ConocoPhillips

Pressure Equipment Integrity

GENERAL INSPECTION FORM

Field: South Wapiti	Skid No. :
Facility: South Wapiti Gas Plant	Location (LSD) Surface: 16-36-67-09 W6M
Vessel Name & Equipment Number: Inlet Separator	PSV Only-Installed on piping: ☒
Orientation: Horizontal ☒ or Vertical ☐	Location (LSD) Downhole:
Status: In Service ☒ or Out of Service (blinded / fully isolated) ☐	Com. Inspection ☐ Shop Inspection ☐ Reg. Inspection ☒

PRESSURE VESSEL NAMEPLATE DATA

"A" or "G" or "S" (Sask.) or BC Registration Number. A0468688		CRN Number: L 3956.2
		Size (diameter x length- estimate if necessary): 60 in x 20 ft
Vessel serial number: 004502-50		Shell material: SA 516 70
Shell thickness: 50.8 mm		Head material: SA 516 70
Head thickness: 49.2 mm		Tube material:
Tube wall thickness:		Tube length:
Tube diameter:		Channel material:
Channel thickness:		X-ray: RT-1
MAWP	Shell: 9929 kPa (1440 psi)	Code parameters: ASME VIII Div 1
	Tubes:	Heat treatment? yes X no
Design Temp.	Shell: 38°C	Joint efficiency (if on nameplate):
	Tubes:	Manufacturer: Nusco
Man Way: ☒ Y ☐ N		Year built: 2001

PRESSURE SAFETY VALVE DATA

PSV set pressure from P&ID _____KPA _____PSI ☐ N/A	Piping PSV P & ID. #_____ ☐ N/A
PSV set pressure as per P&ID : ☐Y ☐ N ☐ NA	PSV set pressure is ≤ than MAWP of vessel or piping : ☒ Y ☐ N No PSV attached because vessel is vented to atmosphere ☐ Y

Tag Number(s)	Set Pressure (psi)	Manufacturer/ Model / Serial #	Capacity (ie:SCFM/ GPM,etc)	Size (Inlet x Outlet)	Service Co & Serv Co ID# or WO#	Set Date (mm/dd/yyyy)
Shell Side G# G 739261	635	Consolidated // 19226MCF-2-CC // SB10146	2597 SCFM	1 x 1.5	Unified Valve	01/22/2014
Tube Side G#						

SERVICE CONDTIONS-INDICATE ALL THAT APPLY

Sweet ☒	Sour ☐	Oil ☐	Gas ☒	Water ☒
Amine ☐	LPG ☐	Condensate ☒	Air ☐	Glycol ☐
Other (Describe):				

PV Inspection Interval 120 months ABSA Grade 1☐ 2☐ 3☑ similar service criteria applied to interval: Yes ☐ Generic ITP ☐

PSV Service Interval as per PCMS months ABSA Grade 1☐ 2☐ 3☐ similar service criteria applied to interval: Yes ☐ Equipment specific ITP ☑

Shop Inspector _____ Print and Initial REVIEWED AND ACCEPTED Date _____

Construction/
VE Inspector Chris Maxsom PESL # 0539 Print and Initial Date September 17, 2014

Contractor Superintendant _____ Print and Initial SEP 24 2014 Date _____

Inspection reports reviewed/accepted by:
ConocoPhillips A&OI Specialist _____ Date _____

NEIL JOHNSON
API 510 # 42665 - ABSA ISPVI # 000680

ConocoPhillips Canada

G=Good Y=Yes
F=Fair N=No
P=Poor
N/A=Not Applicable

A#/G# A0468688

External Inspection Items	G	F	P	N/A	Comments
Insulation Verify sealed around man ways, nozzles, valves, etc., no damage present, and there is no ingress/egress of moisture. Are straps secured?	X				Vessel is 10% insulated. No open areas of insulation or cladding. Straps are secure. Wall closure sealed. No egress of moisture.
External Condition Assess paint condition, areas peeling, record any corrosion, (check roof interface for corrosion), damage, distortion, etc. (record location, size and depth of corrosion or damage)	X				Paint is blistering on bottom shell to 5% area with minor surface corrosion. No damage. No distortion.
Leakage Record any leakage at flanges, threaded joints, weep holes on repads, etc.	X				None.
Skirt/ Saddle Assess condition of paint, fire protection, concrete. Look for corrosion, buckling, dents, etc. Look at vessel surface area near supports. Verify no signs of leakage at attachment to vessel and attachment welds are acceptable. Is ground wire attached? Adequate access for UT inspection? **Note:** For horizontal vessels mounted on saddles ensure anchor bolting loose on one end to allow for expansion/contraction after installation.	X				Saddle is bolted to skid structure No evidence of corrosion at shell to skirt weld – no leaks. Paint in good condition – no exposed metal. No distortion. No buckles. Saddle has ground wire attached.
Anchor Bolts Hammer tap to ensure secure. Look for corrosion, cracking in threads or signs of deformation.	X				All anchor bolts are secure.
Concrete foundation Check for cracks, spalling, etc.				X	Steel
Ladder / Platform Describe general condition, ensure support is secure to vessel, describe any hazards.				X	No ladder or platform attached.
Nozzle Assess paint, look for leakage, and ensure stud threads are fully engaged. Record any damage, deflection, etc. Are nozzles gusseted? Inspect gussets for cracking.	X				Paint is chipped to 5% exposed metal with minor surface corrosion. Threaded joints are fully engaged. Studs are fully engaged to nuts – no short bolts. No damage or deflections. No leaks. No gussets.
Gauges Ensure gauges/gauge glass(es) are visible, working, no leakage, and suitable for range of MAWP/ Temp.	X				Pressure gauge: 0 to 400 psi. Not within range of MAWP. Temp gauge: -40 to 70°C. Within range of MAWT. Liquid level attached. All gauges are clean and clear. No leaks.
External Piping Ensure pipe is well supported. All clamps, supports, shoes, etc. in place. Look for evidence of structural overload, deflection, etc., paint condition, external corrosion?	X				Paint chipped to 5% exposed metal – no corrosion. No overload or deflection. All clamps in place.
Valving Ensure no leaks are visible. Valves are properly supported and chained if necessary.		X			Well supported. No leaks.
NDE methods Was UT/ MPI done on vessel	X				No NDE at this time.

Piping Installation Items	Y	N	N/A	Comments
Are all flange connections free from tape/wrap which may have been used for leak testing?	X			All tape/wrap removed
Is the soil-air interface for the piping wrapped properly?			X	
Is there potential to create future mechanical damage from contact with grating, loose tubing etc.?		X		None.
Note: refer to piping inspection form for in-service inspection of pressure piping (Form 2113)				

Observations:

Construction/ VE Inspector Chris Maxsom PESL # 0539 **Date** September 17, 2014
(Please Print)

ConocoPhillips Canada

G=Good Y=Yes
F=Fair N=No
P=Poor
N/A=Not Applicable

A#/G# A0468688

PSV Configuration Items	Y	N	N/A	Comments
Is PSV Inlet/Discharge free of obstruction? Check for contaminants (if possible) and verify full pipe diameter from PSV inlet/discharge to point of connection. Not leaking?	X			Discharge piping is the same size as valve outlet. No leaks observed.
Flexible hoses present on inlet/outlet piping?		X		None
If yes, flexible hose size > diameter than piping by 1 nominal pipe size (ie: 1" piping, 1 ½" flexible hose). Flexible hose free of misalignment?			X	None.
Are all block valves in PSV relief path full port and locked/car sealed in the open position?			X	None.
Is the PSV inlet/discharge braced/supported by piping, brackets etc?	X			PSV is securely anchored
Are threaded PSV's, mounted to prevent turning to the left or right if PSV opened (i.e. if an elbow is used below PSV, PSV should point in line with the inlet piping to the elbow)?	X			Yes
Are the PSV's mounted vertically?	X			Valve is properly supported and routed.
For PSV's vented to atmosphere, do PSV's have a tail pipe that is braced and protected from rain/snow ingress (ie: rain cap)? Low point drain if pointed upwards? **Shipping plugs removed?**	X			Yes
Does PSV discharge orient away from areas that may be occupied by personnel (minimum 7' above ground/walkway), and away from other units, especially air intakes, non-classified buildings, and burner inlets/exhaust stacks?	X			Yes
Does discharge line have pocketed sections? If yes, are pocketed sections protected from freezing? Are these sections drained periodically?			X	None.
Do pop lines terminate into upper third of pop tank and are lines secured and self draining?			X	None.
Is there a rupture disc and if so is it at the proper pressure rating?			X	None.
Does the rupture Disc have a pressure bleed off point?			X	None.
Are all PSV seal wires intact?	X			PSV seal is intact.
Have all transit wires been removed from lift lever?			X	None.
If this is a bellows style PSV, is the bonnet vented to a safe location?			X	

Observations:

Construction/ VE Inspector Chris Maxsom PESL # 0539 **Date** September 17, 2014
(Please Print)

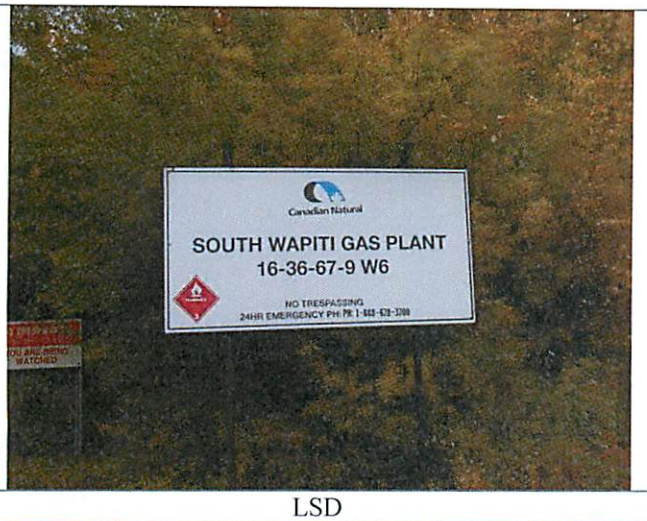
ConocoPhillips Canada

G=Good Y=Yes
F=Fair N=No
P=Poor
N/A=Not Applicable

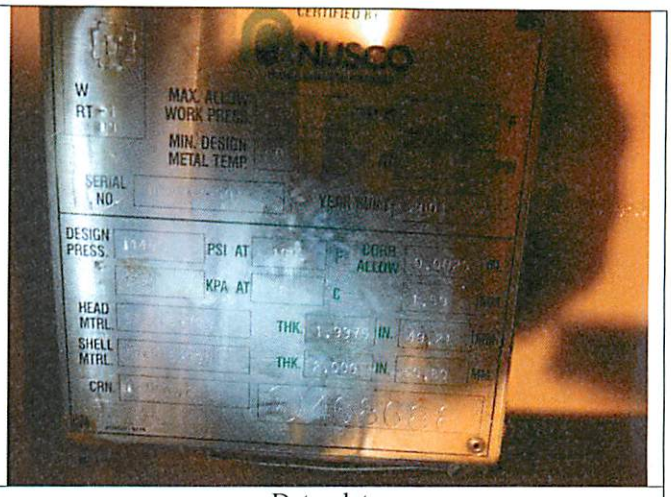
A#/G# A0468688

Internal Inspection Items	G	F	P	N/A	Comments
Coating Assess coating. Describe area coated, general condition of coating. Look at nozzles, coupling, and areas of most severe corrosion to ensure coating is intact. If coating is in poor condition make decision now if re-coating necessary? If so, when?				X	Vessel is not internally coated.
Anodes. How many, type, condition. % consumed. Are they being replaced?				X	None.
Internal Piping Is there any? If so, carbon or stainless steel. Describe condition, dents, corrosion, erosion, etc. Ensure supports are secure and any bolts are suitable for future use.				X	None.
Trays How many? Type of material. Are valves in place. Check for erosion/ corrosion; wear on tray valve legs. Cleanliness?				X	None.
Baffles, deflector plates, etc. If present, describe condition. Look closely at welds attached to vessel wall.	X				Inlet deflector and surge weir– All in good condition, intact and in place. No damage.
North Head (Manway) Note all corrosion, erosion or mechanical damage. (If vessel is horizontal identify direction of this head)	X				No pitting, corrosion or mechanical damage.
South Head Note all corrosion, erosion or mechanical damage. (If vessel is horizontal identify direction of this head)	X				No pitting, corrosion or mechanical damage.
Shell Sections Record number of shell sections. Record location, size and depth of all erosion, corrosion or mechanical damage. Describe general condition. If any corrosion greater than corrosion allowance is observed in either shell or head, discuss with Chief Inspector before closing vessel.	X				Two shell sections. All in good condition – no pitting, corrosion or damage noted.
Demister pad Is it in place? Is it clean? If any corrosion is apparent in vessel, lift pad and check top head for corrosion.	X				Generally in good condition – intact and in place No damage to demister cage and screen.
Nozzles check all nozzles for corrosion, cracks, coating loss, build up of scales or products, pay special attention to deadleg nozzles that are blinded.	X				All nozzles are unobstructed with no damage.
Welds Inspect all welds, including attachment welds. Record all service-related damages and if there is any discuss with Chief Inspector before closing.	X				Welds are in good condition – no pitting or corrosion identified.
Repairs Required. If yes, ensure procedure and copy of AB-40 is on file, and one sent to local ABSA Inspector	X				None at this time.
Fire tube check for corrosion on fire tube, flange and fire tube nozzle, burner impingement inside fire tube. MPI welds. Check burner and flame arrestor for damage/ cleanliness.				X	None.
NDE Was any NDE done.				X	No internal NDE carried out at this time.
Observations					

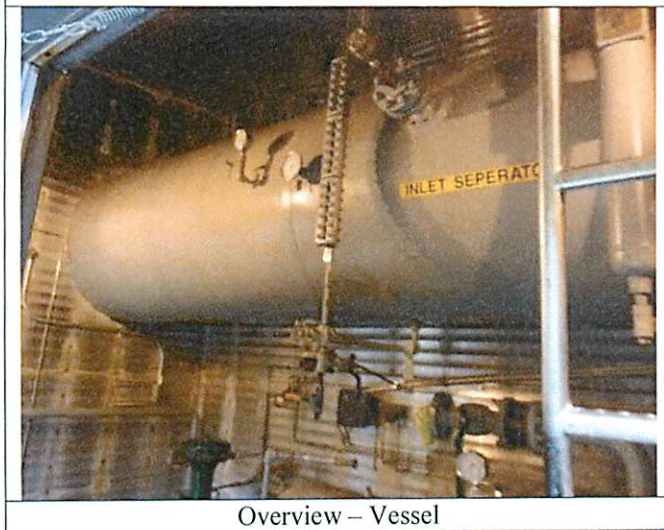
VI Inspector: Chris Maxsom PESL # 0539 **Date:** September 17, 2014
(Please Print)



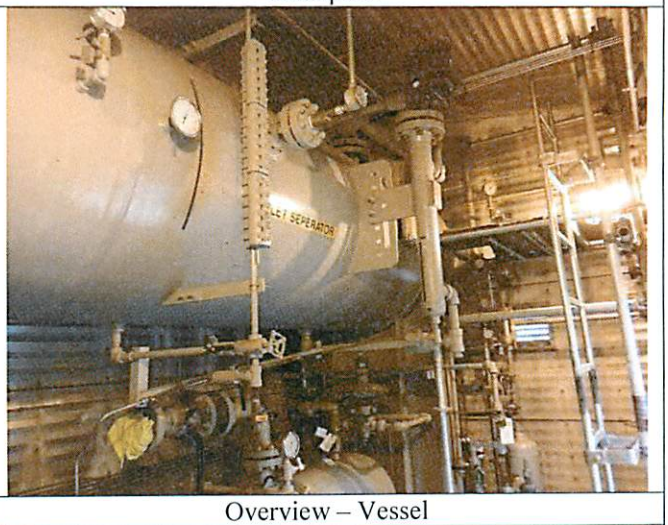
LSD



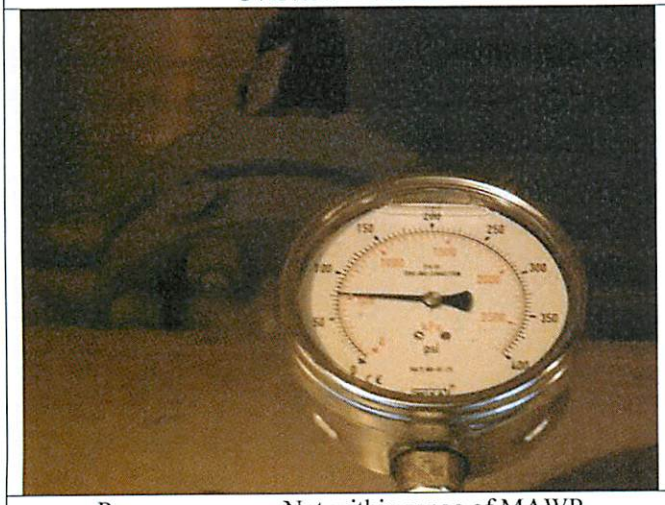
Data plate



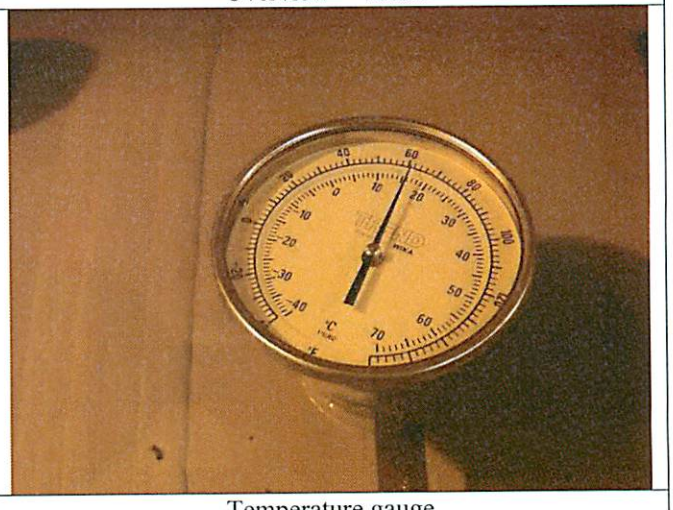
Overview – Vessel



Overview – Vessel



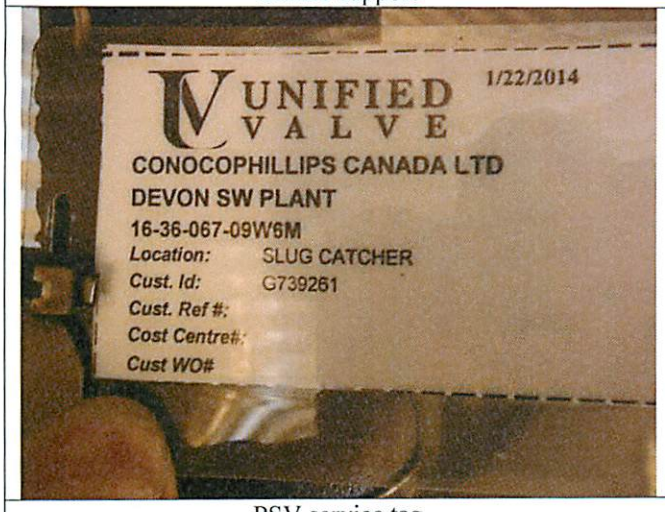
Pressure gauge – Not within range of MAWP



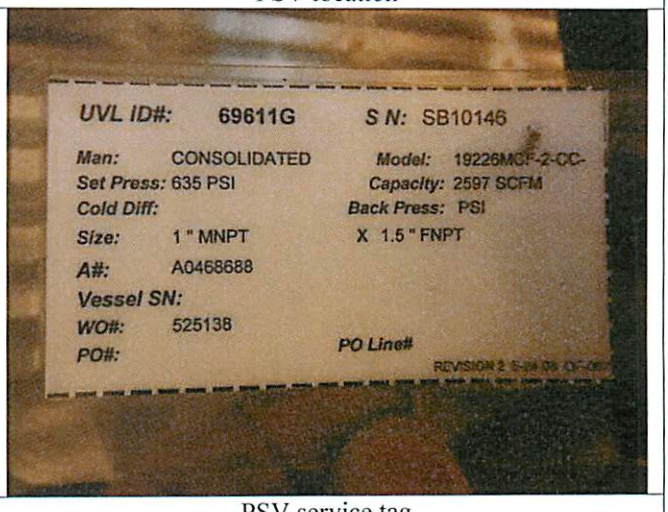
Temperature gauge

Saddle support

PSV location

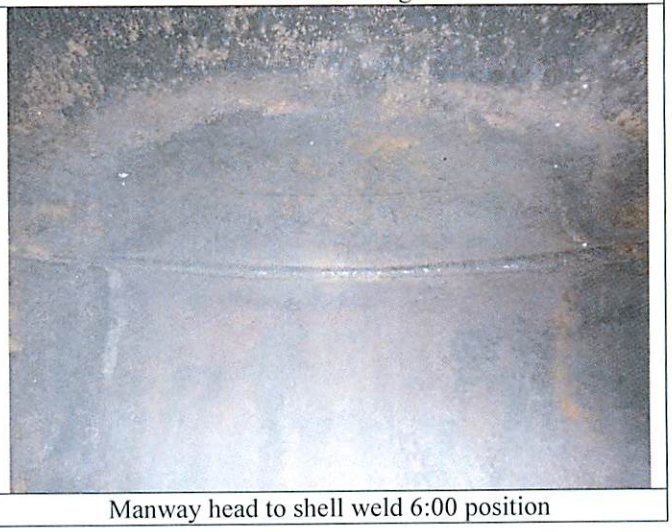


PSV service tag



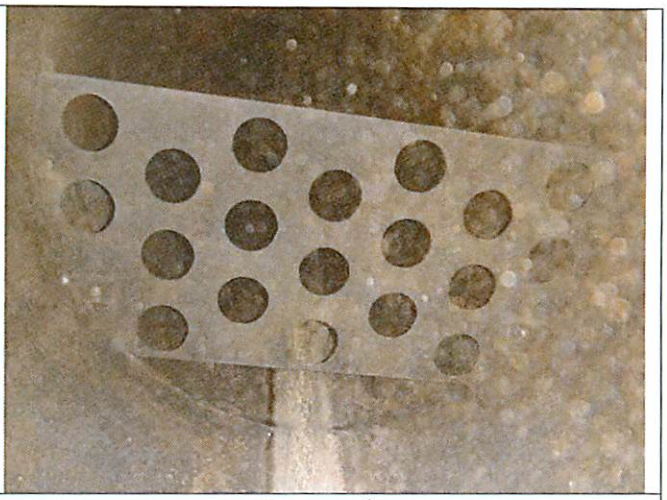
PSV service tag

Manway

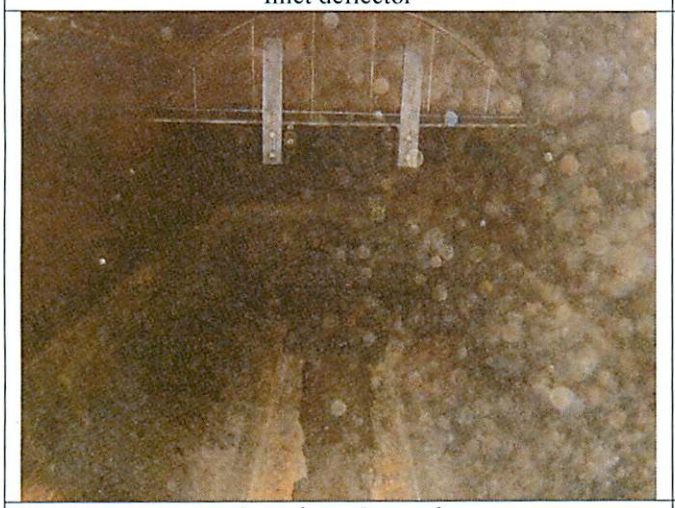


Manway head to shell weld 6:00 position

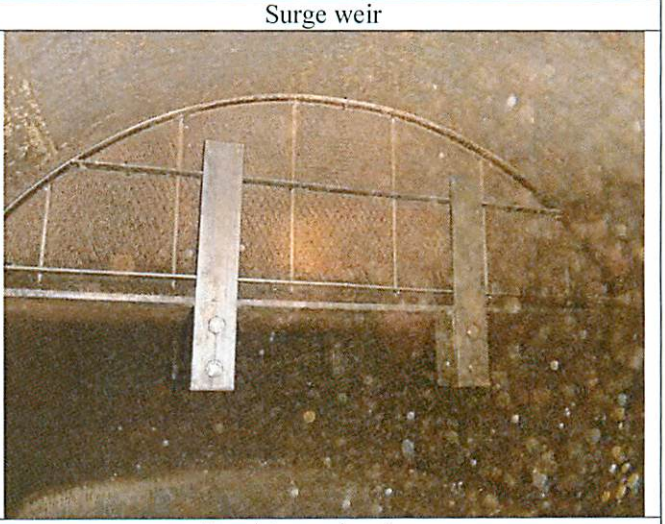
Inlet deflector



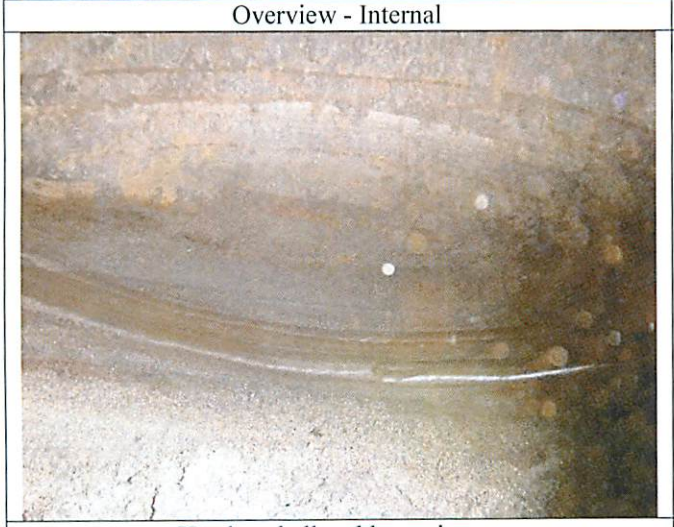
Surge weir



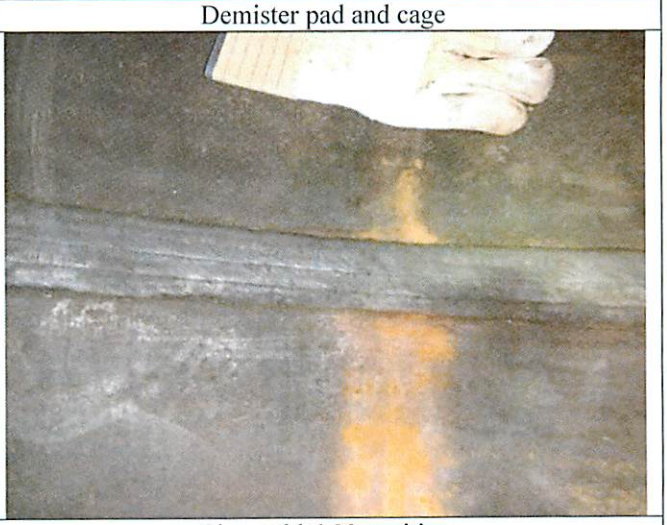
Overview - Internal



Demister pad and cage



Head to shell weld – no issues



Circ weld 6:00 position