



<input type="checkbox"/> Installation <input checked="" type="checkbox"/> External <input checked="" type="checkbox"/> Internal													
Date:	MAY 26, 2014					Description:	<input checked="" type="checkbox"/> Vessel <input type="checkbox"/> Exchanger <input type="checkbox"/> Furnace <input type="checkbox"/> Boiler						
Inspector:	CURTIS SINCLAIR					Unit #:	N/A			Equip #: N/A			
Agent Co:	STREAMLINE INSPECTION					Equip. Name:	INLET SEPARATOR						
Owner:	Canadian Natural Resources Ltd.					Jurisdiction #:	A0433615			CRN #: N7408.2			
Region:	GRANDE PRAIRIE					Manufacturer:	OPSCO INDUSTRIES LTD.						
Area:	KNOPCIK					Year Built:	1997			S/N: V-2699A			
Facility:	COMPRESSOR STATION					Location/LSD:	11-28-74-10W6						
Service	<input type="checkbox"/> Sweet <input checked="" type="checkbox"/> Sour <input type="checkbox"/> Other:					PSV Location	SHELL			MDMT		-20 F	
Zones:	MAWP	Design T	Set P	TAG#	Manufacturer	S/N	In. Sz	Out. Sz	Serv. Co.	Serv. Date	IV	CSO	Capacity
Shell Side	1435 PSI	130 F	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tube Side													
Other													
Components	Material	Nominal t	CA	Retire t	Lowest t	t OK?	Calc. t-min		Comment				
	Shell	N/A	2.5"	0.125"		<input type="checkbox"/> Y <input type="checkbox"/> N			RT-1				
	Head	N/A	2.424"	0.125"		<input type="checkbox"/> Y <input type="checkbox"/> N			HEAT TREATED				
	Channel	N/A	N/A			<input type="checkbox"/> Y <input type="checkbox"/> N			48" OD x " S/S				
	Tube	N/A	N/A			<input type="checkbox"/> Y <input type="checkbox"/> N			N/A				
Other	N/A	N/A			<input type="checkbox"/> Y <input type="checkbox"/> N			Specify: N/A					
Orientation	<input checked="" type="checkbox"/> Hor. <input type="checkbox"/> Ver.		Foundation	<input type="checkbox"/> Concrete <input type="checkbox"/> Gravel <input type="checkbox"/> Timbers <input checked="" type="checkbox"/> Steel <input type="checkbox"/> Other:					Condition INTACT				
Support	<input checked="" type="checkbox"/> Saddle		<input checked="" type="checkbox"/> Seal-welded		<input type="checkbox"/> Free to Move			Condition INTACT; SECURED IN PLACE					
	<input type="checkbox"/> Skirt		<input type="checkbox"/> Free of debris Comment: N/A					Condition N/A					
	<input type="checkbox"/> Hangers		<input type="checkbox"/> Secure Comment: N/A					Condition N/A					
	<input type="checkbox"/> Other		Specify: N/A					Condition N/A					
Overall	General Condition NO DEFORMATION OR CORROSION							Electrical grounding <input checked="" type="checkbox"/> Direct <input type="checkbox"/> Indirect <input type="checkbox"/> None					
Ext. Surface	<input checked="" type="checkbox"/> Painted <input type="checkbox"/> Insulated <input type="checkbox"/> Fire-proofed <input type="checkbox"/> Cladded <input type="checkbox"/> Other: GREY							Condition NO DAMAGE					
Ext. Fixtures	<input type="checkbox"/> Ladder <input type="checkbox"/> Platform(s) <input type="checkbox"/> Other: N/A					Condition N/A							
Nozzles	<input checked="" type="checkbox"/> Manway <input type="checkbox"/> Port		Size: 22"			<input checked="" type="checkbox"/> Reinforcement Pads used		<input checked="" type="checkbox"/> Weep Holes Present					
Davit Arm	<input checked="" type="checkbox"/> Present <input checked="" type="checkbox"/> Greased <input checked="" type="checkbox"/> Double nutted Condition IN GOOD CONDITION												
Piping	<input type="checkbox"/> PSV	<input type="checkbox"/> Supported	<input type="checkbox"/> Joined per code	<input type="checkbox"/> Drains Properly	<input type="checkbox"/> Well Coated	Comment REMOVED FOR SERVICE							
	<input checked="" type="checkbox"/> Inlet	<input checked="" type="checkbox"/> Supported	<input checked="" type="checkbox"/> Joined per code	<input checked="" type="checkbox"/> Free from leaks	<input checked="" type="checkbox"/> Well Coated	Comment PROPERLY FASTENED							
	<input checked="" type="checkbox"/> Outlet	<input checked="" type="checkbox"/> Supported	<input checked="" type="checkbox"/> Joined per code	<input checked="" type="checkbox"/> Free from leaks	<input checked="" type="checkbox"/> Well Coated	Comment PROPERLY FASTENED							
	<input checked="" type="checkbox"/> Drain	<input checked="" type="checkbox"/> Supported	<input checked="" type="checkbox"/> Joined per code	<input checked="" type="checkbox"/> Free from leaks	<input checked="" type="checkbox"/> Well Coated	Comment PROPERLY FASTENED							
	<input checked="" type="checkbox"/> Instrumentation		<input checked="" type="checkbox"/> Supported	<input checked="" type="checkbox"/> Joined per code	<input checked="" type="checkbox"/> Free from leaks/kinks	Comment PROPERLY FASTENED							
<input checked="" type="checkbox"/> Process Fluid Identified		<input checked="" type="checkbox"/> Flow direction marked			Comment ADEQUATELY MARKED								
Valves	<input checked="" type="checkbox"/> Manual Valves			<input checked="" type="checkbox"/> Free from leaks		Comment IN GOOD CONDITION							
	<input checked="" type="checkbox"/> Automated Control Valve			<input checked="" type="checkbox"/> Free from leaks		Comment 2 - 1" & 1 - 4" FISHER VALVES; IN GOOD CONDITION							
	<input checked="" type="checkbox"/> Vents and Drain plugged			Comment MANUAL ISOLATION VALVE									
Gauges	<input checked="" type="checkbox"/> Pressure		Reading: 0 PSI		Condition CLEAN, CLEAR AND VISIBLE								
	<input checked="" type="checkbox"/> Temperature		Reading: 12 C		Condition CLEAN, CLEAR AND VISIBLE								
Sight Glass	<input checked="" type="checkbox"/> Fluid Level		Reading: 0 inches		Condition CLEAN, CLEAR AND VISIBLE								
Inspection Summary	SEPARATOR IS IN GOOD EXTERNAL CONDITION. PSV WAS REMOVED AND OUT FOR SERVICE AT THE TIME OF THE INSPECTION. AN INTERNAL VISUAL INSPECTION, UT SURVEY AND MPI ON ALL INTERNAL ACCESSIBLE NOZZLE WELDS WERE COMPLETED ON THE SEPARATOR IN MAY 2014. THE INTERNAL INSPECTION FOUND ONE BOOT 2" NOZZLE BACK WELD WITH SIGNIFICANT DEFECTS, REFER TO THE ATTACHED INTERNAL INSPECTION REPORT.												
Recommended Actions:										NCR/IDR			
1) REPAIR 2" NOZZLE BACKWELD										N/A			
2) REVIEW PSV SERVICE SHEET AND/OR GET FIELD CONFIRMATION PRIOR TO THE PSV BEING RE-INSTALLED, TO ENSURE THAT THE PSV IS SET AT THE PROPER PRESSURE TO PROTECT THE VESSEL.													
<b>VESSEL STATUS</b>													
Integrity Status	Suitable for Continued Service <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Immediate Repairs Required <input type="checkbox"/> Future Repairs Required <input type="checkbox"/> Replace												
Inventory Status	<input checked="" type="checkbox"/> In Service <input type="checkbox"/> Out of Service <input type="checkbox"/> Surplus <input type="checkbox"/> Scrap <input type="checkbox"/> Action Items Completed												

Additional Notes on continuation page:  (Report \_\_\_\_\_)

Inspection Interval: \_\_\_\_\_ yrs OR Changed to: \_\_\_\_\_ yrs.

Signature of In-Service Inspector: \_\_\_\_\_

IPV/IBPV Certificate #: 541


PSV Interval: \_\_\_\_\_ yrs OR Changed to: \_\_\_\_\_ yrs.



<b>Date:</b>	MAY 24, 2014	<b>Description:</b>	<input checked="" type="checkbox"/> Vessel <input type="checkbox"/> Exchanger <input type="checkbox"/> Furnace <input type="checkbox"/> Boiler		
<b>Inspector:</b>	CURTIS SINCLAIR	<b>Unit #:</b>	N/A	<b>Equip #:</b>	N/A
<b>Agent Co:</b>	STREAMLINE INSPECTION	<b>Equip. Name:</b>	INLET SEPARATOR		
<b>Owner:</b>	Canadia Natural Resources Ltd	<b>Jurisdiction #:</b>	A0433615	<b>CRN #:</b>	N7408.2
<b>Region:</b>	GRANDE PRAIRIE	<b>Manufacturer:</b>	OPSCO INDUSTRIES LTD.		
<b>Area:</b>	KNOPCIK	<b>Year Built:</b>	1997	<b>S/N:</b>	V-2699A
<b>Facility:</b>	COMPRESSOR STATION	<b>Location/LSD:</b>	11-28-74-10W6		
<b>Scope:</b>	A visual internal (VI) inspection was performed on all accessible shell and head surfaces, nozzles, welds, etc.				
<b>Access:</b>	<input checked="" type="checkbox"/> Manway <input type="checkbox"/> Hand-hole <input type="checkbox"/> Inspection Nozzle				
<b>Opening</b>	Gasket Surfaces:	<input checked="" type="checkbox"/> Compliant with code	Comment NO WEAR OR CORROSION PRESENT		
	Nozzle Tube:	<input checked="" type="checkbox"/> No pitting, erosion, etc.	Comment NONE		
<b>Shell and Head Surfaces</b>	Uniform Corrosion:	<input checked="" type="checkbox"/> Insignificant amount	Comment NONE		
	Pitting Corrosion:	<input checked="" type="checkbox"/> None noted	Comment NONE		
	Erosion:	<input checked="" type="checkbox"/> None noted	Comment NONE		
	Mechanical Damage:	<input checked="" type="checkbox"/> None noted	Comment NONE		
<b>Welds</b>	Uniform Corrosion:	<input checked="" type="checkbox"/> Insignificant amount	Comment NONE		
	Pitting Corrosion:	<input checked="" type="checkbox"/> None noted	Comment NONE		
	Welding Defects:	<input checked="" type="checkbox"/> None noted	Comment SEE COMMENTS BELOW		
	<input checked="" type="checkbox"/> NDT was performed by: STREAMLINE INSPECTION		Extent: ALL ACCESSIBLE INTERNAL NOZZLE TO SHELL WELDS		
	Type: <input checked="" type="checkbox"/> MPI ( <input checked="" type="checkbox"/> WF <input type="checkbox"/> B&W <input type="checkbox"/> Dry) <input type="checkbox"/> LPI <input type="checkbox"/> UT <input type="checkbox"/> RT <input type="checkbox"/> Other: N/A				
Results: NO INDICATIONS FOUND PRESENT ON THE ACCESSIBLE NOZZLE TO SHELL WELDS INSPECTED. REFER TO STREAMLINE INSPECTION REPORT A0433615_STREAMLINE INSPECTION MT INSP_MAY2014.					
<b>Nozzles</b>	Obstructions:	<input checked="" type="checkbox"/> None noted	Comment NONE		
	Corrosion:	<input checked="" type="checkbox"/> None noted	Comment NONE		
	Erosion:	<input checked="" type="checkbox"/> None noted	Comment NONE		
<b>Attachments</b>	<input checked="" type="checkbox"/> Vortex breaker	<input checked="" type="checkbox"/> Secure <input checked="" type="checkbox"/> Good Condition	Comment NO DAMAGE OR CORROSION PRESENT ON THEM		
	<input checked="" type="checkbox"/> Impingement plate	<input checked="" type="checkbox"/> Secure <input checked="" type="checkbox"/> Good Condition	Comment NO WEAR OR CORROSION PRESENT ON IT		
	<input type="checkbox"/> Suction tube	<input type="checkbox"/> Secure <input type="checkbox"/> Good Condition	Comment N/A		
	<input checked="" type="checkbox"/> Demister	<input checked="" type="checkbox"/> Secure <input checked="" type="checkbox"/> Good Condition	Comment DEMISTER PAD IS CLEAN		
	<input checked="" type="checkbox"/> Other:	<input checked="" type="checkbox"/> Secure <input checked="" type="checkbox"/> Good Condition	Comment BAFFLE PLATE IS IN GOOD CONDITION		
<b>Inspection Summary</b>	<p>2" NOZZLE TO BOOT BACKWELD FOUND WITH GLOBULAR WELDING, INCOMPLETE FUSION. INCOMPLETE WELDMENT AND MIG WELDING WIRE ATTACHED TO THE WELDMENT. THIS IS A MANUFACTURING DEFECT AND IS A HIGH RISK FOR FAILURE.</p> <p>WET FLUORESCENT MAGNETIC PARTICLE TESTING COMPLETED ON ALL OF THE OTHER ACCESSIBLE SHELL TO NOZZLE WELDS, FOUND NO RELEVANT INDICATIONS. NO MECHANICAL DAMAGE, CORROSION OR EROSION PRESENT ON THE SHELL AND HEADS. INTERNAL ATTACHMENTS ARE IN GOOD CONDITION. THE MANWAY FLANGE FACE AND GASKET SURFACE IN GOOD CONDITION.</p>				
<b>Recommended Actions:</b>				<b>NCR/IDR</b>	
REPAIR 2" NOZZLE TO BOOT BACKWELD					
<b>VESSEL STATUS</b>					
Integrity Status	Suitable for Continued Service <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Immediate Repairs Required <input type="checkbox"/> Future Repairs Required <input type="checkbox"/> Replace				
Inventory Status	<input checked="" type="checkbox"/> In Service <input type="checkbox"/> Out of Service <input type="checkbox"/> Surplus <input type="checkbox"/> Scrap <input type="checkbox"/> Action Items Completed				

Additional Notes on continuation page:  (Report C \_\_\_\_\_)

Inspection Interval: \_\_\_\_\_ yrs OR Changed to: \_\_\_\_\_ yrs.

Signature of In-Service Inspector: 

PSV Interval: \_\_\_\_\_ yrs OR Changed to: \_\_\_\_\_ yrs.

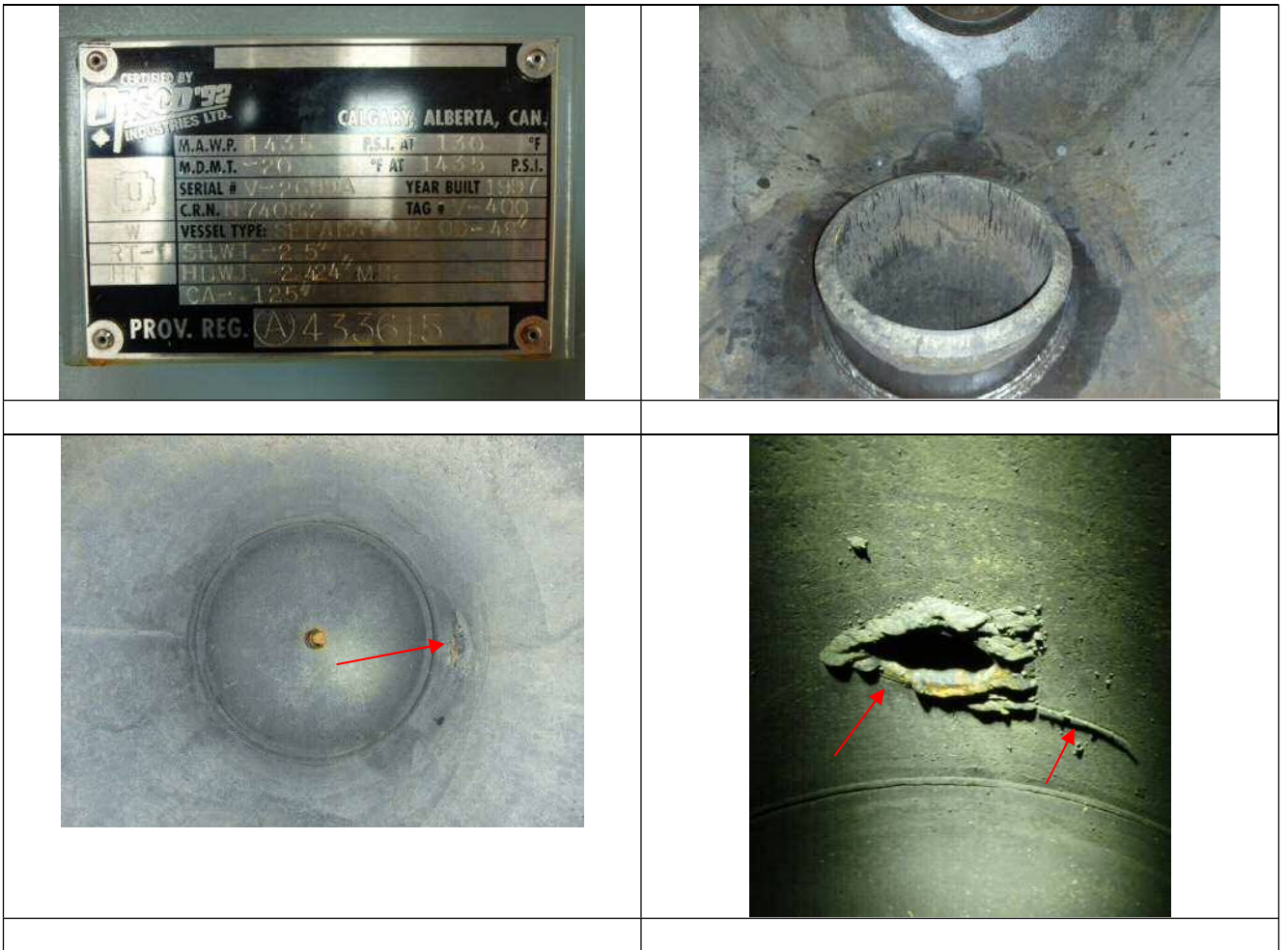
IPV/IBPV Certificate #: 00541



Installation  External  Internal

<b>Date:</b>	MAY 24, 2014	<b>Description:</b>	<input checked="" type="checkbox"/> Vessel <input type="checkbox"/> Exchanger <input type="checkbox"/> Furnace <input type="checkbox"/> Boiler		
<b>Inspector:</b>	CURTIS SINCLAIR	<b>Unit #:</b>	N/A	<b>Equip #:</b>	N/A
<b>Agent Co:</b>	STREAMLINE INSPECTION	<b>Equip. Name:</b>	INLET SEPARATOR		
<b>Owner:</b>	Canadian Natural Resources Ltd.	<b>Jurisdiction #:</b>	A0433615	<b>CRN #:</b>	N7408.2
<b>Region:</b>	GRANDE PRAIRIE	<b>Manufacturer:</b>	OPSCO INDUSTRIES LTD.		
<b>Area:</b>	KNOPCIK	<b>Year Built:</b>	1997	<b>S/N:</b>	V-2699A
<b>Facility:</b>	COMPRESSOR STATION	<b>Location/LSD:</b>	11-28-74-10W6		

**Notes:**



This vessel is Fit for Service:  Yes  No

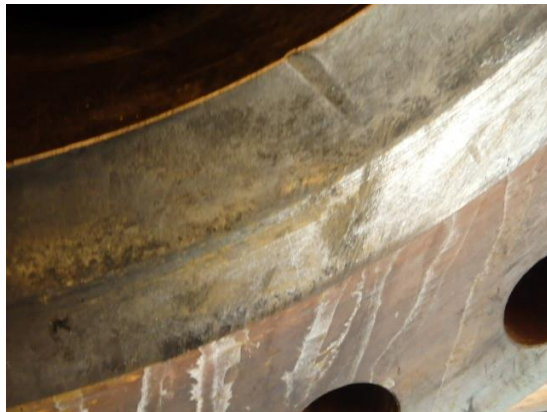
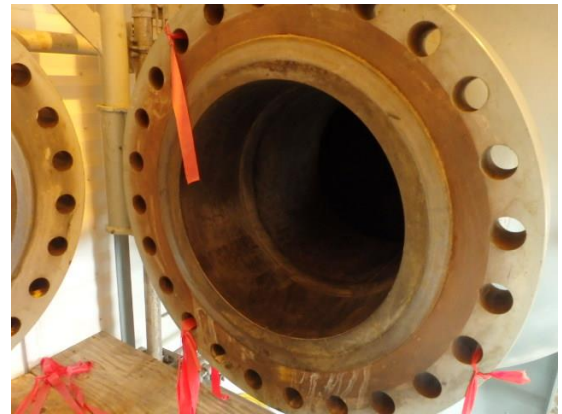
**Insp. Summary**

Recommended Actions:	NCR/IDR

Additional Notes on continuation page:   
(Total Added Pages \_\_\_\_\_)  
IPV/IBPV Certificate #: 00541

Signature of In-Service Inspector:

INSPECTION PHOTOGRAPHS



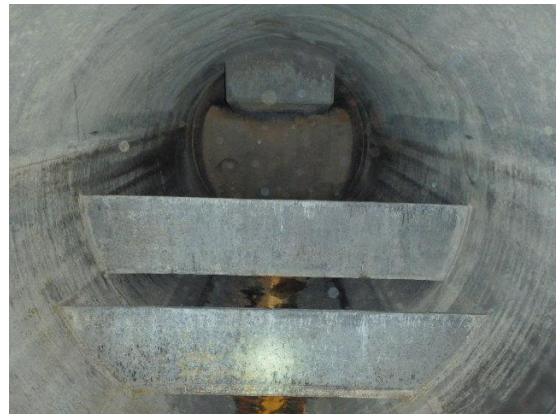
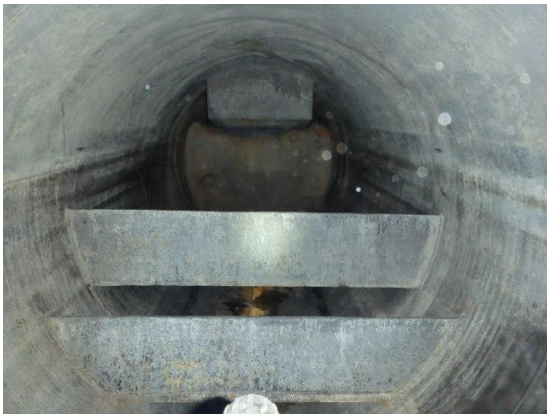
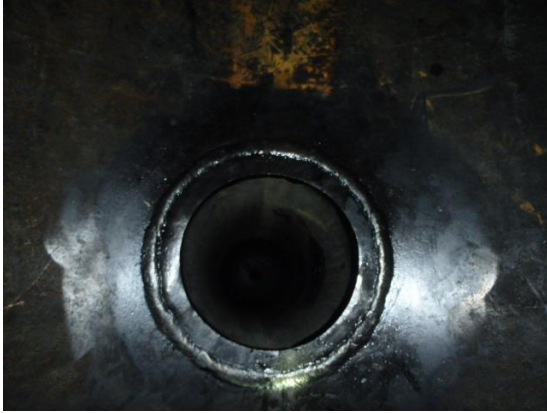
INSPECTION PHOTOGRAPHS



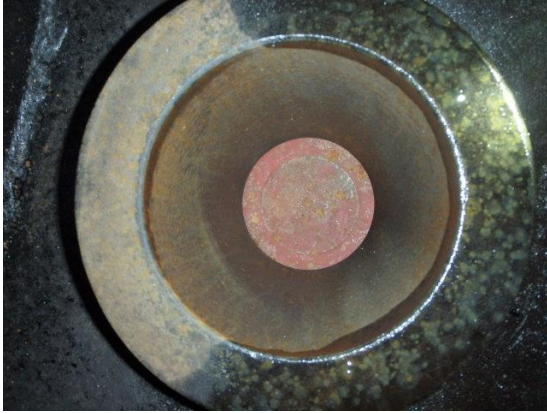
INSPECTION PHOTOGRAPHS



INSPECTION PHOTOGRAPHS



INSPECTION PHOTOGRAPHS



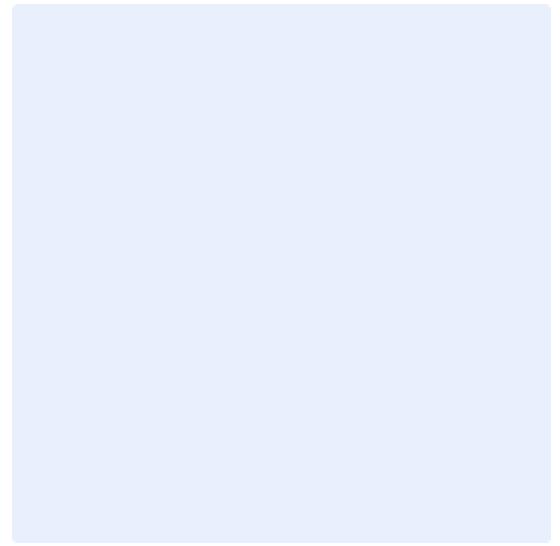
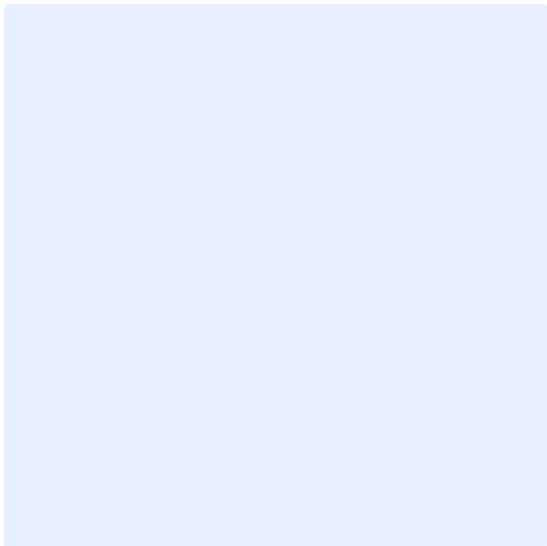
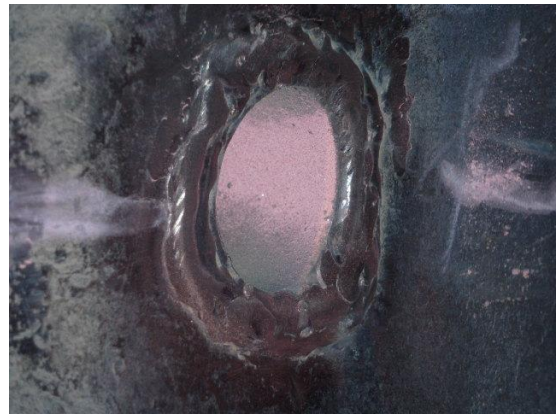
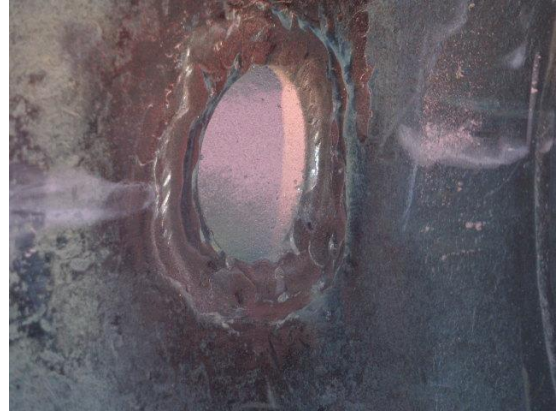




INSPECTION PHOTOGRAPHS



INSPECTION PHOTOGRAPHS





# Canadian Natural

Location Name:	KNOPCIK	LSD:	11-28-074-10W6M
A#:	A0433615	Equipment/Tag No.	N/A
Equipment Description:	INLET SEPARATOR	Serial Number:	V-2699A
		CRN: (or other ID#)	N7408.2
MAWP:	1435 PSI	Design Temp:	130°F
Shell Material:	SA-516-70N	Head Material:	SA-516-70N
Shell Thickness:	2.5"	Head Thickness:	2.424"
Corrosion Allowance:	0.125"	Date Built:	1997
Size:	48"	Manufacturer:	OPSCO
RT:	1	Pipe or Plate:	PLATE

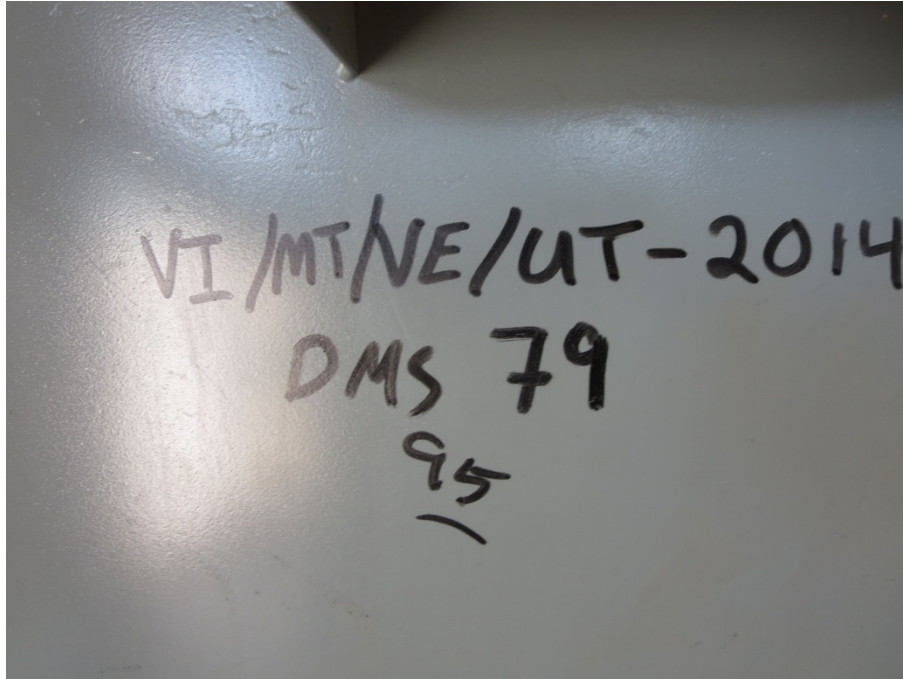
Notes:







Canadian Natural





# Ultrasonic Corrosion Survey

Survey Name: Canadian Natural

Date: Jul 16, 2014

Inspector: D. Skeard

<b>LSD:</b> 1-28-074-10W6M	<b>Area:</b> Knopcik	<b>Location:</b>
<b>A #:</b> A0433615	<b>Tag Number:</b>	<b>Vessel Name:</b> Inlet Separator
<b>CRN:</b> N7408.2	<b>Year Built:</b> 1997	<b>Serial Number:</b> V-2699A
	<b>Vessel CA:</b> 0.125 inches	<b>Manufacturer:</b> Opsco
	<b>Shell MAWP:</b> 1435psi	<b>Tube MAWP:</b> MAWTF:
	<b>MAWTF:</b> 130°F	

<b>TML Description</b>	Baseline	<b>Material:</b> SA-516-70N
<b>00</b> Head	<b>2014</b>	<b>Flag</b> <b>CA</b> <b>Nominal</b> <b>T Min</b> <b>Corr. Rate</b>
<b>Shape:</b> Ellipsoidal	<b>Min</b> 2.465	2.299 0.125 2.424
<b>OD:</b> 48"	<b>Avg</b> 2.500	<b>Remaining Life:</b>
<b>Spec:</b> ASME VIII Div.1	<b>Comments:</b>	<b>Retirement Date:</b>

<b>TML Description</b>	Baseline	<b>Material:</b> SA-516-70N
<b>05</b> Shell	<b>2014</b>	<b>Flag</b> <b>CA</b> <b>Nominal</b> <b>T Min</b> <b>Corr. Rate</b>
<b>Shape:</b> Cylindrical	<b>Min</b> 2.538	2.375 0.125 2.500
<b>OD:</b> 48"	<b>Avg</b> 2.542	<b>Remaining Life:</b>
<b>Spec:</b> ASME VIII Div.1	<b>Comments:</b>	<b>Retirement Date:</b>

<b>TML Description</b>	Baseline	<b>Material:</b> SA-516-70N
<b>10</b> Shell	<b>2014</b>	<b>Flag</b> <b>CA</b> <b>Nominal</b> <b>T Min</b> <b>Corr. Rate</b>
<b>Shape:</b> Cylindrical	<b>Min</b> 2.535	2.375 0.125 2.500
<b>OD:</b> 48"	<b>Avg</b> 2.540	<b>Remaining Life:</b>
<b>Spec:</b> ASME VIII Div.1	<b>Comments:</b>	<b>Retirement Date:</b>

<b>TML Description</b>	Baseline	<b>Material:</b> SA-516-70N
<b>15</b> Shell	<b>2014</b>	<b>Flag</b> <b>CA</b> <b>Nominal</b> <b>T Min</b> <b>Corr. Rate</b>
<b>Shape:</b> Cylindrical	<b>Min</b> 2.543	2.375 0.125 2.500
<b>OD:</b> 48"	<b>Avg</b> 2.547	<b>Remaining Life:</b>
<b>Spec:</b> ASME VIII Div.1	<b>Comments:</b>	<b>Retirement Date:</b>



# Ultrasonic Corrosion Survey

Survey Name: Canadian Natural

Date: Jul 16, 2014

Inspector: D. Skeard

<b>LSD:</b> 1-28-074-10W6M	<b>Area:</b> Knopcik	<b>Location:</b>
<b>A #:</b> A0433615	<b>Tag Number:</b>	<b>Vessel Name:</b> Inlet Separator
<b>CRN:</b> N7408.2	<b>Year Built:</b> 1997	<b>Serial Number:</b> V-2699A
	<b>Vessel CA:</b> 0.125 inches	<b>Manufacturer:</b> Opsco
	<b>Shell MAWP:</b> 1435psi	<b>Tube MAWP:</b> MAWTF:
	<b>MAWTF:</b> 130°F	

<b>TML Description</b>	Baseline	<b>Material:</b> SA-516-70N
<b>20</b> Shell	<b>2014</b>	<b>Corr. Rate</b>
<b>Shape:</b> Cylindrical	<b>Min</b> 2.536	<b>Flag</b> 2.375
<b>OD:</b> 48"	<b>Avg</b> 2.538	<b>CA</b> 0.125
<b>Spec:</b> ASME VIII Div.1	<b>Comments:</b>	<b>Nominal</b> 2.500
		<b>T Min</b>
		<b>Remaining Life:</b>
		<b>Retirement Date:</b>

<b>TML Description</b>	Baseline	<b>Material:</b> SA-516-70N
<b>25</b> Shell	<b>2014</b>	<b>Corr. Rate</b>
<b>Shape:</b> Cylindrical	<b>Min</b> 2.507	<b>Flag</b> 2.375
<b>OD:</b> 48"	<b>Avg</b> 2.510	<b>CA</b> 0.125
<b>Spec:</b> ASME VIII Div.1	<b>Comments:</b>	<b>Nominal</b> 2.500
		<b>T Min</b>
		<b>Remaining Life:</b>
		<b>Retirement Date:</b>

<b>TML Description</b>	Baseline	<b>Material:</b> SA-516-70N
<b>30</b> Head	<b>2014</b>	<b>Corr. Rate</b>
<b>Shape:</b> Ellipsoidal	<b>Min</b> 2.445	<b>Flag</b> 2.299
<b>OD:</b> 48"	<b>Avg</b> 2.456	<b>CA</b> 0.125
<b>Spec:</b> ASME VIII Div.1	<b>Comments:</b>	<b>Nominal</b> 2.424
		<b>T Min</b>
		<b>Remaining Life:</b>
		<b>Retirement Date:</b>

<b>TML Description</b>	Baseline	<b>Material:</b> SA-516-70N
<b>35</b> Shell	<b>2014</b>	<b>Corr. Rate</b>
<b>Shape:</b> Cylindrical	<b>Min</b> 2.519	<b>Flag</b> 2.375
<b>OD:</b> 48"	<b>Avg</b> 2.531	<b>CA</b> 0.125
<b>Spec:</b> ASME VIII Div.1	<b>Comments:</b>	<b>Nominal</b> 2.500
		<b>T Min</b>
		<b>Remaining Life:</b>
		<b>Retirement Date:</b>





# Ultrasonic Corrosion Survey

Survey Name: Canadian Natural

Date: Jul 16, 2014

Inspector: D. Skeard

<b>LSD:</b> 1-28-074-10W6M	<b>Area:</b> Knopcik	<b>Location:</b>
<b>A #:</b> A0433615	<b>Tag Number:</b>	<b>Vessel Name:</b> Inlet Separator
<b>CRN:</b> N7408.2	<b>Year Built:</b> 1997	<b>Serial Number:</b> V-2699A
	<b>Vessel CA:</b> 0.125 inches	<b>Manufacturer:</b> Opsco
	<b>Shell MAWP:</b> 1435psi	<b>Tube MAWP:</b> MAWTF: 130°F

<b>TML Description</b>	Baseline	<b>Material:</b> A-234-WPB
<b>40</b> Shell	<b>2014</b>	<b>Corr. Rate</b>
<b>Shape:</b> Gas Boot	<b>Min</b> 1.487	<b>Flag</b> 1.313
<b>OD:</b> 20"	<b>Avg</b> 1.504	<b>CA</b> 0.188
<b>Spec:</b> ASME B31.3	<b>Comments:</b>	<b>Nominal</b> 1.500
		<b>T Min</b> Assumed
		<b>Remaining Life:</b>
		<b>Retirement Date:</b>

<b>TML Description</b>	Baseline	<b>Material:</b> A-234-WPB
<b>45</b> Head	<b>2014</b>	<b>Corr. Rate</b>
<b>Shape:</b> Gas Boot	<b>Min</b> 1.452	<b>Flag</b> 1.313
<b>OD:</b> 20"	<b>Avg</b> 1.457	<b>CA</b> 0.188
<b>Spec:</b> ASME B31.3	<b>Comments:</b>	<b>Nominal</b> 1.500
		<b>T Min</b> Assumed
		<b>Remaining Life:</b>
		<b>Retirement Date:</b>

<b>TML Description</b>	Baseline	<b>Material:</b> A-234-WPB
<b>50</b> Shell	<b>2014</b>	<b>Corr. Rate</b>
<b>Shape:</b> Gas Boot	<b>Min</b> 1.284	<b>Flag</b> 1.148
<b>OD:</b> 12.75"	<b>Avg</b> 1.336	<b>CA</b> 0.164
<b>Spec:</b> ASME B31.3	<b>Comments:</b>	<b>Nominal</b> 1.312
		<b>T Min</b> Assumed
		<b>Remaining Life:</b>
		<b>Retirement Date:</b>

<b>TML Description</b>	Baseline	<b>Material:</b> A-234-WPB
<b>55</b> Head	<b>2014</b>	<b>Corr. Rate</b>
<b>Shape:</b> Gas Boot	<b>Min</b> 1.169	<b>Flag</b> 1.148
<b>OD:</b> 12.75"	<b>Avg</b> 1.188	<b>CA</b> 0.164
<b>Spec:</b> ASME B31.3	<b>Comments:</b>	<b>Nominal</b> 1.312
		<b>T Min</b> Assumed
		<b>Remaining Life:</b>
		<b>Retirement Date:</b>



# Ultrasonic Corrosion Survey

Survey Name: Canadian Natural

Date: Jul 16, 2014

Inspector: D. Skeard

<b>LSD:</b> 1-28-074-10W6M	<b>Area:</b> Knopcik	<b>Location:</b>
<b>A #:</b> A0433615	<b>Tag Number:</b>	<b>Vessel Name:</b> Inlet Separator
<b>CRN:</b> N7408.2	<b>Year Built:</b> 1997	<b>Serial Number:</b> V-2699A
	<b>Vessel CA:</b> 0.125 inches	<b>Manufacturer:</b> Opsco
	<b>Shell MAWP:</b> 1435psi	<b>Tube MAWP:</b> MAWTF: 130°F

<b>TML Description</b>	Baseline	<b>Material:</b> A-234-WPB
<b>60</b> Nozzle	<b>2014</b>	<b>Flag</b> <b>CA</b> <b>Nominal</b> <b>T Min</b> <b>Corr. Rate</b>
<b>Shape:</b> 90° Elbow	<b>Min</b> 0.328	0.300 0.043 0.343
<b>OD:</b> 2.375"	<b>Avg</b> 0.342	Assumed <b>Remaining Life:</b>
<b>Spec:</b> ASME VIII Div.1	<b>Comments:</b>	<b>Retirement Date:</b>

<b>TML Description</b>	Baseline	<b>Material:</b> A-234-WPB
<b>65</b> Piping	<b>2014</b>	<b>Flag</b> <b>CA</b> <b>Nominal</b> <b>T Min</b> <b>Corr. Rate</b>
<b>Shape:</b> 90° Elbow	<b>Min</b> 0.334	0.300 0.043 0.343
<b>OD:</b> 2.375"	<b>Avg</b> 0.343	Assumed <b>Remaining Life:</b>
<b>Spec:</b> ASME B31.3	<b>Comments:</b>	<b>Retirement Date:</b>

<b>TML Description</b>	Baseline	<b>Material:</b> A-234-WPB
<b>70</b> Nozzle	<b>2014</b>	<b>Flag</b> <b>CA</b> <b>Nominal</b> <b>T Min</b> <b>Corr. Rate</b>
<b>Shape:</b> 90° Elbow	<b>Min</b> 0.321	0.300 0.043 0.343
<b>OD:</b> 2.375"	<b>Avg</b> 0.335	Assumed <b>Remaining Life:</b>
<b>Spec:</b> ASME B31.3	<b>Comments:</b>	<b>Retirement Date:</b>

<b>TML Description</b>	Baseline	<b>Material:</b> A-234-WPB
<b>75</b> Piping	<b>2014</b>	<b>Flag</b> <b>CA</b> <b>Nominal</b> <b>T Min</b> <b>Corr. Rate</b>
<b>Shape:</b> 90° Elbow	<b>Min</b> 0.312	0.300 0.043 0.343
<b>OD:</b> 2.375"	<b>Avg</b> 0.330	Assumed <b>Remaining Life:</b>
<b>Spec:</b> ASME B31.3	<b>Comments:</b>	<b>Retirement Date:</b>



# Ultrasonic Corrosion Survey

Survey Name: Canadian Natural

Date: Jul 16, 2014

Inspector: D. Skeard

<b>LSD:</b> 1-28-074-10W6M	<b>Area:</b> Knopcik	<b>Location:</b>
<b>A #:</b> A0433615	<b>Tag Number:</b>	<b>Vessel Name:</b> Inlet Separator
<b>CRN:</b> N7408.2	<b>Year Built:</b> 1997	<b>Serial Number:</b> V-2699A
	<b>Vessel CA:</b> 0.125 inches	<b>Manufacturer:</b> Opsco
	<b>Shell MAWP:</b> 1435psi	<b>Tube MAWP:</b> MAWTF:
	<b>MAWTF:</b> 130°F	

<b>TML Description</b>	Baseline	<b>Material:</b> A-234-WPB
<b>80</b> Piping	<b>2014</b>	<b>Flag</b> <b>CA</b> <b>Nominal</b> <b>T Min</b> <b>Corr. Rate</b>
<b>Shape:</b> 90° Elbow	<b>Min</b> 0.329	0.300 0.043 0.343
<b>OD:</b> 2.375"	<b>Avg</b> 0.338	Assumed <b>Remaining Life:</b>
<b>Spec:</b> ASME B31.3	<b>Comments:</b>	<b>Retirement Date:</b>

<b>TML Description</b>	Baseline	<b>Material:</b> A-234-WPB
<b>85</b> Piping	<b>2014</b>	<b>Flag</b> <b>CA</b> <b>Nominal</b> <b>T Min</b> <b>Corr. Rate</b>
<b>Shape:</b> 90° Elbow	<b>Min</b> 0.405	0.378 0.054 0.432
<b>OD:</b> 6.625"	<b>Avg</b> 0.416	Assumed <b>Remaining Life:</b>
<b>Spec:</b> ASME B31.3	<b>Comments:</b>	<b>Retirement Date:</b>

<b>TML Description</b>	Baseline	<b>Material:</b> A-234-WPB
<b>90</b> Piping	<b>2014</b>	<b>Flag</b> <b>CA</b> <b>Nominal</b> <b>T Min</b> <b>Corr. Rate</b>
<b>Shape:</b> 90° Elbow	<b>Min</b> 0.362	0.295 0.042 0.337
<b>OD:</b> 4.5"	<b>Avg</b> 0.370	Assumed <b>Remaining Life:</b>
<b>Spec:</b> ASME B31.3	<b>Comments:</b>	<b>Retirement Date:</b>

<b>TML Description</b>	Baseline	<b>Material:</b> A-234-WPB
<b>95</b> Piping	<b>2014</b>	<b>Flag</b> <b>CA</b> <b>Nominal</b> <b>T Min</b> <b>Corr. Rate</b>
<b>Shape:</b> 90° Elbow	<b>Min</b> 0.366	0.295 0.042 0.337
<b>OD:</b> 4.5"	<b>Avg</b> 0.372	Assumed <b>Remaining Life:</b>
<b>Spec:</b> ASME B31.3	<b>Comments:</b>	<b>Retirement Date:</b>

FORM U-1A MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS  
(Alternative Form for Single Chamber, Completely Shop Fabricated - Vessel Only)  
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

(A) 433615

1. Manufactured and certified by Opsco'92 Industries Ltd. 2601 Centre Avenue East, Calgary, Alberta, T2P 2L1  
(Name and address of manufacturer)

2. Manufactured for SUNCOR INC. RESOURCES GROUP, 112-4TH AVE. SW, CALGARY, AB.  
(Name and address of purchaser)

3. Location of installation LSD:11-28-74-10 W6M  
(Name and address)

4. Type HOR., SEPARATOR V-2699A N7408.2 V-97-2699-1512 R.2 N/A 1997  
(Horizontal or vert. tank) (Mfg's serial No.) (CRN) (Drawing No.) (Std Bld No) (Year)

5. The chemical and physical properties of all parts meet the requirements of material specification of the ASME BOILER AND PRESSURE VESSEL CODE. The design, construction, and workmanship conform to ASME Rules, Section VIII, Division 1 1995  
(Year)

to 1995 N/A N/A  
Addenda (date) Code Case Nos. Special service per UG-120(d)

6. Shell: SA-516-70N 2.5" .125" 3'-7" 18'-0"  
(Mat'l (Spec. No., Grade) Nominal Thk. (in.) Corr. Allow. (in.) Diameter I.D. (ft. & in.) Length (overall) (ft. & in.)

7. Seams: TYPE 1 FULL 100% 1150 F 2.25 HRS TYPE 1 FULL 2  
Long (Weld Dbl. Singl., Lap, Butt) R.T. (Spot or Full) Eff. (%) H.T. Temp (F) Time (hr) Girth (Welded Dbl., Singl., Lap, Butt) R.T. (Spot, Partial or Full) No. of Courses

8. Heads: (a) Mat'l SA-516-70N (b) Mat'l SA-516-70N  
(Spec. No. Grade) (Spec. No. Grade)

	Location (Top Bottom, Ends)	Minimum Thickness	Corrosion Allowance	Crown Radius	Knuckle Radius	Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pres (Conc/Conv)
(a)	TOP	2.424"	.125			2:1				CONC
(b)	BTM	2.424"	.125			2:1				CONC

if removable, bolts used (describe other fasteners)

9. MAWP: 1435 psi at max. temp 130 F °F  
Min. Des. Met. Temp. -20 F °F at 1435 psi Hydro. pres. or comb. test pressure 2153 psi  
(Material Specification No. Gr., Size, No.)

10. Nozzles, inspection and safety valve openings:

Purpose (Inlet, Outlet, Drain)	No.	Dim. or Size	Type	Mat.	Nom. Thk.	Reinforcement Material	How Attached	Location
MANWAY	1	20"	600#-RFLWN	SA-516-70N	1.5"	SA-516-70N	WELDED	
HC BOOT	1	20"	SMLS PIPE	SA-516-70N	1.5"	SA-516-70N	WELDED	
WATER BOOT	1	12"	SMLS PIPE	SA-516-70N	1.312"	SA-516-70N	WELDED	
N/OUT	2	6"	600#-RFLWN	SA-105N	1.38"	INTEGRAL	WELDED	
LSHH	1	3"	600#-RFLWN	SA-105N	.810"	INTEGRAL	WELDED	
SP/LT/LG/WD	7	2"	600#-RFLWN	SA-106B	.343"	INTEGRAL	WELDED	
PSV	1	1.5"	600#-RFLWN	SA-333-6	.400"	INTEGRAL	WELDED	
TI/PI	2	.75"	600#-RFLWN	SA-105N	.570"	INTEGRAL	WELDED	

11. Supports: Skirt NO Lugs YES Legs YES Other Attache EITHER END & WELDED  
(Yes/no) (No.) (No.) (Describe) (Where and how)

12. Remarks: Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following the report:

Impact Testing: YES-IN ACCORDANCE WITH UG-84 TO -20°F Radiography per: UW-11a  
Tag No.: V-400 Volume: 7.17 CU.M  
CRN DN: V-97-2699-1512 R.P/Q  
(Name of part, item number, Mfg's name and identifying stamp)

**CERTIFICATE OF SHOP COMPLIANCE**  
We certify that the statements made in this report are correct and that all details of design, material, construction and workmanship of this vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1, "U" Certificate of Authorization No. 21356 expires July 21, 1998  
Date July 25, 1997 Co. Name Opsco'92 Industries Ltd. Signed [Signature]  
(Manufacturer) (Representative)

**CERTIFICATE OF SHOP INSPECTION**  
Vessel constructed by Opsco'92 Industries Ltd. at CALGARY, ALBERTA, CANADA  
I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and / or the State or Province of ALBERTA and employed by ABSA, Alberta Boilers Safety Association  
have inspected the component described in the Manufacturer's Data Report on 25 JULY 1997, and state that, to the best of my knowledge and belief, the Manufacturer has constructed this pressure vessel in accordance with ASME code, Section VIII, Division 1. By signing this certificate neither the inspector nor his employer makes any warranty, expressed, or implied, concerning the pressure vessel described in the Manufacturer's Data Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.  
Date 27.07.95 Signed [Signature] Commissions ALBERTA #B5  
(Authorized Inspector) (Nat'l Bldg/Incl. endorsements), State, Prov. and No.)