

# Pressure Vessel Visual Inspection Report

<b>Equip Id</b>	66160151	<b>SAP ID</b>	66160151	<b>Asset Type</b>	
<b>Plant</b>	Lloydminster Production	<b>Unit</b>	Mannville/Swimming	<b>System</b>	N/A
<b>Description</b>	FWKO,				
<b>FLOC</b>	H1-01-004-00006	<b>LSD</b>	14-18-050-06W4		
<b>Insp Date</b>	Aug 15, 2018	<b>Inspector</b>	Luke Newport	<b>Insp Type</b>	VIExt
<b>Company</b>	Inspector	<b>Confidence</b>	Medium		

## Details

ID	Description	Condition	Location	NCR	Comment
V1	General Other (Please Explain)	Fair			Nameplate in place and legible, Alberta CRN attached.
V7	Heads	N/A			Fully Insulated
V9	Electrical Ground	Fair			The vessel is grounded through the piles.
V13	Gauge/Site Glass	Fair			Both pressure gauges and temperature gauge need replaced.
V14	Shell	N/A			Fully Insulated
V22	Foundation	Fair			Vessel is supported by two saddles which are anchor bolted to a steel I- beam that rests on piles.
V31	Connections Other (Please explain)	Fair			Pipe alignment is acceptable.
V33	Nozzles	N/A			Fully Insulated
V34	Manways	Fair			Acceptable
V41	Insulation Other (Please explain)	Poor			Vessel is insulated with sprayed on urethane foam. The insulation is starting to blister and disbond at some locations. These locations should be removed and repaired to prevent corrosion under insulation from occurring to the shell.
V51	Relief Devices Other (Please explain)	Yes			The PSV protecting the vessel is mounted off the top of the vessel. The PSV was removed from the vessel at the time of inspection and sent to APEX for servicing.

## Summary

Location: Vermilion Battery - 14-18-050-06w4  
Eq# 66160151, Inclined Cold FWKO, Corlac serial #FWK-069, A#411824, CRN L6426.231  
MAWP 100psi @ -20F

See internal inspection summary for external inspection summary and recommendations.

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<b>Plant</b>	Lloydminster Production	<b>Unit</b>	Mannville/Swimming	<b>System</b>	N/A
<b>Description</b>	FWKO,				
<b>FLOC</b>	H1-01-004-00006	<b>LSD</b>	14-18-050-06W4		
<b>Insp Date</b>	Aug 15, 2018	<b>Inspector</b>	Luke Newport	<b>Insp Type</b>	VIInt
<b>Company</b>	Inspector	<b>Confidence</b>	High		

## Details

ID	Description	Condition	Location	NCR	Comment
V7	Heads	Fair			Bottom head and top portion of top head no concerns noted.
V8	Welds	Fair			Acceptable
V9	Nozzles	Fair			Acceptable
V10	Shell	Fair			Acceptable
V11	Gasket Surfaces	Fair			Acceptable
V21	Internals Other (Please explain)	Fair			Desand Piping - Acceptable
V23	Baffle/Wier	Fair			Weirs secure
V25	Thermowells	Fair			Acceptable
V27	Nonmetallic Linings	Fair			Vessel is fully internally coated. A few coating failures were identified on the bottom of the vessel from the manway up to the removable weir from cleaning. These failures were marked out for repair.

## Summary

Location: Vermilion Battery - 14-18-050-06w4  
Eq# 66160151, Inclined Cold FWKO, Corlac serial #FWK-069, A#411824, CRN L6426.231  
MAWP 100psi @ -20F

### Summary:

A visual external and internal inspection was performed to verify the integrity of the FWKO. The FWKO was found to be generally in fair condition although immediate minor coating repairs were required.

### Recommendations:

- coating repairs were required due to damage from cleaning
- the insulation that is blistering and disbonding should be repaired to prevent corrosion under insulation from occurring
- replace both pressure gauges and the temperature gauge
- remove the sand from behind the top weir
- the FWKO will be due for inspection in 5 years 2023. At that time:
  - Complete external and internal visual inspection

cc: Cory Bautz



## 66160151 Equipment Detail

<b>Plant</b>	Lloydminster Production	<b>Unit</b>	Mannville/Swimming	<b>System</b>	N/A
<b>SAP ID</b>	66160151	<b>Equip Id</b>	66160151	<b>Asset Type</b>	Pressure Vessel
<b>Description</b>	FWKO,				
<b>Manuf.</b>	CORLAC INDUSTRIES	<b>Serial #</b>	FWK-069	<b>Year Built</b>	2000
<b>Const Code</b>		<b>Int.Access</b>	Yes	<b>Prov #</b>	411824
<b>Cost Ctr</b>	80025575	<b>FLOC</b>	H1-01-004-00006	<b>LSD</b>	14-18-050-06W4
<b>Time Based</b>	Y	<b>Opt RI Grp</b>	PresVes Grade 2b	<b>CRN</b>	
<b>User Status</b>	ISF	<b>Sys Status</b>	INST	<b>Active</b>	Y

### Equipment Protection

### Inspections

Insp Type	Method	Insp Date	Inspection	Company	Confidence
VIExt		Aug 15, 2018	Luke Newport	Inspector	Medium
VIInt		Aug 15, 2018	Luke Newport	Inspector	High
VIExt		Jul 23, 2014	Ray Trachuk	Husky Energy	
VIInt		Jul 23, 2014	Ray Trachuk	Husky Energy	Low

### Inspection Plan

**Planned By:** Luke Newport

**Planning Date:** Aug 28, 2018

Dmg Mech	Method	Due Date	Freq	SAP Not #	SAP W.O. #	PREP
External Deterioration	VI-Ext	Aug 14, 2023	5			
Internal Corrosion	VI-Int	Aug 14, 2023	5			Visual external, visual internal

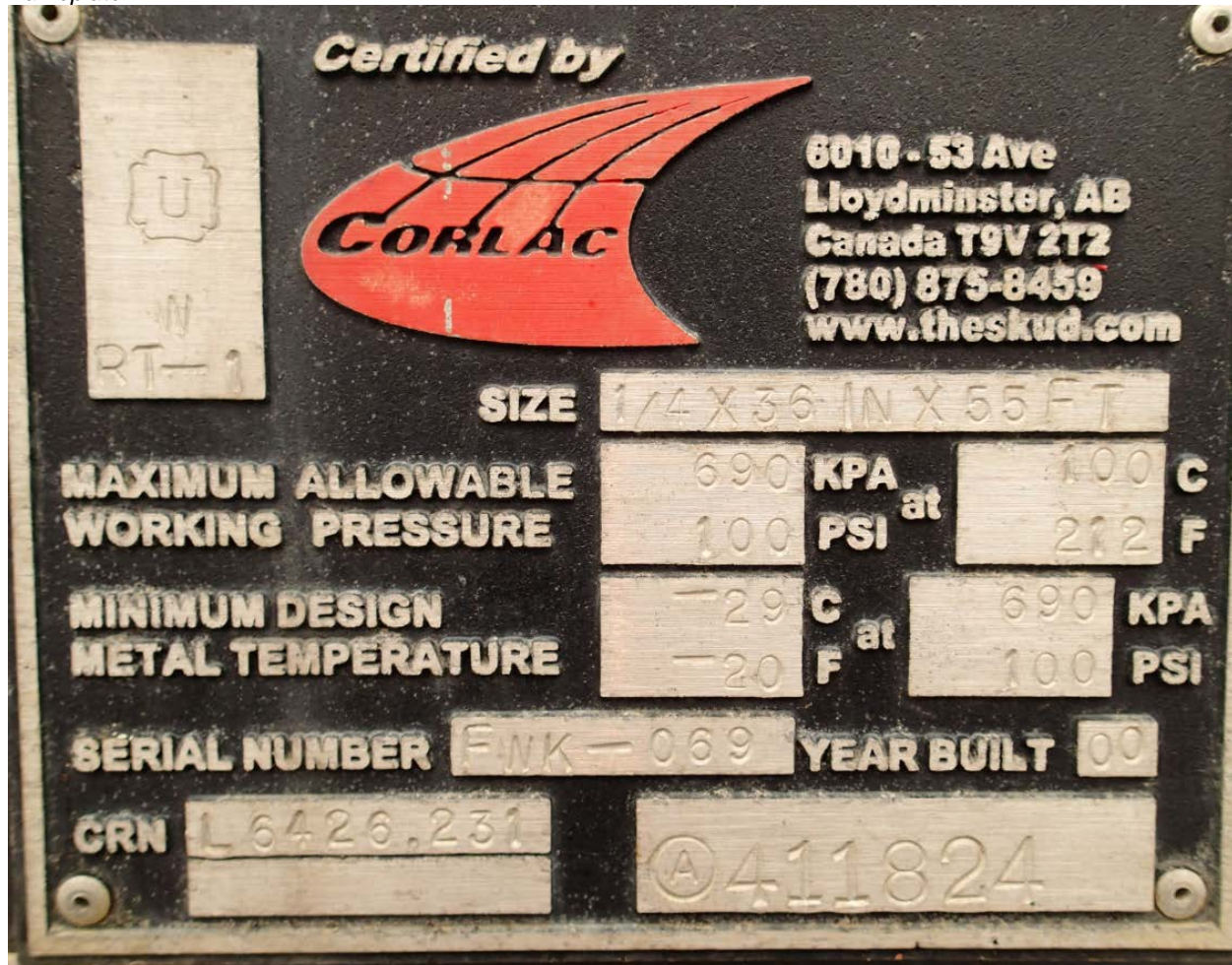
## PHOTOS

### GENERAL

Inspection Date	Aug 15, 2018	Inspected By	Luke Newport	Equipment #	66160151
Plant	HOG	Op Unit	Vermilion	LSD	14-08-050-06w4

### PHOTOS

Nameplate





## PHOTOS

### GENERAL

Inspection Date	Aug 15, 2018	Inspected By	Luke Newport	Equipment #	66160151
Plant	HOG	Op Unit	Vermilion	LSD	14-08-050-06w4

### PHOTOS



General external overview of the vessel.



General external overview of the vessel.



The two pressure gauges and one temperature gauge that need replaced.



One of the locations on the vessel where the insulation is disbonding and blistering.

## PHOTOS

### GENERAL

Inspection Date	Aug 15, 2018	Inspected By	Luke Newport	Equipment #	66160151
Plant	HOG	Op Unit	Vermilion	LSD	14-08-050-06w4

### PHOTOS



*The PSV removed from the vessel.*



*The bottom head of the vessel.*



*At the bottom manway looking towards the middle weir.*



*The desand outlet nozzle at the bottom of the vessel.*

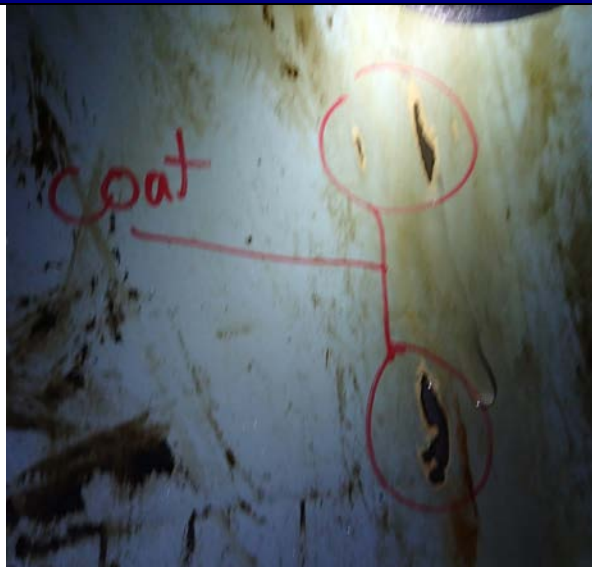


## PHOTOS

### GENERAL

Inspection Date	Aug 15, 2018	Inspected By	Luke Newport	Equipment #	66160151
Plant	HOG	Op Unit	Vermilion	LSD	14-08-050-06w4

### PHOTOS



*One area that requires coating repair in the vessel.*



*At the middle weir looking to the top of the vessel.*






*Some slop that was not removed from the vessel.*



*Inside the desand nozzle in the middle of the vessel.*

## PHOTOS

GENERAL					
Inspection Date	Aug 15, 2018	Inspected By	Luke Newport	Equipment #	66160151
Plant	HOG	Op Unit	Vermilion	LSD	14-08-050-06w4

PHOTOS	
 <p><i>The emulsion inlet into the vessel.</i></p>	 <p><i>The weir at the top of the vessel.</i></p>
 <p>The sand that has accumulated behind the top weir in the vessel.</p>	