

Storage Tank Visual Inspection Report

Equip Id 66121625 **SAP ID** 66121625 **Asset Type** Storage Tank

Plant Lloydminster Production Unit Gully Lake/Standard Hill System N/A

Description TANK, SURGE

FLOC H1-06-003-00001-100001 LSD 03-35-049-22W3

Insp Date Sep 29, 2016 Inspector IRIS - LOGAN SKINNER Insp Type VIExt

Company Confidence Medium

Details

ID	Description	Condition	Location	NCR	Comment
Т6	Ladder/Stairway	Good			
T7	Platform	Good			
T8	Electrical Ground	Good			
T11	Coating/Painting	Good			The tank is painted with no coating defect noted.
T12	Level Gauge	Good			
T13	Bottom	Good			TANK SKIRT IS ON A CEMENT PAD IN GOOD CONDITION.
T14	Secondary Containment	Good			
T15	Shell	Good			
T16	Roof	Good			
T32	Foundation	Yes			TANK SKIRT IS ON A CEMENT PAD IN GOOD CONDITION.
T42	Small Branches	Good			
T43	Nozzles	Good			
T46	Manways/Hatches	Good			
T47	Reinforcing Pads	Good			
T50	Flanges	Good			

Summary

VE, VI & UT INSPECTIONS WERE PERFORMED BY IRIS NDT; REFER TO THE EQUIPMENT FILE IN DM TO VIEW THE DETAILED REPORT.

RECOMMENDATIONS:

- COATING FAILURE AT THE ROOF TO SHELL SEAM, RECOMMEND SCAFFOLDING TO THE ROOF FOR A REPAIR.

INSPECTION INTERVAL ASSIGNED IS BASED ON THE ASSUMPTION THAT RECOMMENDATIONS WERE COMPLETED.

Oct 04,2016 Uncontrolled Copy Page:1 of 1



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Plant Lloydminster Production Unit Gully Lake/Standard Hill System N/A

Description TANK, SURGE

FLOC H1-06-003-00001-100001 LSD 03-35-049-22W3

Insp Date Sep 29, 2016 Inspector IRIS - LOGAN SKINNER Insp Type VIInt

Company Confidence Medium

Details

ID	Description	Condition	Location	NCR	Comment
V6	Deposits	Poor			TAK IS VERY DIRTY LIMITED VISUAL ON THE INTERNAL. Lots of scale built up was noted on the floor, shell and internals.
V7	Welds	Good			
V8	Nozzles	Good			
V9	Shell	Good			
V10	Roof	Good			
T11	Floor	Good			
V25	Thermowells	Good			
V27	Nonmetallic Linings	Poor			The coating is in poor condition at the roof to shell interface and on the manway cover. Scaffolding will be require at the next scheduled inspection.
V28	Internal steam coil or other piping	Good			The desand rings appeared to be in good working condition.
V29	Level gauge	Good			
V30	Other Welded Attachments	Good			
V21	Internals Other (Please explain)	Poor			Some of the test tap stainless steel tubing has been under some excessive stress due to the cone flexing. 2 1" collar were in need of replacement.

Summary

Oct 04,2016 Uncontrolled Copy Page:1 of 2

VE, VI & UT INSPECTIONS WERE PERFORMED BY IRIS NDT; REFER TO THE EQUIPMENT FILE IN DM TO VIEW THE DETAILED REPORT.

RECOMMENDATIONS:

- COATING FAILURE AT THE ROOF TO SHELL SEAM, RECOMMEND SCAFFOLDING TO THE ROOF FOR A REPAIR.

INSPECTION INTERVAL ASSIGNED IS BASED ON THE ASSUMPTION THAT RECOMMENDATIONS WERE COMPLETED.

The corrosion group should review the scale inibitor injection program as significant amount of built up was noted inside the tank

Scafolding should be erected at the next scheduled inspection to repair the failed coating at the roof to shell interface. Some 1" stainless steel flex hose should be installed on the test tap to avoid future leak / failure. See the attached NDE report for the repairs performed during the 2016 inspection.

Oct 04,2016 Uncontrolled Copy Page:2 of 2

Husky Energy

Tank Inspection Report

Locati	on: 3-35-49-27w3			_	Tank Ty	/pe: <u>()</u>	load Tank. Date: Se	pt 2	7-16		10000000
Mfa:	Universal iND.		Year b	olt: 2	2006		S/N: 7305-1 CAP: 15	d co	bl		
Floor	Thk: 250"	Shell T	hk:	. 250	5"		Roof Thk: 188"				
Requis	sitioned by: Posg Scott			Ap	prover:_	Down	Scott Approver Co	de: 27	7-20	211	70
WO #:	60315092 PO#: 84	10108	8009		CC	:	SAP #: 6612	162	15		
	RNAL INSPECTION:						ERNAL INSPECTION:				
ID		Yes	Good	NI/A	See	ID	Item	Vos	Good	NI/A	See
2000	Item	res	Good	IN/A	Notes	10	1241711	168	Good	IN/A	Notes
-	GENERAL					7.4	GENERAL				
	Other (Please Explain)			1		T1	Other (Please Explain)	-		-	
21/20/20	Corrosion		_	1		T2	Corrosion	+		-	
7.40	Leaks			1		T3	Erosion	-	_	1	
31.553	Vibration			1	-	T4	Distortion	-		4	
	Dissimilar Flange Rating	/	/	/		T5	Blisters	-		-	-
	Ladder/Stairway	-	4			T6	Deposits	1		-	2
	Platform	-/	1			T7	Welds	-	1		
	Electrical Ground	1	/	-		T8	Nozzles	-	1		
T9	Cathodic Protection			1		T9	Shell	-	-		
	Painted Inactive Corrosion	/		/		_	Roof	1	-		
	Coating/Painting	/	_			T11	Floor	-	/		
	Level Gauge	_	1				GENERAL			-	
	Bottom		-		3		Other - Firetube	-		-	
	Secondary Containment		-				Other - Anodes	-		-	
	Shell		1		-	_	Annular Ring	-		-	
	Roof	/	. 6				Sump	+			
	Agitator/ Mixer			/			Roof Supports	_		1	
	SUPPORTS						Thermowells	/		_	
T31	Other (Please Explain)					_	Metallic Linings	/		1	Commence of
	Foundation				3		Non Metallic Linings		-		
T33	Anchor Bolts			/		_	Internal Steam Coil / other Piping	1	1		
	Windgirders			/			Level Gauge	1	1		
	CONNECTIONS					-	Other Welded Attachements	/	/		
	Other (Please explain)					Bac	kwelding Req'd			/	
T42	Small Branches		/			77.00	0				
T43	Nozzles		/			ID	Notes				
T44	Pipe Manifolds			//		1	Coating feilure near	He	Reso	f &	am
T45	Swing Lines			/			recommend Scaffoll to	Ha	roof	+	201
	Manways/Hatches	1	1				Repairly the Conting				-
	Reinforcing Pads	/	1								
T48	Inadequate Thread Engagement			1		2	Tank is very dirty	G	miteo	l v	Bul
T49	Bolting		1	1			on the internal			O. 10	
T50	Flanges	/	/						112		
T51	Leak Clamps			/		3	Tank Skirt B on a	- a	ment	Pad.	in
	INSULATION						good Goodstian.	- 11116	S-3 (1)		
T61	Other (Please explain)			1							
T62	Damage			1							
T63	Penetrations			/							
T64	Jacket			/		Ĩ					
T65	Banding			/							
T66	Seals/Joints			1							
	RELIEF DEVICE				fire and						
T7t	Other (Please explain)										
T72	Corrosion										
T73	Leaks										
	Restricted IntelOutlet					-					
	Manual Operation Lever					25	-				

Husky Energy With MFE Without MFE P. U'SIN: 7305-1 140 - .150 5 yr .170 - up 5 yr .130 - .139 4 yr 160 - .169 4 yr Location: 3-35-49-22 W3M .120 - .129 3 yr .150 - .159 3 yr .140 - .149 .110 - .119 2 yr 2 yr .100 - .109 1 yr .130 - .139 1 yr Patch Patch Replace Replace under .100 under .130 Floor Floor 334 316 Shell Shell 335 333 313 375 318 308 307 334 329 319 Dosand Rings 339 316 301 336 346 310 343 319 255 292 328 316 336 321 309 313 321 325 332 219 300 329 nspection Interval Based 1/9 on Assumption that 30 311 Recommendations were Completed 330 Comments: recognized Scaffollh Roof Regarirements AT THE NEW SCHEDULED INSPECTION. C Inspected by: loger Skinner Date: Date: OCT. 4/16 acarce **Husky Inspector:**



NONDESTRUCTIVE INSPECTION REPORT

CA0451-NDT-30

Page 2 of 4



Dirty internals





NONDESTRUCTIVE INSPECTION REPORT

CA0451-NDT-30Page 1 of 4

Type of Inspection: VT / UT

Test Technique: Visual / UT thickness inspection

Equipment: DMS 2, Generator, Grinder

Code: CLIENT SPEC.,

Client:

Location:

Husky Operations

IRISNDT #: LYD16

LYD1601300 Standard Hill Water Disposal

Item Inspected:

1500BBL Tank

Date:

29-Sep-16 60315092

WO #: PO #:

8401088009

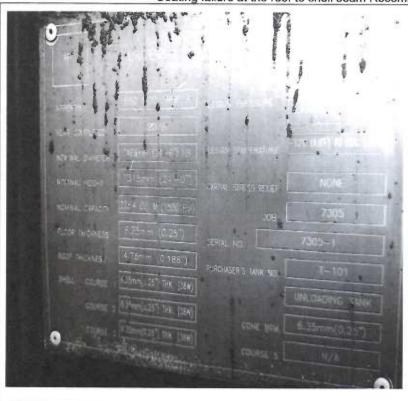
Inspection Results

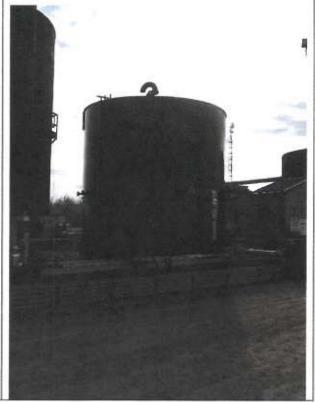
Visual / UT Inspection was carried out on 1 -1500BBL Tank @ 3-35-49-22w3

Unload Tank SN# 7305-1

Recommendations of inspection:

-Coating failure at the roof to shell seam Recommend scaffolding to the roof for a repair.





For additional inspection results see attached inspection sheets.

REQ/ Approver: Doug Scott 2Z-2021170

Unit#: 667	Kilometers: 65	Consumables:	Interpretation by:	
in: 0700 Out:	1000 Hrs: 3.0	MIN	Logan Skinner SNT-TC-1A:	1
In: Out:	Hrs:			UT-1 Level)
Personnel: Logan Skinner Jason Anderson			(Signature) Client Representative: (Print) I am in full agreement with report contents (Sign)	17159

5311 - 86 Street, Edmonton, Alberta T6E 5T8 Phone: (780) 437-2022 fax: (780) 436-4873 Calgary (403) 279-6121 Cold Lake

| Care |

fax: (780) 436-4873 Cold Lake Fort McMurray Red Deer

(780) 826-6105 (780) 743-1536 (403) 347-1742 www.irisndt.com

Engineering, Calgary (40
Engineering, Edmonton (70
Rope Access Services (70
Offices also located in USA and UK

(403) 217-9684 (780) 437-2022 (780) 437-2022

PHOTOS





CONE SECTION AND SCALE BUILT UP





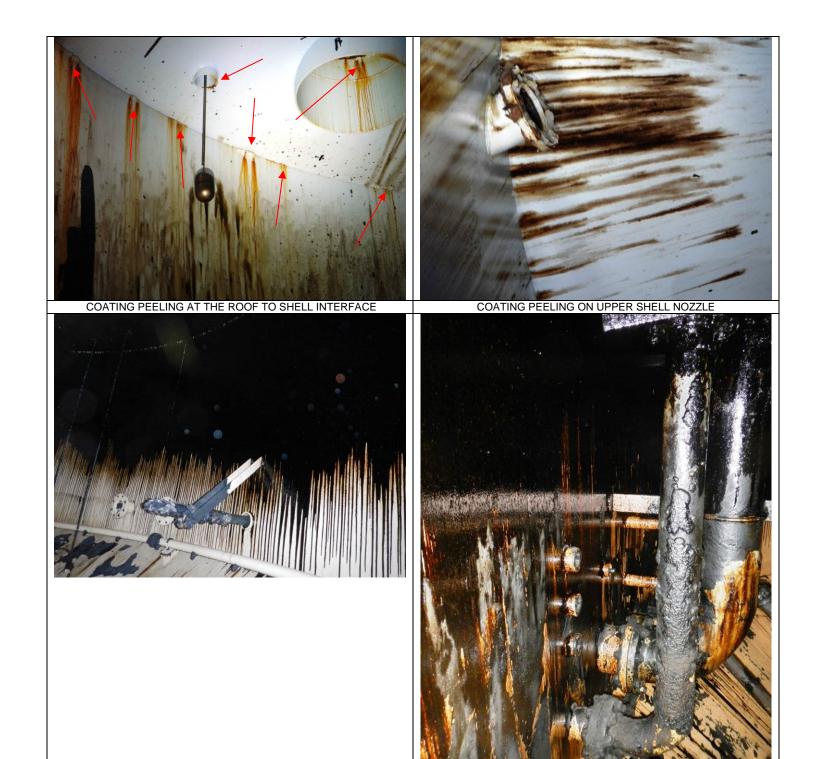
CONE SECTION AND SCALE BUILT UP

OILY RESIDUES AND SCALE BUILT UP ON SHELL



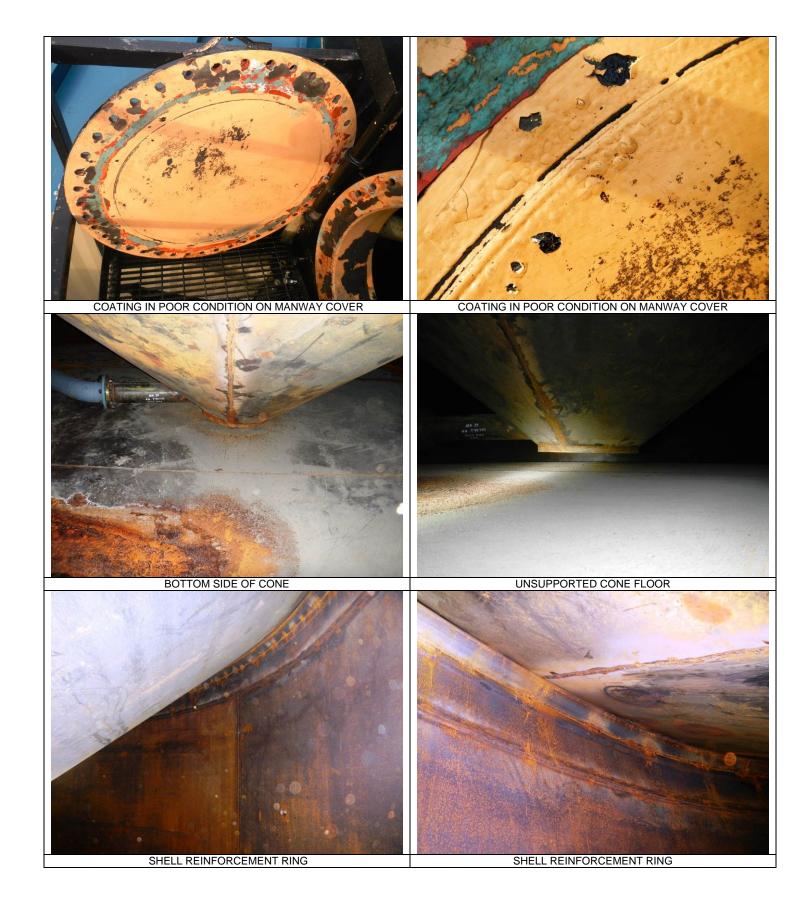


COATING PEELING AT THE ROOF TO SHELL INTERFACE



ANODE

SCALE BUILT UP ON RISERS

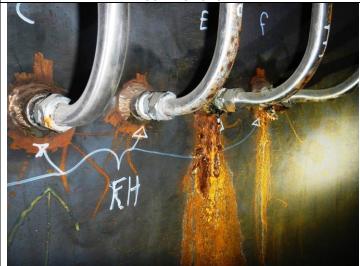




SIGNS OF LEAKAGE FROM THE TEST TAPS THREADED CONNECTIONS



SIGNS OF LEAKAGE FROM THE TEST TAPS THREADED CONNECTIONS



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SIGNS OF LEAKAGE FROM THE TEST TAPS THREADED CONNECTIONS



P.O. Box 25, Kitscoty, AB T0B 2P0

LPI INTERPRETATION REPORT

Invoice #: 66-0674

Technique: PT1

CC#

Report #: LT66-0101-A

Procedure #: Cave PT (Rev. 5)

APPR # 2Z-2021170

W.O. # 60315092

Mnft # UNIVERSAL IND./ YEAR:2006

Serial # 7305-1 / 1500BBL CONE BTM

Job # T-101

Report 1 of 2

Office (780) 846-2435

Fax (780) 846-2281

Dispatch (780) 846-2437

Date: 29-Sep-2016

Client: Husky Energy Inc.

Location:

A3-35-49-22 W3M STANDARD HILL

Code: API 653

NO CRACKING AS PER CLIENTS REQUEST

Specification:

Material Inspected: STAINLESS TO CARBON

Lighting Used: LED FLASHLIGHT

Examination:

Visible: Type II

Lighting Verified: ≥ 100FC / XDS-1000 (1943735)

Method: A / Water Washable

Surface Condition: Clean

Penetrant Family: SREM Technologies

Cleaner: Fluxo 5

Developer: Fluxo R175

Penetrant: Fluxo P125

Weld #	Size	scн	Material	Welder ID	Accept	Reject	Remarks
PT-1	1"	XS	ST	N/A	✓		LOWER "A" COLLAR
PT-2	1"	XS	ST	N/A	✓		UPPER "A" COLLAR
PT-3	1"	XS	ST	N/A	✓		LOWER "B" COLLAR
PT-4	1"	XS	ST	N/A	✓		UPPER "B" COLLAR
PT-5	1"	XS	ST	N/A		✓	LOWER "C" COLLAR / REPLACE DUE TO DAMAGED THREADS
PT-6	1"	XS	ST	N/A	✓		UPPER "C" COLLAR
PT-7	1"	xs	ST	N/A	✓		LOWER "D" COLLAR
PT-8	1"	xs	ST	N/A	✓		UPPER "D" COLLAR
PT-9	1"	XS	ST	N/A		✓	LOWER "E" COLLAR / REPLACE DUE TO DAMAGED THREADS
PT-10	1"	xs	ST	N/A	✓		UPPER "E" COLLAR
PT-11	1"	XS	ST	N/A	✓		LOWER "F" COLLAR
PT-12	1"	xs	ST	N/A	✓		UPPER "F" COLLAR
							-NO CRACKS FOUND AT TIME OF INSPECTION

Assistants: Bradley Andrews

Technician: Terry McCloud

TERRY MCCLOUD CGSB RTII-MTII SNT-TC-1A LEVEL II CBSB# 10787

Company Rep.: REMI LACASSE

Signature:



LPI INTERPRETATION REPORT

Invoice #: 66-0674

Report #: LT66-0101-B

Report 1 of 2

P.O. Box 25, Kitscoty, AB T0B 2P0

Office (780) 846-2435 Fax (780)

Dispatch (780) 846-2437

Fax (780) 846-2281

Procedure #: Cave PT (Rev. 5)

Technique: PT1



TANK NAME PLATE

LOWER COLLARS DURING PROCESSING

UPPER COLLARS DURING PROCESSING



LOWER COLLARS AFTER PROCESSING



UPPER COLLARS AFTER PROCESSING

Assistants: Bradley Andrews

Technician: Terry McCloud

TERRY MCCLOUD CGSB RTII-MTII SNT-TC-1A LEVEL II CBSB# 10787 Company Rep.: REMI LACASSE

Signature:





MPI INTERPRETATION REPORT

Invoice #: 66-0676

Report #: MT66-0416-A

Batch #:

Lighting Used: LED YOKE LIGHT

Lighting Verified: ≥ 100FC / XDS-1000 (1943735)

Report 1 of 2

P.O. Box 25, Kitscoty, /	4B 10B 2P0	

Method of Application: Aerosol

Puffer

Procedure #: MT (Rev.10 Office (780) 846-2435 Fax (780) 846-2281 Dispatch (780) 846-2437 Technique: MT2 Date: 30-Sep-2016 Job# Client: Husky Energy Inc. CC# A3-35-49-22 W3M STANDARD HILL **APPR #** 2Z-202117 Location: W.O. # 60315092 Mnft # UNIVERSAL IND. / YEAR:2006 Code: API 653 NO CRACKING AS PER CLIENT REQUEST Serial # 7305-1 / CONE BOTTOM Surface Condition: Clean Power Source: AC Magnetizing Current: Continuous Yoke Model: SENTINEL MP-A-2L Yoke Calibration: 10 lb - Verified Prior to Use Yoke S/N: MP 3366 Yoke Calibration Block: SN:17048 LOT#506 Types of Particles: 2A Red Dry **Medium Manufacturer:** ✓ Visible Black / White FLUXO 4 WHITE CONTRAST PAINT Batch #: L151002001 Visible Fluorescent FLUXO 3 BLACK PARTICLE Batch #: L150424001

Weld #	Size	SCH	Material	Welder ID	Accept	Reject	Remarks
MTR-1	1"	0.250"	cs	CN	✓	T T	SURFACE PREP AREA FOR LOWER "C" COLLAR - INSIDE & OUTSIDE
MTR-2	1"	0.250"	cs	CN	✓		SURFACE PREP AREA FOR LOWER "E" COLLAR - INSIDE & OUTSIDE TANK
							-NO INDICATIONS AT TME OF INSPECTION
						l	

е Норе

Technician: Terry McCloud Company Rep.: REMI LACASSE

> TERRY MCCLOUD CGSB RTII-MTII SNT-TC-1A LEVEL II CBSB# 10787

Signature:





MPI INTERPRETATION REPORT

Invoice #: 66-0676

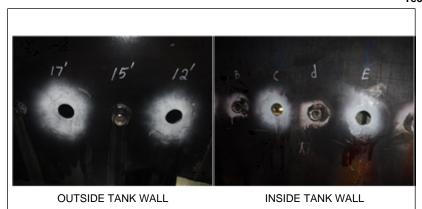
Report #: MT66-0416-B

Report 1 of 2

P.O. Box 25, Kitscoty, AB T0B 2P0

Office (780) 846-2435 Dispatch (780) 846-2437 Fax (780) 846-2281

Procedure #: MT (Rev.10 Technique: MT2



Assistants: Kyle Hope

Technician: Terry McCloud

TERRY MCCLOUD CGSB RTII-MTII SNT-TC-1A LEVEL II CBSB# 10787

CBSB# 1078

Signature:

M

Company Rep.: REMI LACASSE



LPI INTERPRETATION REPORT

Invoice #: 66-0676

Job#

CC#

APPR # 2Z-202117

W.O. # 60315092

Mnft # UNIVERSAL IND. / YEAR:2006

Serial # 7305-1 / CONE BOTTOM

Report #	LT66-0102-A

Report 2 of 2

P.0	O. Box 25	, Kitsco	ty, AB	T0B	2P0
				_	

Office (780) 846-2435 Dispatch (780) 846-2437 Fax (780) 846-2281

Procedure #:	Cave PT (Rev. 5)
Technique:	PT1

Date: 30-Sep-2016

Client: Husky Energy Inc.

Location: A3-35-49-22 W3M STANDARD HILL

0 - 1 - ADL 050

Code: API 653

NO CRACKING AS PER CLIENT REQUEST

Specification:

Material Inspected: STAINLESS TO CARBON Surface Condition: Clean

Lighting Used: LED FLASHLIGHT **Lighting Verified:** ≥ 100FC / XDS-1000 (1943735)

Examination: Visible: Type II Method: A / Water Washable

Penetrant Family: SREM Technologies

Cleaner: Fluxo 5 Penetrant: Fluxo P125

Developer: Fluxo R175

Weld #	Size	SCH	Material	Welder ID	Accept	Reject	Remarks
PTR-1	1"	3M	ST	CN	✓		LOWER "C" COLLAR - INSIDE & OUTSIDE TANK
PTR-2	1"	ЗМ	ST	CN	✓		LOWER "E" COLLAR - INSIDE & OUTSIDE TANK
							-NO INDICATIONS AT TIME OF INSPECTION

Assistants: Kyle Hope

Technician: Terry McCloud Company Rep.: REMI LACASSE

TERRY MCCLOUD CGSB RTII-MTII SNT-TC-1A LEVEL II CBSB# 10787

Signature:



P.O. Box 25, Kitscoty, AB T0B 2P0

LPI INTERPRETATION REPORT

Invoice #: 66-0676

Report #: LT66-0102-B

Report 2 of 2

Office (780) 846-2435 Dispatch (780) 846-2437

Fax (780) 846-2281

Procedure #: Cave PT (Rev. 5)
Technique: PT1







DURING PROCESSING INSIDE

AFTER PROCESSING INSIDE

AFTER PROCESSING OUTSIDE

Assistants: Kyle Hope

Technician: Terry McCloud

TERRY MCCLOUD CGSB RTII-MTII SNT-TC-1A LEVEL II CBSB# 10787 Company Rep.: REMI LACASSE

Signature:

Signature:

010



66121625 Equipment Detail

Plant Lloydminster Production Unit Gully Lake/Standard Hill System N/A

SAP ID 66121625 Equip Id 66121625 Asset Type Storage Tank

Description TANK, SURGE

Manuf. UNIVERSAL INDUSTRIES Serial # 7305-1 Year Built 2006

Const Code Int.Access Yes Prov # [No Value Defined]

Cost Ctr FLOC H1-06-003-00001- LSD 03-35-049-22W3

100001

Time Based Y Opt RI Grp AST Cat 1b CRN

User Status ISF Sys Status INST Active Y

Equipment Protection

Inspections

Insp Type	Method	Insp Date	Inspection	Company	Confidence
VIInt		Sep 29, 2016	IRIS - LOGAN SKINNER		Medium
VIExt		Sep 29, 2016	IRIS - LOGAN SKINNER		Medium
VIInt		Sep 30, 2011	IRIS NDT		Medium
VIExt		Sep 30, 2011	IRIS NDT		Medium

Inspection Plan

Planned By: Remi Lacasse Planning Date: Oct 04, 2016

Dmg Mech	Method	Due Date	Freq	SAP Not #	SAP W.O. #	PREP
External Deterioration	VI-Ext	Sep 28, 2021	5			
Internal Corrosion	UT	Sep 28, 2021	5			
Internal Corrosion	VI-Int	Sep 28, 2021	5			VE, VI & UT are to be performed during this inspection, see your area inspector for more details. Scaffolding will be require to repair the failed coating at the roof to shell interface.