :	Single Exposure
Examination Date:	26 March 2018	No. of Film Each Cassette :	1 Film
		Radiographic Technique :	DWDI
		Film Viewing Technique :	Double Wall Viewing
		Source Type/Size :	Iridium192 (3.2mm)
		Location Markers :	Film Side

Radiographic Examination Result

Weld Reference (Welder No)	WT	RT	Pipe Diameter	Material Thickness	Film Position	Film Interpretation	Result	Remarks
	(mm)	(mm)	(mm)	(mm)				
124-CPHY-0110								
N8 - JT2 R1 (WN-005)	8.54	3	60.3	5.54	Y	NRI	Accept	

_____ End Of Report _____

Legend:

TI: Tungsten Inclusion	NRI: No Relevant Indication	Uc: Undercut	Por: Porosity	WT: Weld Thickness
SI: Slag Inclusion	LP: Lack of Penetration	Con: Concavity	BT: Burn Through	RT: Reinforcement Thickness
LF: Lack of Fusion	EP: Excess Penetration	AR: Artifact	Sur: Surface	

Personnel Particulars

Radiographer : Emirsham - NDT Lev. II

Client Representative:

Interpreted & Evaluated By: Amat Hamidi - NDT Lev.II

Date: 27 March 2018

Name:
Date:





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RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client :	Bukit Fraser Thermal Technology Sdn Bhd	Procedure No:	NT/RT/ASME Rev 6.0
Project :	Frames Separation Technologies B.V / SBM Offshore - Liza Destiny - FPSO EPCI	IQI type :	ASTM 1B
Job No:	BFTT 17-638	Film Manufacturer/Type :	FUJI 100/class II
Material:	SA 182 F51 / SA 240 UNS S31803	Density :	2.0 - 4.0
Welding Process :	GTAW / SMAW	Sensitivity:	0.33mm(5 wires visible)
Examination Code :	ASME V	Source to Object Distance :	273.1mm
Acceptance Code:	ASME Sect. VIII Div.1 2015 Ed.	Source Side of Object to Film Distance:	(12.7+3)mm
Examination Date:	26 March 2018	No of Radiograph(exposure) :	Single Exposure
		No. of Film Each Cassette :	1 Film
		Radiographic Technique :	DWSI
		Film Viewing Technique :	Single Wall Viewing
		Source Type/Size :	Iridium192 (3.2mm)
		Location Markers :	Film Side

Radiographic Examination Result

Weld Reference (Welder No)	WT (mm)	RT (mm)	Pipe Diameter (mm)	Material Thickness (mm)	Film Position	Film Interpretation	Result	Remarks
124-CPHY-0110								
N2A - JT1 (WN-005)	15.7	3	273.1	12.7	0 - 1 1 - 2 2 - 0	NRI NRI NRI	Accept Accept Accept	

End Of Report

Legend:

TI: Tungsten Inclusion	NRI: No Relevant Indication	Uc: Undercut	Por: Porosity	WT: Weld Thickness
SI: Slag Inclusion	LP: Lack of Penetration	Con: Concavity	BT: Burn Through	RT: Reinforcement Thickness
LF: Lack of Fusion	EP: Excess Penetration	AR: Artifact	Sur: Surface	

Personnel Particulars

Radiographer : Emirsham - NDT Lev. II

Interpreted & Evaluated By: Amat Hamidi - NDT Lev.II

Date: 27 March 2018



Client Representative:

Name:
Date: