MISTRAS Services Division
A World of NDT Solutions

Radiographic Examination Report

Division:	590	Client:	JV INDUSTRIAL	Date:	10-31-2011 Page: 1 of 2
Address:	3985 TEAL CT BENICIA, CA 94510	Address:		Mistras Job No:	
				Purchase Order:	
		Contact:	ROYCE SMITH	Reference Number:	WO# 342644 JOB#104329
Phone:	707-746-5870	Location:	CHEVRON RICHMOND	Part/Item Number:	

Code/Specification: ASME SEC V		Acceptance Criteria: ASME B31.3		Procedure: 100-RT-001 REV. 5	Technique: ☐SWE/SWV ☒DWE/SWV ☐DWE/DWV
Material Type: 5 CR	Base Mat'l Thickness: .237"	Weld Joint Type: SINGLE V	Weld Thickness: .387"	Weld Reinforcement: .125"	Radiation Source: ☒Ir 192 ☐Co 60 ☐SE 75 ☐X-Ray
Location Markers: ☒Source-Side ☐Film-Side		IQI Type & ID: 12	IQI Material: SS	IQI Location: ☒Source-Side ☐Film-Side	Focal Spot Size: .146" / Curies/mA-kV: 60
Quality Level: 2T	Shim Material: SS	Shim Thickness: .125"	Source-Film Distance: 4.5"	Min. Source-Object Distance: 4.113"	Max. Source Side of Object-Film Distance: .387"
Exposure Time: 0:13	Film Mfr. & Type: AGFA D5	Film Technique: ☒Single-Load ☐Multi-Load	Screen Type: Pb	Screen Thickness Front: .010" Back: .010"	No. of Film & Size: (46)4.5" X 10"
Film Viewing: ☒Single ☐Composite	Film Processing: ☐Automatic ☒Manual: Time (min): 4:30		Developer Temp: 72	Comments: B-251262-01 A&B	

Tested Item(s):

ID/Weld No.	View	Original or Repair	Geometric Unsharpness	Accept	Reject	Porosity	Slag/ Inclusions	Lack of Fusion	Incomplete Penetration	Crack	Root Concavity	Root Convexity	Tungsten	Undercut	Weld Contour	Film Artifact	Comments	IQI Density	Weld Density
DX200-E1	0-1	O	<.020"	✓		✓													
W1141	1-2	O	<.020"		X	X													
WID: BHH	2-0	O	<.020"	✓		✓													
DX200-E1	0-1	O	<.020"		X	✓		X											
W1143	1-2	O	<.020"		X	X								✓					
WID: DPM	2-0	O	<.020"		X			X											
DX200-E1	0-1	O	<.020"	✓		✓								✓					
W1145	1-2	O	<.020"	✓										✓					
WID: BHH	2-0	O	<.020"	✓		✓								✓					

0418-006-007

Technician, Level & Date	Customer's Signature (if applicable)	Reviewed By (Sign & Date)
RUSSELL SNYDER LVL II 10-31-2011		

MISTRAS Services Division
A World of NDT Solutions

Radiographic Examination Report

Division: 590
Address: 3985 TEAL CT
BENICIA, CA 94510
Phone: 707-746-5870

Client: JV INDUSTRIAL
Address: ON FILE
Contact: ROYCE SMITH
Location: CHEVRON RICHMOND

Date: 10-31-2011
Page: 2 of 2
Mistras Job No:
Purchase Order:
Reference Number: JOB# 104329 WO# 342644
Part/Item Number:

Tested Item(s):

ID/Weld No.	View	Original or Repair	Geometric Unsharpness	Accept	Reject	Porosity	Slag/ Inclusions	Lack of Fusion	Incomplete Penetration	Crack	Root Concavity	Root Convexity	Tungsten	Undercut	Weld Contour	Film Artifact	Comments	IQI Density	Weld Density
DX200-E1	0-1	O	<.020"		X			X									B-251262-01 A&B		
W1146	1-2	O	<.020"		X	X													
WID: DPM	2-0	O	<.020"		X						X								
DX200-E1	0-1	O	<.020"		X	✓					X			✓			B-251262-01 A&B		
W1147	1-2	O	<.020"		X	✓					X								
WID: DPM	2-0	O	<.020"		X	✓					X			✓					
DX200-E1	0-1	O	<.020"	✓										✓			B-251262-01 A&B		
W1171	1-2	O	<.020"	✓		✓							✓						
WID: DPM	2-0	O	<.020"	✓									✓						

0418-006-002

Technician, Level & Date: RUSSELL SNYDER LVLII 10-31-2011

Customer's Signature (if applicable):

Reviewed By (Sign & Date):

RT WELD Continuation Page

100-RTFORM-001p2(Original)

MISTRAS Services Division
Asset Protection Solutions

Radiography Examination Report

3985 Teal CT. | Benicia, CA. 94510 | P: (707) 746-5870; F: (707) 746-8664
www.mistrasgroup.com

Client: JVI
Location: RIOP T/A
Date: 11-1-11
Page: 1 of
Part/Item No: 4" Butt weld
Mistras Job No:
Contact: Royce Smith
Description: B-251262-02 CED
Purchase Order: 342644

Code/Specification: ASME Sec V		Acceptance Criteria: B313		Procedure: 100.RT-001	Technique: ☐ SWE/SWV ☑ DWE/SWV ☐ DWE/DWV
Material Type: Ser	Base Mat'l Thickness: .237	Weld Joint Type: Butt weld	Weld Thickness: .362	Weld Reinforcement: .125	Radiation Source: ☑ Ir 192 ☐ Co 60 ☐ SE 75 ☐ X-Ray
Location Markers: ☐ Source-Side ☑ Film-Side		IQI Type & ID: 12 Penny	IQI Material: AL	IQI Location: ☐ Source-Side ☑ Film-Side	Focal Spot Size: .12fo / Curies/mA-kV: 82
Quality Level: 2T	Shim Material: AL	Shim Thickness: .125	Source-Film Distance: 45	Min. Source-Object Distance: Contact	Max. Source Side of Object-Film Distance: 45
Exposure Time: 16 Sec	Film Mfr. & Type: AGFA D4	Film Technique: ☑ Single-Load ☐ Multi-Load	Screen Type: Pb	Screen Thickness: Front: .010 Back: .010	No. of Film & Size: 3-45x10
Film Viewing: ☑ Single ☐ Composite	Film Processing: ☐ Automatic ☑ Manual: Time (min): 5		Developer Temperature: 68°	Comments: NDE Req #-247	

Tested Item(s):

ID/Weld No.	View	Original or Repair	Geometric Unsharpness	Accept	Reject	Porosity	Slag/ Inclusions	Lack of Fusion	Incomplete Penetration	Crack	Root Concavity	Root Convexity	Tungsten	Undercut	Weld Contour	Film Artifact	Comments	IQI Density	Weld Density
W-1153	0-1	R		✓		✓											DX-200-E1		
ID BXX	1-2	↓		✓		✓							✓						
	2-0	↓		✓	✗		✗									✓	Accept RE.		

0418-006-007

Technician, Level & Date	Customer's Signature (if applicable)	Reviewed By (if applicable)
Eddie Bauner 11-1-11		

MISTRAS GROUP INC.

Inspection Report, Radiography (Welds)

Division:	590	Client:	JVI	Date:	11-01-2011 Page: of
Address:	Mistras.	Address:	ON FILE	Job Number:	104329
	3985 TEAL CT			Purchase Order:	342644
	BENICIA, CA 94510	Contact:	Ralph W.	Reference Number:	NDE REQUEST 249
		Location:	Chevron Richmond	Part/Item Number:	F-1550 FURNACE TUBES

Code/Specification: ASME SEC V		Acceptance Criteria: B31.3 Normal		Procedure: 100-RT-001 REV 6	Technique: ☐ SWE/SWV ☒ DWE/SWV ☐ DWE/DWV
Material Type: 5CR	Base Mat'l Thickness: .237	Weld Reinforcement: .125	Weld Thickness: .362	Weld Joint Type: BW	Radiation Source: ☒ Ir 192 ☐ Co 60 ☐ X-Ray
Location Markers: ☐ Source-Side ☒ Film-Side		IQI Type & ID: 12	IQI Material: S/S	IQI Location: ☐ Source-Side ☒ Film-Side	Focal Spot Size: .146 / Curies/mA-kV: 82
Quality Level: 2-2T	Shim Material: S/S	Shim Thickness: N/A	Source-Film Distance: 4.5	Min. Source-Object Distance: 4.138	Max. Source Side of Object-Film Distance: 4.875
Exposure Time: 10 Seconds	Film Type: AGFA D4	No. of Film & Size: 4.5 X 10"	Film Technique: ☒ Single-Load ☐ Multi-Load	Screen Type: Pb	Screen Thickness Front: .010 Back: .010
Film Viewing: ☒ Single ☐ Composite		Film Processing: ☐ Automatic ☒ Manual: Time (min):		Developer Temp: 70 C	Comments:

Inspection Item(s):

ID/Weld No.	View	Original or Repair	Geometric Unsharpness	Accept	Reject	Porosity	Slag/ Inclusions	Lack of Fusion	Incomplete Penetration	Crack	Root Concavity	Root Convexity	Tungsten	Undercut	Weld Contour	Film Artifact	Comments	IQI Density	Weld Density
1155	0-1	O	.012	A		A	A										B-251262-02 C & D	3.64	3.55
	1-2	O	.012	A		A								A			W.S.- BXX	3.17	2.75
	2-0	O	.012	A		A												3.22	2.98
1156	0-1	O	.012	A		A						A		A			B-251262-02 C & D	3.78	3.47
	1-2	O	.012	A		A								A		A	W.S.-CMV	3.79	3.60
	2-0	O	.012	A		A	A									A		3.48	3.39
1158	0-1	O	.012	A		A											B-251262-02 C & D	3.50	3.32
	1-2	O	.012	A		A											W.S.-CMV	3.61	3.21
	2-0	O	.012	A														3.13	2.72

0418-006-007

Technician, Level & Date: Roy Le Grand
E. BOUVIER/ R. LEGRAND II 11/01/11

Customer's Signature (if applicable): R. Cle

Reviewed By (Sign & Date): Roy Le Grand 11-2-11

100-FORM-011W Rev 1 (03/12/200

CUSA-EPA-0007083

MISTRAS Asset Protection Solutions | Services Division

Radiography Examination Report

3985 Teal CT. | Benicia, CA. 94510 | P: (707) 746-5870; F: (707) 746-8664
www.mistrasgroup.com

Client: JVI
Contact: Royce Smith
Location: PIOP T/A
Part/Item No: 5" Butt Weld
Description: B-251262-02 C&D
Date: 11-1-11 Page: 1 of
Mistras Job No:
Purchase Order: 3026441

Code/Specification: ASME Sec V		Acceptance Criteria: 1331.3		Procedure: 100-RT-001	Technique: ☐ SWE/SWV ☑ DWE/SWV ☐ DWE/DWV
Material Type: Scr	Base Mat'l Thickness: .258	Weld Joint Type: Butt Weld	Weld Thickness: .383	Weld Reinforcement: .125	Radiation Source: ☑ Ir 192 ☐ Co 60 ☐ SE 75 ☐ X-Ray
Location Markers: ☐ Source-Side ☑ Film-Side		IQI Type & ID: B-Wire	IQI Material: N/A	IQI Location: ☐ Source-Side ☑ Film-Side	Focal Spot Size: .146 / Curies/mA-kV: 82
Quality Level: .010	Shim Material: N/A	Shim Thickness: N/A	Source-Film Distance: 55"	Min. Source-Object Distance: Contact	Max. Source Side of Object-Film Distance: 55"
Exposure Time: 26 Sec	Film Mfr. & Type: AGFA D4	Film Technique: ☑ Single-Load ☐ Multi-Load	Screen Type: Pb	Screen Thickness: Front: .010 Back: .010	No. of Film & Size: 6 - 4.5x10
Film Viewing: ☑ Single ☐ Composite	Film Processing: ☐ Automatic ☑ Manual: Time (min): 5		Developer Temperature: 68°	Comments: NDE Reg # 247	

Tested Item(s):

ID/Weld No.	View	Original or Repair	Geometric Unsharpness	Accept	Reject	Porosity	Slag/ Inclusions	Lack of Fusion	Incomplete Penetration	Crack	Root Concavity	Root Convexity	Tungsten	Undercut	Weld Contour	Film Artifact	Comments	IQI Density	Weld Density
W-1151	0-1	R		✓		✓							✓	✓			DX200-E1		
1D BXX	1-2	✓			X	✓		X						✓					
	2-0	✓			X	X				X									

0418-006-007

Technician, Level & Date: Eddie Bouvier 11-1-11
Customer's Signature (if applicable):
Reviewed By (if applicable):

CERTIFICATION OF INSPECTION, RADIOGRAPHY [WELDS]

MISTRAS Asset Protection Solutions | Services Division

Radiography Examination Report

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Client: JVF / CUSA
Location: F1550
Date: 11/2/11
Page: 2 of 2
Part/Item No: N1147
Mistras Job No:
Contact:
Description: B-251262-01 ABC & D
Purchase Order: 104329

Tested Item(s):

ID/Weld No.	View	Original or Repair	Geometric Unsharpness	Accept	Reject	Porosity	Slag/ Inclusions	Lack of Fusion	Incomplete Penetration	Crack	Root Concavity	Root Convexity	Tungsten	Undercut	Weld Contour	Film Artifact	Comments	IQI Density	Weld Density
1147	0-5	#1	1.620	✓															
	5-10	↓	↓	✓															
	10-0	↓	↓	✓															

0418-006-007

Technician, Level & Date	Customer's Signature (if applicable)	Reviewed By (if applicable)
[signature] II 11/2/11	[signature]	

CERTIFICATION OF INSPECTION, RADIOGRAPHY [WELDS] CONTINUATION PAGE

100-RTFORM-001p2 | REV 1

MISTRAS
A World of NDT Solutions
Services Division

Radiographic Examination Report

Division:	590	Client:	JV INDUSTRIAL	Date:	11-02-2011 Page: 1 of 1
Address:	3985 TEAL CT BENICIA, CA 94510	Address:		Mistras Job No:	
				Purchase Order:	
		Contact:	ROYCE SMITH	Reference Number:	WO# 342644 JOB#104329
Phone:	707-746-5870	Location:	CHEVRON RICHMOND	Part/Item Number:	

Code/Specification: ASME SEC V		Acceptance Criteria: ASME B31.3		Procedure: 100-RT-001 REV. 5	Technique: ☐SWE/SWV ☒DWE/SWV ☐DWE/DWV
Material Type: 5 CR	Base Mat'l Thickness: .237"	Weld Joint Type: SINGLE V	Weld Thickness: .387"	Weld Reinforcement: .125"	Radiation Source: ☒Ir 192 ☐Co 60 ☐SE 75 ☐X-Ray
Location Markers: ☒Source-Side ☐Film-Side		IQI Type & ID: B WIRE	IQI Material: SS	IQI Location: ☒Source-Side ☐Film-Side	Focal Spot Size: .146" / Curies/mA-kV: 60
Quality Level: .010"	Shim Material: N/A	Shim Thickness: N/A	Source-Film Distance: 4.5"	Min. Source-Object Distance: 4.113"	Max. Source Side of Object-Film Distance: .387"
Exposure Time: 0:13	Film Mfr. & Type: AGFA D5	Film Technique: ☒Single-Load ☐Multi-Load	Screen Type: Pb	Screen Thickness Front: .010" Back: .010"	No. of Film & Size: (4)4.5" X 10"
Film Viewing: ☒Single ☐Composite	Film Processing: ☐Automatic ☒Manual: Time (min): 4:30		Developer Temp: 72	Comments: B-251262-01 A&B	

Tested Item(s):

ID/Weld No.	View	Original or Repair	Geometric Unsharpness	Accept	Reject	Porosity	Slag/ Inclusions	Lack of Fusion	Incomplete Penetration	Crack	Root Concavity	Root Convexity	Tungsten	Undercut	Weld Contour	Film Artifact	Comments	IQI Density	Weld Density
DX200-E1	0-5	O	<.020"		X	✓		X											3.15
W1141	5-10	O	<.020"		X	✓		X		X									3.31
WID: BHH/CZO	10-0	O	<.020"	✓		✓													3.12

04-18-000-007

Technician, Level & Date	Customer's Signature (if applicable)	Reviewed By (Sign & Date)
RUSSELL SNYDER LVLII 11-02-2011		

RT WELD

100-RTFORM-001(Original)

MISTRAS Asset Protection Solutions | Services Division

Radiography Examination Report

3985 Teal CT. | Benicia, CA. 94510 | P: (707) 746-5870; F: (707) 746-8664
www.mistrasgroup.com

Client: JVI / CUSA
Contact:
Location: F1550
Part/Item No: WH 1164, 1163, 1162, 1146
Description: B-261 262-07 DEC 80
Date: 11/2/11
Page: 1 of 2
Mistras Job No:
Purchase Order: 104329

Code/Specification: ASME SEC V		Acceptance Criteria: B31.3		Procedure: 100-RT-001-REV6	Technique: ☐ SWE/SWV ☒ DWE/SWV ☐ DWE/DWV
Material Type: 5 CR	Base Mat'l Thickness: .237	Weld Joint Type: SINGLE V	Weld Thickness: .362	Weld Reinforcement: .125	Radiation Source: ☒ Ir 192 ☐ Co 60 ☐ SE 75 ☐ X-Ray
Location Markers: ☐ Source-Side ☒ Film-Side		IQI Type & ID	IQI Material	IQI Location: ☒ Source-Side ☐ Film-Side	Focal Spot Size: .153 / Curies/mA-kV: 85
Quality Level: 2T	Shim Material: —	Shim Thickness: —	Source-Film Distance: 5"	Min. Source-Object Distance	Max. Source Side of Object-Film Distance
Exposure Time: 8 SEC	Film Mfr. & Type: AGFA D5	Film Technique: ☐ Single-Load ☐ Multi-Load	Screen Type: LEAD	Screen Thickness: Front: .005 Back: .005	No. of Film & Size: 15 45X10
Film Viewing: ☐ Single ☐ Composite	Film Processing: ☐ Automatic ☒ Manual: Time (min): 5		Developer Temperature: 68	Comments:	

Tested Item(s):

ID/Weld No.	View	Original or Repair	Geometric Unsharpness	Accept	Reject	Porosity	Slag/ Inclusions	Lack of Fusion	Incomplete Penetration	Crack	Root Concavity	Root Convexity	Tungsten	Undercut	Weld Contour	Film Artifact	Comments	IQI Density	Weld Density
1164	0-5	R1	1.20	✓													~~BUF~~		
	5-10				X												BURN THROUGH		
	10-0				X												BURN THROUGH		
1163	0-5			✓															
	5-10			✓															
	10-0			✓															
1162	0-5			✓															
	5-10			✓															
	10-0			✓															
1146	0-5				X									X					
	5-10			✓															
	10-0				X				X										

0418-006-007

Technician, Level & Date	Customer's Signature (if applicable)	Reviewed By (if applicable)
[signature] II 11/2/11	[signature]	

CERTIFICATION OF INSPECTION, RADIOGRAPHY [WELDS]

100-RTFORM-001 | REV 1

CUSA-EPA-0007087

MISTRAS Asset Protection Solutions | Services Division

Radiography Examination Report

3985 Teal CT. | Benicia, CA. 94510 | P: (707) 746-5870; F: (707) 746-8664

www.mistrasgroup.com

Client: JVI/CUSA

Contact: RALPH

Location: F-1550

Part/Item No: W# 1143, 1151 & 1165

Description: 5-251262-02 ABC ID

Date: 11/2/11 Page: 1 of 1

Mistras Job No:

Purchase Order: 104329

Code/Specification: ASME SEC V		Acceptance Criteria: B31.3		Procedure: 100-RT-001 Rev 6	Technique: ☐ SWE/SWV ☑ DWE/SWV ☐ DWE/DWV
Material Type: 5 CR	Base Mat'l Thickness: 258/.251	Weld Joint Type: SINGLE V	Weld Thickness: 383/362	Weld Reinforcement: .125	Radiation Source: ☑ Ir 192 ☐ Co 60 ☐ SE 75 ☐ X-Ray
Location Markers: ☐ Source-Side ☑ Film-Side		IQI Type & ID: BWIRE	IQI Material:	IQI Location: ☐ Source-Side ☑ Film-Side	Focal Spot Size: .153 / Curies/mA-kV: 80
Quality Level: 2T	Shim Material: —	Shim Thickness: —	Source-Film Distance: 5"/6"	Min. Source-Object Distance: 4.625"/5.625"	Max. Source Side of Object-Film Distance:
Exposure Time: 10 SEC	Film Mfr. & Type: AGFA D5	Film Technique: ☑ Single-Load ☐ Multi-Load	Screen Type: LEAD	Screen Thickness: Front: .005 Back: .005	No. of Film & Size: 6 4.5 X 10
Film Viewing: ☑ Single ☐ Composite	Film Processing: ☐ Automatic ☑ Manual: Time (min): 5		Developer Temperature: 68°	Comments:	

Tested Item(s):

ID/Weld No.	View	Original or Repair	Geometric Unsharpness	Accept	Reject	Porosity	Slag/ Inclusions	Lack of Fusion	Incomplete Penetration	Crack	Root Concavity	Root Convexity	Tungsten	Undercut	Weld Contour	Film Artifact	Comments	IQI Density	Weld Density
1143	0-5	01	6020	✓															
	5-10			✓															
	10-0			✓															
1151	0-6				X			X											
	6-12				X			X											
	12-0				X			X											
1165	0-5			✓															
	5-10			✓															
	10-0			✓															

0418-006-007

Technician, Level & Date	Customer's Signature (if applicable)	Reviewed By (if applicable)
[signature] II 11/2/11	[signature]	

CERTIFICATION OF INSPECTION, RADIOGRAPHY [WELDS]

100-RTFORM-001 | REV 1

CUSA-EPA-0007088