NUSANTARA TECHNOLOGIES SDN. BHD. (187753-D)
No. 5, Jalan Anggerik Mokara 31/45, Seksyen 31, Kota Kemuning, 40460 Shah Alam, Selangor Darul Ehsan, Malaysia.
Tel: 03-5122 9766/7/8 Fax: 03-5122 8766/7 E-mail: info@nusatek.com

Our Ref. : NT/103499/18-06

Report No: NDT/RT/180388-02/18

RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client :	Tenaga Tiub Sdn Bhd	Procedure No:	NT/RT/ASME Rev 6.0
		IQI type :	ASTM 1B
Project :	Surface Condenser	Film Manufacturer/Type :	FUJI 100(classII)
		Density :	2.2-3.8
Job No:	TT 17146	Sensitivity:	0.33mm(5 wires visible)
Material:	SA 516 GR 70 / SA 105 N	Source to Object Distance :	406.4mm
		Source Side of Object to Film Distance:	(15.9+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.+Tema 9TH Ed.	Radiographic Technique :	SWSI
		Film Viewing Technique :	Single Wall Viewing
Examination Date:	12 April 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
E-54-01A (Nozzle N1)								
JT-2 R1 (WN356)	15.7	3	812.8	12.7	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

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

Date: 13 April 2018

NUSANTARA TECHNOLOGIES SDN. BHD. (187753-D) NDT Division

Client Representative:

Name:

Date:

NUSANTARA TECHNOLOGIES SDN. BHD. (187753-D)
No. 5, Jalan Anggerik Mokara 31/45, Seksyen 31, Kota Kemuning, 40460 Shah Alam, Selangor Darul Ehsan, Malaysia.
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Our Ref. : NT/103499/18-06

Report No: NDT/RT/180388-03/18

RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client :	Tenaga Tiub Sdn Bhd	Procedure No:	NT/RT/ASME Rev 6.0
		IQI type :	ASTM 1B
Project :	Lean Solution Cooler	Film Manufacturer/Type :	FUJI 100(classII)
		Density :	2.2-3.8
Job No:	TT 17195	Sensitivity:	0.33mm(5 wires visible)
Material:	SA 516 GR70	Source to Object Distance :	355mm
		Source Side of Object to Film Distance:	(25.4+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.+Tema 9TH Ed.	Radiographic Technique :	SWSI
		Film Viewing Technique :	Single Wall Viewing
Examination Date:	12 April 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
E-015-06 APWHT								
CS4 (WN89)	28.4	3	710	25.4	0 - 1	Por	Accept	
					1 - 2	Por	Accept	
					2 - 3	Por	Accept	
					3 - 4	Por	Accept	
					4 - 5	NRI	Accept	
					5 - 6	NRI	Accept	
					6 - 7	Por	Accept	
					7 - 8	Por	Accept	
					8 - 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

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

Date: 13 April 2018

NUSANTARA TECHNOLOGIES SDN. BHD. (187753-D) NDT Division

Client Representative:

Name:

Date:

NUSANTARA TECHNOLOGIES SDN. BHD. (187753-D)
No. 5, Jalan Anggerik Mokara 31/45, Seksyen 31, Kota Kemuning, 40460 Shah Alam, Selangor Darul Ehsan, Malaysia.
Tel: 03-5122 9766/7/8 Fax: 03-5122 8766/7 E-mail: info@nusatek.com

Our Ref. : NT/103499/18-06

Report No: NDT/RT/180388-04/18

RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client :	Tenaga Tiub Sdn Bhd	Procedure No:	NT/RT/ASME Rev 6.0
		IQI type :	ASTM 1B
Project :	Lean Solution Cooler	Film Manufacturer/Type :	FUJI 100(classII)
		Density :	2.2-3.8
Job No:	TT 17195	Sensitivity:	0.33mm(5 wires visible)
Material:	SA 516 GR70	Source to Object Distance :	355mm
		Source Side of Object to Film Distance:	(25.4+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.+Tema 9TH Ed.	Radiographic Technique :	SWSI
		Film Viewing Technique :	Single Wall Viewing
Examination Date:	12 April 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
E-015-06 APWHT								
CS5 (WN89)	28.4	3	710	25.4	0 - 1	NRI	Accept	
					1 - 2	NRI	Accept	
					2 - 3	Por	Accept	
					3 - 4	Por	Accept	
					4 - 5	NRI	Accept	
					5 - 6	NRI	Accept	
					6 - 7	Por	Accept	
					7 - 8	NRI	Accept	
					8 - 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

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

Date: 13 April 2018

Client Representative:

Name:

Date:

NUSANTARA TECHNOLOGIES SDN. BHD. (187753-D)
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Our Ref. : NT/103499/18-06

Report No: NDT/RT/180388-05/18

RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client :	Tenaga Tiub Sdn Bhd	Procedure No:	NT/RT/ASME Rev 6.0
		IQI type :	ASTM 1B
Project :	Lean Solution Cooler	Film Manufacturer/Type :	FUJI 100(classII)
		Density :	2.2-3.8
Job No:	TT 17195	Sensitivity:	0.33mm(5 wires visible)
Material:	SA 106 GRB	Source to Object Distance :	219.1mm
		Source Side of Object to Film Distance:	(12.7+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.+Tema 9TH Ed.	Radiographic Technique :	DWSI
		Film Viewing Technique :	Single Wall Viewing
Examination Date:	12 April 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
E-015-06 APWHT								
Nozzle B1 JT2 (WN375/414)	15.7	3	219.1	12.7	0 - 1	NRI	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

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

Date: 13 April 2018

NUSANTARA TECHNOLOGIES SDN. BHD. * (187753-D) * NDT Division

Client Representative:

Name:

Date:

NUSANTARA TECHNOLOGIES SDN. BHD. (187753-D)
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Our Ref. : NT/103499/18-06

Report No: NDT/RT/180388-06/18

RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client :	Tenaga Tiub Sdn Bhd	Procedure No:	NT/RT/ASME Rev 6.0
		IQI type :	ASTM 1B
Project :	Lean Solution Cooler	Film Manufacturer/Type :	FUJI 100(classII)
		Density :	2.2-3.8
Job No:	TT 17195	Sensitivity:	0.33mm(5 wires visible)
Material:	SA 106 GRB	Source to Object Distance :	219.1mm
		Source Side of Object to Film Distance:	(12.7+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.+Tema 9TH Ed.	Radiographic Technique :	DWSI
		Film Viewing Technique :	Single Wall Viewing
Examination Date:	12 April 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
E-015-06 APWHT								
Nozzle A1 JT2 (WN375/414)	15.7	3	219.1	12.7	0 - 1	NRI	Accept	
					1 - 2	Por	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

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

Date: 13 April 2018

Client Representative:

Name:

Date:

NUSANTARA TECHNOLOGIES SDN. BHD. (187753-D)
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Our Ref. : NT/103499/18-06

Report No: NDT/RT/180388-01/18

RADIOGRAPHIC EXAMINATION REPORT

Client and Testing Particulars

Client :	Tenaga Tiub Sdn Bhd	Procedure No:	NT/RT/ASME Rev 6.0
		IQI type :	ASTM 1B
Project :	Surface Condenser	Film Manufacturer/Type :	FUJI 100(classII)
		Density :	2.2-3.6
Job No:	TT 17146	Sensitivity:	0.33mm(5 wires visible)
Material:	SA 516 GR 70	Source to Object Distance :	400mm
		Source Side of Object to Film Distance:	(15.9+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.+Tema 9TH Ed.	Radiographic Technique :	SWSI
		Film Viewing Technique :	Single Wall Viewing
Examination Date:	12 April 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
E-54-01A								
CS-2b (WN356)	18.9	3	–	15.9	0 - 1	Por	Accept	
					1 - 2	NRI	Accept	
					2 - 3	NRI	Accept	
					3 - 4	NRI	Accept	
					4 - 5	Por	Accept	
					5 - 6	NRI	Accept	
					6 - 7	Por	Accept	
					7 - 8	Por	Accept	

End of Report

Legend:

TI : Tungsten Inclusion	*NRI : No Relevant Indication*	*Uc : Undercut*	*Poi : 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:	13 April 2018	Date:	

NUSANTARA TECHNOLOGIES SDN. BHD. (187753-D) NDT Division