



Our Ref. : NT/103560/18-11

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 Report No: NDT/RT/180443-01/18

## RADIOGRAPHIC EXAMINATION REPORT

### Client and Testing Particulars

Client :	Tenaga Tiub Sdn Bhd	Procedure No:	NT/RT/ASME Rev 7.0
Project :	Oil Dryer	IQI type :	ASTM 1B
Job No:	TT 18041	Film Manufacturer/Type :	FUJI 100(classII)
Material:	SA 106 GR.B / SA 105 N	Density :	2.2-3.8
Welding Process :	GTAW	Sensitivity:	0.33mm(5 wires visible)
Examination Code :	ASME V	Source to Object Distance :	168.3mm
Acceptance Code:	ASME Sect. VIII DIV.1 : 2017 Ed.+Tema 9TH Ed.	Source Side of Object to Film Distance:	(10.97+3)mm
Examination Date:	19 April 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
E-113 TT-852 (U)								
JT-2 Nozzle (T1) (WN356)	13.97	3	168.3	10.97	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

Client Representative:

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

Date: 20 April 2018

Name:

Date:





Our Ref. : NT/103560/18-11

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Report No: NDT/RT/180443-02/18

## RADIOGRAPHIC EXAMINATION REPORT

### Client and Testing Particulars

Client :	Tenaga Tiub Sdn Bhd	Procedure No:	NT/RT/ASME Rev 7.0
Project :	Oil Dryer	IQI type :	ASTM 1B
Job No:	TT 18041	Film Manufacturer/Type :	FUJI 100(classII)
Material:	SA 106 GR.B / SA 105 N	Density :	2.2-3.8
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 : 2017 Ed.+Tema 9TH Ed.	Source Side of Object to Film Distance:	(7.62+3)mm
Examination Date:	19 April 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
E-113 TT-852 (U)								
JT-2 Nozzle (T2) (WN356)	10.62	3	88.9	7.62	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

Client Representative:

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

Date: 20 April 2018

Name:

Date:





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Report No: NDT/RT/180443-03/18

## RADIOGRAPHIC EXAMINATION REPORT

### Client and Testing Particulars

Client :	Tenaga Tiub Sdn Bhd	Procedure No:	NT/RT/ASME Rev 7.0
Project :	Oil Dryer	IQI type :	ASTM 1B
Job No:	TT 18041	Film Manufacturer/Type :	FUJI 100(classII)
Material:	SA 106 GR.B / SA 105 N	Density :	2.2-3.8
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 : 2017 Ed.+Tema 9TH Ed.	Source Side of Object to Film Distance:	(7.62+3)mm
Examination Date:	19 April 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)				
E-113 TT-852 (U)								
JF-2 Nozzle (S1) (WN356)	10.62	3	88.9	7.62	0 - 1	NRI	Accept	
					1 - 2	NRI	Accept	
					2 - 0	NRI	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

Client Representative:

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

Date: 20 April 2018

Name:

Date:





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Report No: NDT/RT/180443-04/18

## RADIOGRAPHIC EXAMINATION REPORT

### Client and Testing Particulars

Client :	Tenaga Tiub Sdn Bhd	Procedure No:	NT/RT/ASME Rev 7.0
Project :	Oil Dryer	IQI type :	ASTM 1B
Job No:	TT 18041	Film Manufacturer/Type :	FUJI 100(classII)
Material:	SA 106 GR.B / SA 105 N	Density :	2.2-3.8
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 : 2017 Ed.+Tema 9TH Ed.	Source Side of Object to Film Distance:	(7.62+3)mm
Examination Date:	19 April 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)				
E-113 TT-852 (U)								
JT-2 Nozzle (S2) (WN356)	10.62	3	88.9	7.62	0 - 1	NRI	Accept	
					1 - 2	NRI	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

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

Date: 20 April 2018



Client Representative:

Name:  
Date:



Our Ref. : NT/103560/18-11

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## RADIOGRAPHIC EXAMINATION REPORT

### Client and Testing Particulars

Client :	Tenaga Tiub Sdn Bhd	Procedure No:	NT/RT/ASME Rev 7.0
Project :	Oil Dryer	IQI type :	ASTM 1B
Job No:	TT 18041	Film Manufacturer/Type :	FUJI 100(classII)
Material:	SA 106 GR.B / SA 105 N	Density :	2.2-3.8
Welding Process :	GTAW	Sensitivity:	0.33mm(5 wires visible)
Examination Code :	ASME V	Source to Object Distance :	219.1mm
Acceptance Code:	ASME Sect. VIII DIV.1 : 2017 Ed.+Tema 9TH Ed.	Source Side of Object to Film Distance:	(12.7+3)mm
Examination Date:	19 April 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)				
E-113 TT-852 (U)								
JT-2 Nozzle (T4) (WN356)	15.7	3	219.1	12.7	0 - 1	Por		Reject
					1 - 2	NRI		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: 20 April 2018

Name:

Date:





Our Ref. : NT/103560/18-11

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## RADIOGRAPHIC EXAMINATION REPORT

### Client and Testing Particulars

Client : Tenaga Tiub Sdn Bhd	Procedure No: NT/RT/ASME Rev 7.0
Project : Oil Dryer	IQI type : ASTM 1B
Job No: TT 18041	Film Manufacturer/Type : FUJI 100(classII)
Material: SA 106 GR.B / SA 105 N	Density : 2.2-3.8
Welding Process : GTAW	Sensitivity: 0.33mm(5 wires visible)
Examination Code : ASME V	Source to Object Distance : 355.6mm
Acceptance Code: ASME Sect. VIII DIV.1 : 2017 Ed.+Tema 9TH Ed.	Source Side of Object to Film Distance: (9.53+3)mm
Examination Date: 19 April 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)				
E-113 TT-852 (U)								
CS-2 (WN346)	12.53	3	355.6	9.53	0 - 1	NRI	Accept	
					1 - 2	NRI	Accept	
					2 - 3	NRI	Accept	
					3 - 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: Amal Hamidi - NDT Lev. II

Date: 20 April 2018

Name:

Date:





Our Ref. : NT/103560/18-11

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## RADIOGRAPHIC EXAMINATION REPORT

### Client and Testing Particulars

Client :	Tenaga Tiub Sdn Bhd	Procedure No:	NT/RT/ASME Rev 7.0
Project :	Oil Dryer	IQI type :	ASTM 1B
Job No:	TT 18041	Film Manufacturer/Type :	FUJI 100(classII)
Material:	SA 106 GR.B / SA 234 WPB	Density :	2.2-3.8
Welding Process :	GTAW	Sensitivity:	0.33mm(5 wires visible)
Examination Code :	ASME V	Source to Object Distance :	355.6mm
Acceptance Code:	ASME Sect. VIII DIV.1 : 2017 Ed.+Tema 9TH Ed.	Source Side of Object to Film Distance:	(9.53+3)mm
Examination Date:	19 April 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)				
E-113 TT-852 (U)								
CS-1 (WN346)	12.53	3	355.6	9.53	0 - 1	NRI	Accept	AR
					1 - 2	NRI	Accept	
					2 - 3	Con	Accept	
					3 - 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: 20 April 2018

Name:

Date:





Our Ref.: NT/103560/18-11

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## RADIOGRAPHIC EXAMINATION REPORT

### Client and Testing Particulars

Client :	Tenaga Tiub Sdn Bhd	Procedure No:	NT/RT/ASME Rev 7.0
Project :	Oil Dryer	IQI type :	ASTM 1B
Job No:	TT 18041	Film Manufacturer/Type :	FUJI 100(classII)
Material:	SA 106 GR.B / SA 234 WPB	Density :	2.2-3.8
Welding Process :	GTAW	Sensitivity:	0.33mm(5 wires visible)
Examination Code :	ASME V	Source to Object Distance :	355.6mm
Acceptance Code:	ASME Sect. VIII DIV.1 : 2017 Ed.+Tema 9TH Ed.	Source Side of Object to Film Distance:	(9.53+3)mm
Examination Date:	19 April 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
E-113 TT-852 (U)								
CS-6 (WN346)	12.53	3	355.6	9.53	0 - 1	NRI	Accept	
					1 - 2	NRI	Accept	
					2 - 3	NRI	Accept	
					3 - 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: 20 April 2018

Name:

Date:





Our Ref. : NT/103560/18-11

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## RADIOGRAPHIC EXAMINATION REPORT

### Client and Testing Particulars

Client :	Tenaga Tiub Sdn Bhd	Procedure No:	NT/RT/ASME Rev 7.0
Project :	Oil Dryer	IQI type :	ASTM 1B
Job No:	TT 18041	Film Manufacturer/Type :	FUJI 100(classII)
Material:	SA 106 GR.B / SA 105 N	Density :	2.2-3.8
Welding Process :	GTAW	Sensitivity:	0.33mm(5 wires visible)
Examination Code :	ASME V	Source to Object Distance :	400mm
Acceptance Code:	ASME Sect. VIII DIV.1 : 2017 Ed.+Tema 9TH Ed.	Source Side of Object to Film Distance:	(73)mm
Examination Date:	19 April 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 :	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-113 TT-852 (U)								
JT-2 Nozzle (T5) (WN356)	10.01	3	73	7.01	X Y	NRI Por	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

Name:

Date: 20 April 2018

Date:





Our Ref. : NT/103560/18-11

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## RADIOGRAPHIC EXAMINATION REPORT

### Client and Testing Particulars

Client :	Tenaga Tiub Sdn Bhd	Procedure No:	NT/RT/ASME Rev 7.0
Project :	Oil Dryer	IQI type :	ASTM 1A
Job No:	TT 18041	Film Manufacturer/Type :	FUJI 100(classII)
Material:	SA 106 GR.B / SA 105 N	Density :	2.2-3.8
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 : 2017 Ed.+Tema 9TH Ed.	Source Side of Object to Film Distance:	(48.3)mm
Examination Date:	19 April 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 :	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-113 TT-852 (U)								
JT-2 Nozzle (T3) (WN356)	8.08	3	48.3	5.08	X Y	Por Por	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: 20 April 2018



Client Representative:  
 Name:  
 Date:



Our Ref.: NT/103560/18-11

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## RADIOGRAPHIC EXAMINATION REPORT

### Client and Testing Particulars

Client :	Tenaga Tiub Sdn Bhd	Procedure No:	NT/RT/ASME Rev 7.0
Project :	Oil Dryer	IQI type :	ASTM 1B
Job No:	TT 18041	Film Manufacturer/Type :	FUJI 100(classII)
Material:	SA 106 GR.B / SA 105 N	Density :	2.2-3.8
Welding Process :	GTAW	Sensitivity:	0.33mm(5 wires visible)
Examination Code :	ASME V	Source to Object Distance :	355.6mm
Acceptance Code:	ASME Sect. VIII DIV.1 : 2017 Ed.+Tema 9TH Ed.	Source Side of Object to Film Distance:	(9.53+3)mm
Examination Date:	19 April 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)				
E-113 TT-852 (U)								
CS-5 (WN346)	12.53	3	355.6	9.53	0 - 1	NRI	Accept	
					1 - 2	NRI	Accept	
					2 - 3	NRI	Accept	
					3 - 0	NRI	Accept	

\_\_\_\_\_ End of Report \_\_\_\_\_

#### Legend:

TI : Tungsten Inclusion	NRI: No Relevant Indication	Uo : 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: 20 April 2018

Date:

