



NDE REPORT # 20130623a

Date (m/d/y): 06/23/2013 Page 1 of 2
 Applus RTD Job Number: 10.113250
 Applus RTD Department: Grande Prairie Asset

Client: Canadian Natural Resources Ltd.
 Address: Fort St. John, BC
 PO/WO:

Job location: Milligan Battery
 Procedure(s): MT Rev. #:
 Code / Standard: ASME VIII Div. 1
 Client Specification:

Part (s) Examined: 3 and 4 inch nozzles weld repair – A0225408 Free Water Knockout
 Calibration Standard: CP-103 Material: Carbon Steel Thickness:
 Surface Condition: Weldment Ground Machined Sandblasted Painted Other:
 Method: MT PT VT Other: Surface Temp (°C): < 5 > 5 < 60 > 60

Equipment			Test Medium	Family	Batch #	Technique	
Type	S/N or Asset #	Calibration Due Date (m/d/y)				MPI	LPI
<input checked="" type="checkbox"/> Yoke	17409	01/01/2014	WCP / 7WF	Magnaflux		<input checked="" type="checkbox"/> AC	<input type="checkbox"/> Water Washable (A)
<input type="checkbox"/> Perm. Magnet						<input type="checkbox"/> DC	<input type="checkbox"/> P.E. Lipophilic (B)
<input type="checkbox"/> Coil						<input checked="" type="checkbox"/> Continuous	<input type="checkbox"/> Solvent Removable (C)
<input type="checkbox"/> Blacklight						<input type="checkbox"/> Residual	<input type="checkbox"/> P.E. Hydrophilic (D)
<input type="checkbox"/> Alloy Analyzer						<input type="checkbox"/> Other	
<input type="checkbox"/> Hardness Tester							
<input type="checkbox"/> Other							
			Dwell Time:				
			Developer Time:				

Blacklight Intensity ≥ 1000 μW/cm² @ surface of part: Accept Whitelight Intensity ≥ 100 fc @ surface of part: Accept

INSPECTION DETAILS

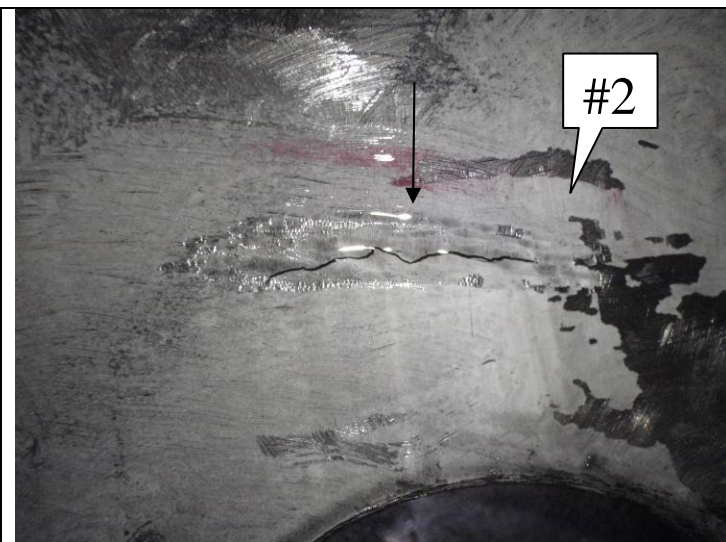
Scope: Perform black and white magnetic particle inspection on three nozzle weld repairs and fill weld on shell

Results: MPI reveled one 2 inch crack on repaired nozzle #2 – metal was excavated down 0.400 inch into shell to remove defect – metal loss was re-filled and MPI performed again – No further cracking detected

Reviewed By: Dellas Wiedman Discipline: <input checked="" type="checkbox"/> CGSB <input type="checkbox"/> ASNT <input type="checkbox"/> SNT Level: <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> UT <input checked="" type="checkbox"/> MT <input type="checkbox"/> PT <input type="checkbox"/> ET <input type="checkbox"/> RT <input type="checkbox"/> VT	Technician: Andrew Neis Discipline: <input checked="" type="checkbox"/> CGSB <input type="checkbox"/> ASNT <input type="checkbox"/> SNT Level: <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> UT <input checked="" type="checkbox"/> MT <input type="checkbox"/> PT <input type="checkbox"/> ET <input type="checkbox"/> RT <input type="checkbox"/> VT
Signature:	Signature: _____

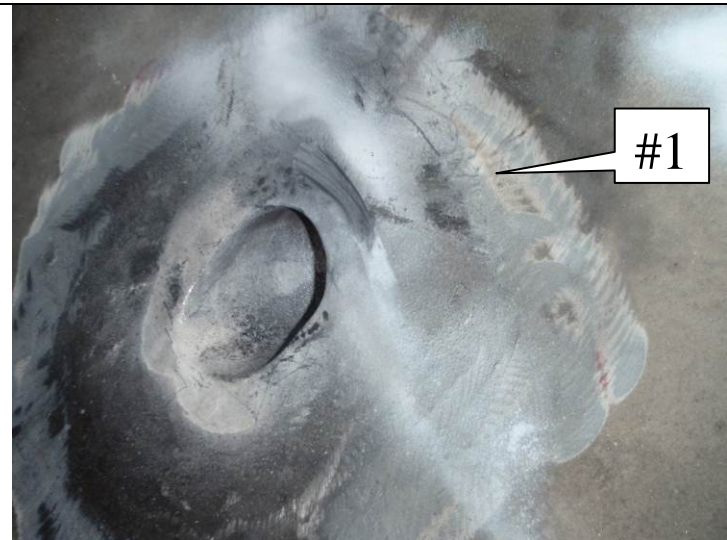
Client Name: _____ Client Signature: _____ Date:(m/d/y) _____

*Results are an interpretation of the inspection method, not a guarantee. Client signature indicates acceptance of report, results and applicable charges.
 T094 Rev 7
 Apr. 06, 2013



Crack found on 4 inch nozzle after 0.150 inch excavation

4 inch nozzle – indication detected



3 inch nozzle on shell 6 o'clock – no indications

4 inch nozzle – no indications



Shell fill welded and ground flush – no indications