<b>A</b> rplus <sup>⊕</sup>	RTD
NDT & Inspect	ion

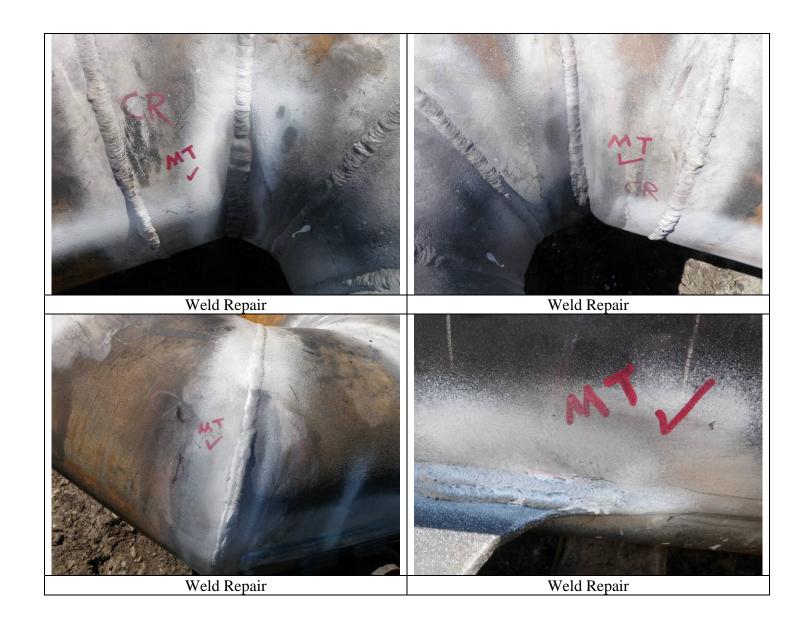
RTD QUALITY SERVICES INC.

Clicn:   Canadian Natural Resources	Applus® RTD  1431 – 70 AVENUE, EDMONTON, ALBERTA, CANADA T6P 1N5 TEL: (780) 440-6600 FAX: (780) 440-2538					DateRTD Job #	20 June 2011 : 10.110451	Page		of <u>2</u>		
Client Reps: Canadian Natural Resources   Locations   Torn St. John, BC   Locations   Planted Battery   Procedure   RTD) MT 1001   Client Reps: Chris Jungen   Mechanet   Planted   Code: ASME VIII / Div   Description: Perform Magnetic Particle Inspection on Treater fire tubes   Surface Conditions   Weddineat   Ground   Mechanet   Conditions   Weddineat   Conditions   Mechanet   Conditions   Sundiblated   Colour;   Sundiblated   Conditions   Sundiblated   Colour   Conditions   Colour   Conditions   Colour   Conditions   Colour   Conditions   Colour   Conditions   Condition	Tel: (780) 440-6600 Fax: (780) 440-2538											
Address   Fort St. John, BC   Chris Jungen	Client: Canadian Natural Resources					-	*					
Product Manufacturer:   Magnatux   Product Identification Code:   RTD) MT.001												
Code: ASME VIII / Div												
Description: Perform Magnetic Particle Inspection on Treater fire tubes  Surface Condition: Ground Subshibed Patients Surface Temp (C°): □<5 > 5 • <60 □>60    MAGNETIC PARTICLE INSPECTION												
Surface Condition:   Goldman   Shackhiesed   Other   O	Description	n. Perforn	n Magnetic Pa	article Inspec	tion on Treater fi	re tubes						
Equipment Type:   Yoke   Bench   Blacklight   Intensity Check:   µW/cm²   Asset No.:   G173   Calibration Due Date:   Sep 2011	Surface Condition: Weldment Machined Painted Surface Temp (C°): D<5 >5 < 60 D > 60											
Blacklight:   Intensity Check:   µW/cm²   Asset No.:   Calibration Due Date:   Dry Powder:   Colour;   Wet:   Black and White   Fluorescent   Fluorescent   Product Manufacturer:   Magnafux   Product Identification Code:   WCP-2 and 7 HF	⊠ M	<b>AGNETI</b>	C PARTICLI	E INSPECTI	ION							
Method:   Dry Powder:   Coloury   Wet:   Slatek and White   Fluorescent   Froduct Manufacturer:   Magnaflux   Product Identification Code:   WCP-2 and 7 HF	Equipment	Type:	Yoke Yoke	Bench	1	Asset No.: 6	173	Calibration D	ue Date:	Sep 2011		
Type: Dry Powder: Colour; Wet: Slakek and White   Fluorescent   Fluoresc	Blacklight:	Intens	ity Check:		$\mu$ W/cm <sup>2</sup>	Asset No.:	(	Calibration D	ue Date:			
Product Manufacturer: Magnaflux Product Identification Code: WCP-2 and 7 HF    LIQUID PERTRANT INSPECTION									Battery	Natural		
LIQUID FENETRANT INSPECTION   Type:   I-Fluorescent   II-Visible Dye   Method:   A (Water Wash)   B (P.E. Lipophilic)   C (Solvent Removable)   D (P.E. Hydrophilic)   Develorescent   II-Visible Dye   Method:   A (Water Wash)   B (P.E. Lipophilic)   C (Solvent Removable)   D (P.E. Hydrophilic)   Develorescent   II-Visible Dye   Method:   A (Water Wash)   B (P.E. Lipophilic)   C (Solvent Removable)   D (P.E. Hydrophilic)   Develorescent   Develorescent   Develorescent   Develorescent   Minutes   Product Manufacturescent   Minutes   Product Manufacturescent   Minutes   Product Manufacturescent   Method:   P.E.   Dual   Tr   Other   Type:   Longitudinal   Shear Wave   Calibration Date;   Calibration			owder: Co	lour;	Wet:	⊠ Black and V	White ☐ F	luorescent				
Type:   I-Fluorescent   II-Visible Dye   Method:   A (Water Wash)   B (P.E. Lipophilic)   C (Solvent Removable)   D (P.E. Hydrophilic)   Blacklight: Asset No.;   Calibration Due Date;   Blacklight Intensity;   µW/cm²   Dwell Times: Penetrant;   Minutes   Developer;   Minutes   Product Manufacturer;   W/cm²   Minutes   Product Manufacturer;   Minutes   Product Manufacturer;   Minutes   Product Manufacturer;   RTD Asset No.;   Calibration Date;   Calibration Date;	Product M	anutacturer	: <u>M</u> a	gnaflux	Produc	t Identification	1 Code: WCI	7-2 and / HF				
Blacklight: Asset No.; Calibration Due Date; Minutes Product Manufacturer; Minutes Developer; Minutes Product Manufacturer; RTD Asset No.; Calibration Date; Serial No.; Calibration Date; Serial No.;												
Developer;   Minutes   Product Manufacturer:												
ULTRASONIC THICKNESS MEASUREMENT   Method:	Blacklight:	Asset N	Vo.;	Calil	oration Due Date	»;	Blac	klight Intensity	/;	$\mu$ W/cm <sup>2</sup>		
Method:   P/E   Dual   T/T   Other   RTD Asset No.;   Calibration Date;   Calibration	Dwell Ti	mes: Pene	etrant;	Minutes	Developer;	Minu	ites Product N	Ianufacturer:				
Instrumentation:   Manufacturer;   RTD Asset No.;   Calibration Date:	U	LTRASON	NIC THICKN	NESS MEAS	UREMENT							
Instrumentation:   Manufacturer;   RTD Asset No.;   Calibration Date:	Method:	P/E	Dual T	T/T Othe	r		Type:	Longitud	dinal She	ear Wave		
Cal. Block(s): Type: RTD Asset No.: Serial No.:  Couplant: Manufacturer: Type:	Instrument	ation: Ma	anufacturer;		RTD A	Asset No.;		Cal	ibration Date;			
Probe Type   Angle   Frequency   Size   Reference   Seanning   Range   Skip Value   Beam   Transfer   Value (dB)   Level	Cal. Block(s	s):	Type;		RTD A	Asset No.;			Serial No.;			
A Black and White Magnetic Particle Inspection (MPI) method was used for all inspected areas.  1. Cracks were found on both the Mitered welds and Mounting plate weldement.  2. Cracks were excavated and confirmed removed with MPI black& white method.  3. Excavation areas were rewelded and a final MPI black & white method confirmed no cracking.  Technician: Mike Dutcher   COSB /ASNT/SNT Level:   2   Start Time:   Stop Time:   ST   OT   Signature:   COSB /ASNT/SNT Level:   11594   Subsistence required   OT Meal   Consumables:	Couplant:	Ma	anufacturer;					<u></u>				
Results: A Black and White Magnetic Particle Inspection (MPI) method was used for all inspected areas.  1. Cracks were found on both the Mitered welds and Mounting plate weldement.  2. Cracks were excavated and confirmed removed with MPI black& white method.  3. Excavation areas were rewelded and a final MPI black & white method confirmed no cracking.  Please see pictures.    Please see pictures.   Start Time:   Stop Time:   ST   OT		Angle	Frequency	Size			Range	Skip Value				
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Signature: Method:: PT/UT/MT Unit: Km: Travel Time:  Assistant: CGSB/ASNT/SNT Level: 11594 Subsistence required Client Signature: Consumables:	-	A Blace 1. Crack 2. Crack 3. Excav	k and Whit  ks were fou  s were excavation areas	e Magnetic <u>ınd</u> on botl avated and	Particle Inspends the Mitered confirmed ren	ection (MPI welds and M	Treater, C385  ) method wa  Mounting pla  MPI black&	s used for a te weldeme white meth	all inspected nt. nod.	d areas.		
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GENERAL NDE REPORT

## Fire Tube - 1





## Fire Tube - 2

