



RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client: Bukit Fraser Thermal Technology Sdn Bhd
Project: Petronas Carigali Sdn Bhd
Job No: BFTT 17-647
Material: SA 240 GR 316L
Welding Process: GTAW / SMAW
Examination Code: ASME V
Acceptance Code: ASME Sect. VIII Div.1 2015 Ed.
Examination Date: 27 February 2018
Procedure No: NT/RT/ASME Rev 6.0
IQI type: ASTM 1B
Film Manufacturer/Type: FUJI 100/class II
Density: 2.0 - 4.0
Sensitivity: 0.33mm(5 wires visible)
Source to Object Distance: 400mm
Source Side of Object to Film Distance: (10+3)mm
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: Source Side

Radiographic Examination Result

Table with columns: Weld Reference (Welder No), WT (mm), RT (mm), Pipe Diameter (mm), Material Thickness (mm), Film Position, Film Interpretation, Result, Remarks. Includes entry for E-2395X LS-3 (WN-008) with NRI results.

End Of Report

Legend:

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

Personnel Particulars

Radiographer: Emirsham - NDT Lev. II
Interpreted & Evaluated By: Amat Hamidi - NDT Lev. II
Date: 28 February 2018



Client Representative:
Name:
Date:



NUSANTARA TECHNOLOGIES SDN. BHD. (187753-D)

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Our Ref. : NT/103091/18-09

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Report No: BFTT/RT-02/18

RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client :	Bukit Fraser Thermal Technology Sdn Bhd	Procedure No:	NT/RT/ASME Rev 6.0
Project :	Petronas Carigali Sdn Bhd Supply And Delivery Of Glycol Overhead Vent Condenser At KNPG-B	IQI type :	ASTM 1B
Job No:	BFTT 17-647	Film Manufacturer/Type :	FUJI 100/class II
Material:	SA 240 GR 316L	Density :	2.0 - 4.0
Welding Process :	GTAW / SMAW	Sensitivity:	0.33mm(5 wires visible)
Examination Code :	ASME V	Source to Object Distance :	400mm
Acceptance Code:	ASME Sect. VIII Div.1 2015 Ed.	Source Side of Object to Film Distance:	(10+3)mm
Examination Date:	27 February 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 :	Source Side

Radiographic Examination Result

Weld Reference (Welder No)	WT (mm)	RT (mm)	Pipe Diameter (mm)	Material Thickness (mm)	Film Position	Film Interpretation	Result	Remarks
E-2395X								
LS-4 (WN-009)	13	3	-	10	0 - 1	Por / Con	Accept	
					1 - 2	Por	Reject	
					2 - 3	NRI	Accept	
					3 - 4	NRI	Accept	
					4 - 5	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

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

Date: 28 February 2018



Client Representative:

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 :	Petronas Carigali Sdn Bhd Supply And Delivery Of Glycol Overhead Vent Condenser At KNPG-B	IQI type :	ASTM 1B
Job No:	BFTT 17-647	Film Manufacturer/Type :	FUJI 100/class II
Material:	SA 240 GR 316L	Density :	2.0 - 4.0
Welding Process :	GTAW / SMAW	Sensitivity:	0.33mm(5 wires visible)
Examination Code :	ASME V	Source to Object Distance :	400mm
Acceptance Code:	ASME Sect. VIII Div.1 2015 Ed.	Source Side of Object to Film Distance:	(10+3)mm
Examination Date:	27 February 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 :	Source Side

Radiographic Examination Result

Weld Reference (Welder No)	WT	RT	Pipe Diameter	Material Thickness	Film Position	Film Interpretation	Result	Remarks
	(mm)	(mm)	(mm)	(mm)				
E-2395X								
LS-2 (WN-008/009)	13	3	-	10	0 - 1	Por	Accept	
					1 - 2	Por / SI	Reject	
					2 - 3	Por / SI	Reject	
					3 - 4	NRI	Accept	
					4 - 5	Por	Reject	

_____ 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: 28 February 2018



Client Representative:

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 :	Petronas Carigali Sdn Bhd Supply And Delivery Of Glycol Overhead Vent Condenser At KNPG-B	IQI type :	ASTM 1A
Job No:	BFTT 17-647	Film Manufacturer/Type :	FUJI 100/class II
Material:	SA 312 TP 316L	Density :	2.0 - 4.0
Welding Process :	GTAW	Sensitivity:	0.20mm(2 wires visible)
Examination Code :	ASME V	Source to Object Distance :	400mm
Acceptance Code:	ASME Sect. VIII Div.1 2015 Ed.	Source Side of Object to Film Distance:	(5.54+3)mm
Examination Date:	27 February 2018	No of Radiograph(exposure) :	Single Exposure
		No. of Film Each Cassette :	1 Film
		Radiographic Technique :	DWDI
		Film Viewing Technique :	Double Wall Viewing
		Source Type/Size :	Iridium192 (3.2mm)
		Location Markers :	Source Side

Radiographic Examination Result

Weld Reference (Welder No)	WT (mm)	RT (mm)	Pipe Diameter (mm)	Material Thickness (mm)	Film Position	Film Interpretation	Result	Remarks
E-2395X								
N1 - JT1 (WN-009)	8.54	3	60.3	5.54	X Y	NRI NRI	Accept Accept	
N2 - JT1 (WN-009)	8.54	3	60.3	5.54	X Y	NRI NRI	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

Client Representative:

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

Date:

28 February 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 :	Petronas Carigali Sdn Bhd Supply And Delivery Of Glycol Overhead Vent Condenser At KNPG-B	IQI type :	ASTM 1B
Job No:	BFTT 17-647	Film Manufacturer/Type :	FUJI 100/class II
Material:	SA 312 TP 316L	Density :	2.0 - 4.0
Welding Process :	GTAW	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:	(9.27+3)mm
Examination Date:	27 February 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 :	Source Side

Radiographic Examination Result

Weld Reference (Welder No)	WT (mm)	RT (mm)	Pipe Diameter (mm)	Material Thickness (mm)	Film Position	Film Interpretation	Result	Remarks
E-2395X								
N5 - JT1 (WN-008/009)	12.27	3	273.1	9.27	0 - 1 1 - 2 2 - 0	NRI NRI	Accept Accept	Reshoot

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: 28 February 2018



Client Representative:

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 :	Petronas Carigali Sdn Bhd	IQI type :	ASTM 1B
	Supply And Delivery Of Glycol Overhead Vent	Film Manufacturer/Type :	FUJI 100/class II
	Condenser At KNPG-B	Density :	2.0 - 4.0
Job No:	BFTT 17-647	Sensitivity:	0.33mm(5 wires visible)
Material:	SA 312 TP 316L	Source to Object Distance :	273.1mm
Welding Process :	GTAW	Source Side of Object to Film Distance:	(9.27+3)mm
Examination Code :	ASME V	No of Radiograph(exposure) :	Single Exposure
Acceptance Code:	ASME Sect. VIII Div.1 2015 Ed.	No. of Film Each Cassette :	1 Film
		Radiographic Technique :	DWSI
Examination Date:	27 February 2018	Film Viewing Technique :	Single Wall Viewing
		Source Type/Size :	Iridium192 (3.2mm)
		Location Markers :	Source Side

Radiographic Examination Result

Weld Reference (Welder No)	WT (mm)	RT (mm)	Pipe Diameter (mm)	Material Thickness (mm)	Film Position	Film Interpretation	Result	Remarks
E-2395X								
N3 - JT1 (WN-008/009)	12.27	3	273.1	9.27	0 - 1	Sur	Accept	
					1 - 2	NRI	Accept	
					2 - 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:

28 February 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 :	Petronas Carigali Sdn Bhd Supply And Delivery Of Glycol Overhead Vent Condenser At KNPG-B	IQI type :	ASTM 1A
Job No:	BFTT 17-647	Film Manufacturer/Type :	FUJI 100/class II
Material:	SA 312 TP 316L	Density :	2.0 - 4.0
Welding Process :	GTAW	Sensitivity:	0.20mm(2 wires visible)
Examination Code :	ASME V	Source to Object Distance :	400mm
Acceptance Code:	ASME Sect. VIII Div.1 2015 Ed.	Source Side of Object to Film Distance:	(5.54+3)mm
Examination Date:	27 February 2018	No of Radiograph(exposure) :	Single Exposure
		No. of Film Each Cassette :	1 Film
		Radiographic Technique :	DWDI
		Film Viewing Technique :	Double Wall Viewing
		Source Type/Size :	Iridium192 (3.2mm)
		Location Markers :	Source Side

Radiographic Examination Result

Weld Reference (Welder No)	WT (mm)	RT (mm)	Pipe Diameter (mm)	Material Thickness (mm)	Film Position	Film Interpretation	Result	Remarks
E-2395X								
N4 - JT1 (WN-009)	8.54	3	60.3	5.54	X Y	NRI NRI	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: 28 February 2018



Client Representative:

Name:

Date:



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Report No: BFTT/RT-08/18

RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client :	Bukit Fraser Thermal Technology Sdn Bhd	Procedure No:	NT/RT/ASME Rev 6.0
Project :	Petronas Carigali Sdn Bhd	IQI type :	ASTM 1A
	Supply And Delivery Of Glycol Overhead Vent	Film Manufacturer/Type :	FUJI 100/class II
	Condenser At KNPG-B	Density :	2.0 - 4.0
Job No:	BFTT 17-647	Sensitivity:	0.20mm(2 wires visible)
Material:	SA 312 TP 316L	Source to Object Distance :	400mm
Welding Process :	GTAW	Source Side of Object to Film Distance:	(5.54+3)mm
Examination Code :	ASME V	No of Radiograph(exposure) :	Single Exposure
Acceptance Code:	ASME Sect. VIII Div.1 2015 Ed.	No. of Film Each Cassette :	1 Film
		Radiographic Technique :	DWDI
Examination Date:	27 February 2018	Film Viewing Technique :	Double Wall Viewing
		Source Type/Size :	Iridium192 (3.2mm)
		Location Markers :	Source Side

Radiographic Examination Result

Weld Reference (Welder No)	WT (mm)	RT (mm)	Pipe Diameter (mm)	Material Thickness (mm)	Film Position	Film Interpretation	Result	Remarks
E-2395X								
N6 - JT1 (WN-009)	8.54	3	60.3	5.54	X Y	NRI NRI	Accept Accept	
N7 - JT1 (WN-009)	8.54	3	60.3	5.54	X Y	NRI Por	Accept Accept	AR

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: 28 February 2018



Client Representative:

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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 :	Petronas Carigali Sdn Bhd Supply And Delivery Of Glycol Overhead Vent Condenser At KNPG-B	IQI type :	ASTM 1A
Job No:	BFTT 17-647	Film Manufacturer/Type :	FUJI 100/class II
Material:	SA 312 TP 316L	Density :	2.0 - 4.0
Welding Process :	GTAW	Sensitivity:	0.20mm(2 wires visible)
Examination Code :	ASME V	Source to Object Distance :	400mm
Acceptance Code:	ASME Sect. VIII Div.1 2015 Ed.	Source Side of Object to Film Distance:	(5.54+3)mm
Examination Date:	27 February 2018	No of Radiograph(exposure) :	Single Exposure
		No. of Film Each Cassette :	1 Film
		Radiographic Technique :	DWDI
		Film Viewing Technique :	Double Wall Viewing
		Source Type/Size :	Iridium192 (3.2mm)
		Location Markers :	Source Side

Radiographic Examination Result

Weld Reference (Welder No)	WT (mm)	RT (mm)	Pipe Diameter (mm)	Material Thickness (mm)	Film Position	Film Interpretation	Result	Remarks
E-2395X								
N8 - JT1 (WN-009)	8.54	3	60.3	5.54	X Y	NRI Por	Accept Accept	
N9 - JT1 (WN-009)	8.54	3	60.3	5.54	X Y	Por NRI	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: 28 February 2018



Client Representative:

Name:
Date: