



Canadian Natural

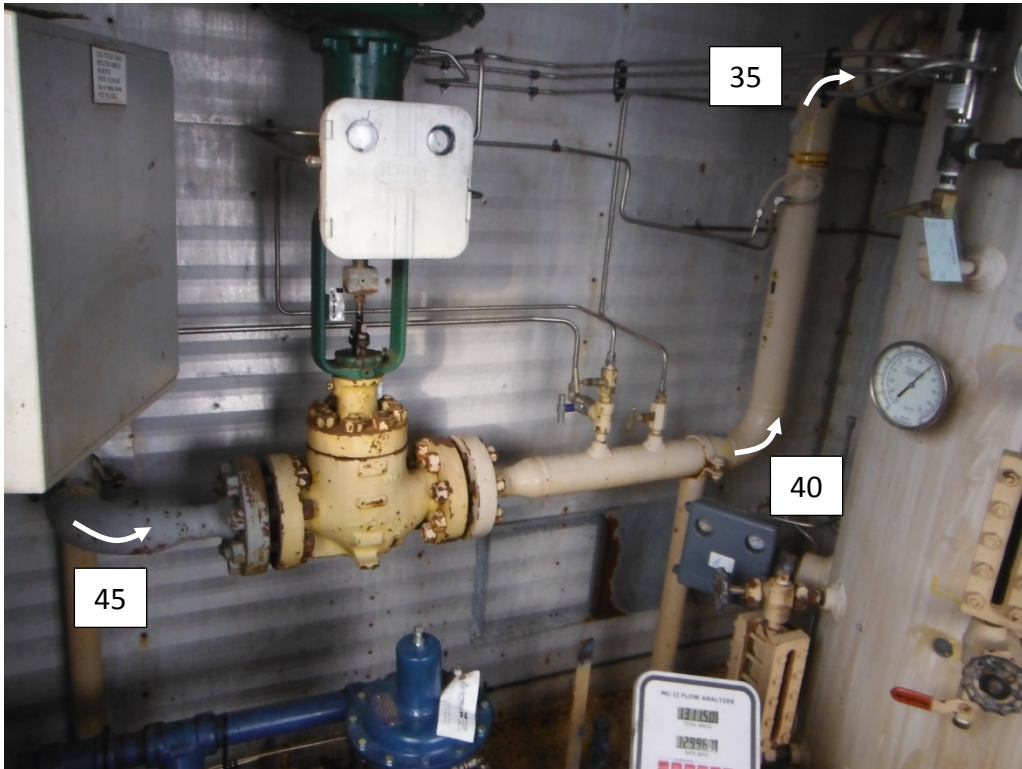
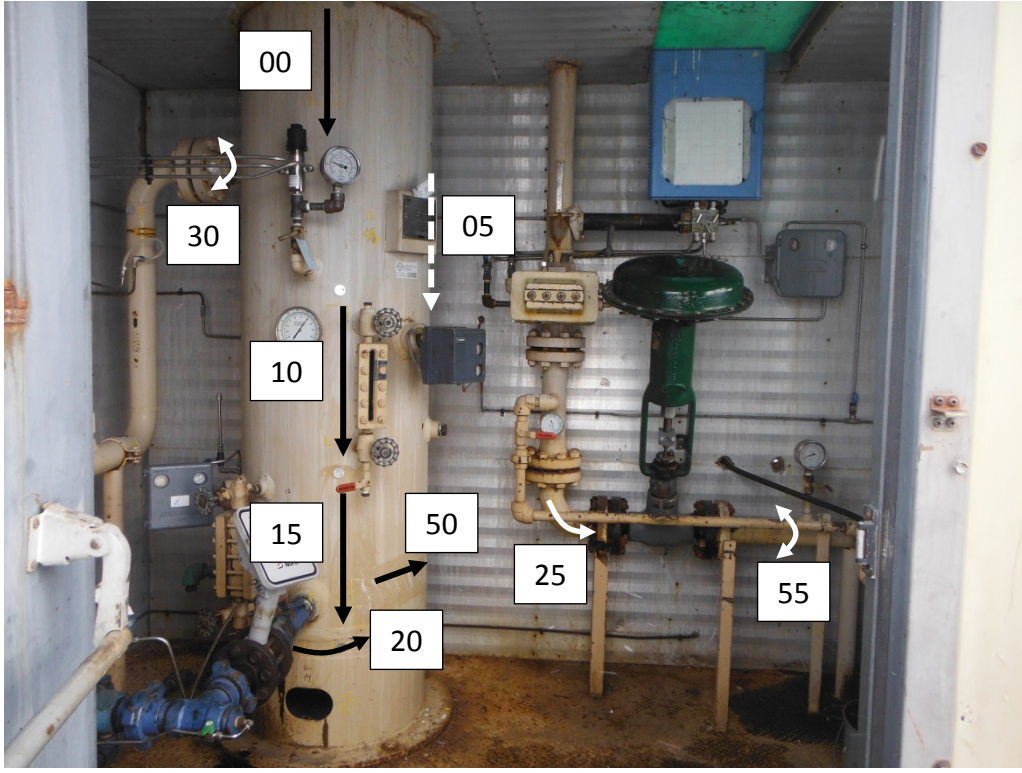
Location Name:	Stanmore	LSD:	08-13-030-12W4
A#:	A2705118	Equipment/Tag No.	
Equipment Description:	Separator	Serial Number:	FV.24.10.1768.2
	RT-2	CRN: (or other ID#)	K1307.2
MAWP:	1000 psi	Design Temp:	100°F
Shell Material:	SA-516-70N	Head Material:	SA-516-70N
Shell Thickness:	0.748"	Head Thickness:	0.728"
Corrosion Allowance:	0.063"	Date Built:	1991
Size:	24"	Manufacturer:	Opsco Industries Ltd

- Notes:
- * No access to roof due to insulation
 - * TML 20: General Corrosion
 - * TML 25: Corrosion Found; Dia: 3.5", Nom: 0.216", Low: 0.142", Avg: 0.220"
 - * TML 15 & 50: Corrosion Found





Canadian Natural





ULTRASONIC CORROSION SURVEY

Survey Name: Canadian Natural Date: March 7, 2013

Inspector: C. Graham

LSD:	08-13-030-12W4	A Number:	A2705118	Manufacturer:	Opsco Industries Ltd	
Area:	Stanmore	Vessel Name:	Separator	Serial Number:	FV.24.10.1768.2	
Location:	Battery	Year Built:	1991	Shell MAWP PSI:	1000 psi	MAWTF: 100°F
		Tag Number:		Tube MAWP PSI:		MAWTF:
		CRN:	K1307.2	Vessel CA:	0.063"	

TML Description:	Baseline	Material:	SA-516-70N
00-Shell	2013	Flag	CA
Shape-Cylindrical	Min. 0.768	0.685	0.063
OD 24"	Avg. 0.771		Nominal 0.748
Spec. ASME VIII Div 1	Comments:		

TML Description:	Baseline	Material:	SA-516-70N
05-Shell	2013	Flag	CA
Shape-Cylindrical	Min. 0.765	0.685	0.063
OD 24"	Avg. 0.767		Nominal 0.748
Spec. ASME VIII Div 1	Comments:		

TML Description:	Baseline	Material:	SA-516-70N
10-Shell	2013	Flag	CA
Shape-Cylindrical	Min. 0.769	0.685	0.063
OD 24"	Avg. 0.771		Nominal 0.748
Spec. ASME VIII Div 1	Comments:		

TML Description:	Baseline	Material:	SA-516-70N				
15-Shell	2013	Flag	CA	Nominal	T Min	Corr. Rate	
Shape-Cylindrical	Min. 0.646	0.685	0.063	0.748	0.670	4.6	Remaining Life: -5.22 Years
OD 24"	Avg. 0.776						Retirement Date: 12/18/2007
Spec. ASME VIII Div 1	Comments: Corrosion Found						



ULTRASONIC CORROSION SURVEY

Survey Name: Canadian Natural Date: March 7, 2013

Inspector: C. Graham

LSD:	08-13-030-12W4	A Number:	A2705118	Manufacturer:	Opsco Industries Ltd	
Area:	Stanmore	Vessel Name:	Separator	Serial Number:	FV.24.10.1768.2	
Location:	Battery	Year Built:	1991	Shell MAWP PSI:	1000 psi	MAWTF: 100°F
		Tag Number:		Tube MAWP PSI:		MAWTF:
		CRN:	K1307.2	Vessel CA:	0.063"	

TML Description:	Baseline					Material:	SA-516-70N
20-Head	2013	Flag	CA	Nominal	T Min	Corr. Rate	
Shape-Ellipsoidal	Min. 0.592	0.665	0.063	0.728	0.652	6.13	Remaining Life: -9.84 Years
OD 24"	Avg. 0.657						Retirement Date: 5/6/2003
Spec. ASME VIII Div 1	Comments: General Corrosion Found						

TML Description:	Baseline					Material:	A-234-WPB
25-Piping	2013	Flag	CA	Nominal	T Min	Corr. Rate	
Shape-90° Elbow	Min. 0.142	0.189	0.027	0.216 Assumed	0.100	3.34	Remaining Life: 12.73 Years
OD 3.5"	Avg. 0.220						Retirement Date: 11/27/2025
Spec. ASME B31.3	Comments: Corrosion Found						

TML Description:	Baseline					Material:	A-234-WPB
30-Piping	2013	Flag	CA	Nominal			
Shape-360° Circ	Min. 0.571	0.525	0.075	0.600 Assumed			
OD 3.5"	Avg. 0.599						
Spec. ASME B31.3	Comments:						

TML Description:	Baseline					Material:	A-234-WPB
35-Piping	2013	Flag	CA	Nominal			
Shape-90° Elbow	Min. 0.198	0.189	0.027	0.216			
OD 3.5"	Avg. 0.225						
Spec. ASME B31.3	Comments:						



ULTRASONIC CORROSION SURVEY

Survey Name: Canadian Natural Date: March 7, 2013

Inspector: C. Graham

LSD:	08-13-030-12W4	A Number:	A2705118	Manufacturer:	Opsco Industries Ltd	
		Vessel Name:	Separator	Serial Number:	FV.24.10.1768.2	
Area:	Stanmore	Year Built:	1991	Shell MAWP PSI:	1000 psi	MAWTF: 100°F
Location:	Battery	Tag Number:		Tube MAWP PSI:		MAWTF:
		CRN:	K1307.2	Vessel CA:	0.063"	

TML Description:	Baseline				Material:	A-234-WPB
40-Piping	2013	Flag	CA	Nominal		
Shape-90° Elbow	Min. 0.208	0.189	0.027	0.216		
OD 3.5"	Avg. 0.215					
Spec. ASME B31.3	Comments:					

TML Description:	Baseline				Material:	A-234-WPB
45-Piping	2013	Flag	CA	Nominal		
Shape-90° Elbow	Min. 0.407	0.383	0.055	0.438		
OD 3.5"	Avg. 0.429					
Spec. ASME B31.3	Comments:					

TML Description:	Baseline				Material:	SA-516-70N
50-Shell	2013	Flag	CA	Nominal	T Min	Corr. Rate
Shape-Cylindrical	Min. 0.634	0.685	0.063	0.748	0.670	5.14
OD 24"	Avg. 0.774					
Spec. ASME VIII Div 1	Comments: Corrosion Found					
		Remaining Life: -7.06 Years				
		Retirement Date: 2/12/2006				

TML Description:	Baseline				Material:	A-234-WPB
55-Piping	2013	Flag	CA	Nominal		
Shape-360° Circ	Min. 0.218	0.189	0.027	0.216 Assumed		
OD 3.5"	Avg. 0.230					
Spec. ASME B31.3	Comments:					

CORRECTED

A 270511B
**MANUFACTURER'S DATA REPORT
FOR PRESSURE VESSEL
DÉCLARATION DE CONFORMITÉ DU CONSTRUCTEUR
D'APPAREILS SOUS PRESSION**

Partial/Partiel

Upon shipment of a pressure vessel, this form fully and correctly filled in must be mailed to the office of the Chief Inspector in the province of installation in accordance with the regulations under the Act, governing the construction and installation of pressure vessels.

Au moment de l'expédition d'un appareil sous pression, ce formulaire complété correctement, doit être envoyé au bureau de l'inspecteur en chef de la province d'installation tel que prévu dans les règlements de la loi sur les appareils sous pression

Manufactured by Construit par	Name and address of Manufacturer/Nom et adresse du constructeur OPSCO INDUSTRIES LTD. 2601 CENTRE AVENUE EAST, CALGARY, ALBERTA, T2P 2L1
Manufactured for Construit pour	Name and address of Purchaser or Consignee/Nom et adresse du client ou de son représentant EPT CONSULTANTS LTD. 280, 625-14TH ST NW CALGARY, ALTA T2N 2A1
Ultimate owner Utilisateur	Name and address / Nom et adresse MLC OIL & GAS LTD. 450, 715-5AV SW CALGARY, ALTA T2P 2X8
Location of installation Lieu d'installation	Address / Adresse LSD 7-22-13-27 W4M

Pressure vessel/Appareil			
Type/Genre VERTICAL SEPARATOR	Serial No./No de série FV-24-10-1768-2	Year built/Année de fab. 1991	Overall length/Long. totale 2997mm
Provincial Registration No. - C.R.N./ No d'enregistrement provincial K-1307.2	National Board No./No National Board -	Drawing No./No de dessin V-98-1697-781 REV.4	Diameter/Diamètre 610mm

The chemical and physical properties of all parts meet the requirements of material specifications of the A.S.M.E. Code.
Les propriétés chimiques et physiques de toutes les composantes respectent les exigences des spécifications de matériaux de code ASME.

The design, construction and workmanship conform to CSA B51. La conception, la construction et la façon sont conformes à ACNOR B51.	ASME SEC VIII	Division I	Addenda/ Supplément A89	Code case No. No de cas -
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Manufacturers' partial data reports properly identified and signed by authorized inspectors have been furnished for the following items of the report, and attached to this report:

Name of parts/Nom de la composante	Item No./No d'item	Manufacturer's Name/Nom du constructeur	Identifying Stamp/Estampe d'identification
-			
-			

Description	Material Matériau	Thickness Épais. minim.	Corr. Allow. Surep. con.	Diameter Diamètre	Overall Length Long. totale	No. of Courses Nombre de sections	Girth Joint Joint de circ.		Longitudinal Joints Joints longitudinaux			P.W.H.T. Traitement therm.	
							Type	R.T. Radlog.	Type	R.T. Radlog.	Ellip. Ellip.	Temp.	Time Durée
ROLLED CAN	SA-516-70N	19.8mm	1.6mm	610mm	2133mm	ONE(1)	#1	RT-2	#1	RT-2	100	N/A	N/A

Description	Material Matériau	Min. Thickn. Épais. minim.	Corr. Allow. Surep. corr.	Crown Radius Rayon couron.	Knuckle Radius Petit rayon	Ellipse Ratio Rapp. ellipse	Conical Apex Angle Angle conique	Hemisphere Radius Rayon Hemisph.	Flat Diameter Diamètre plat	St. Jo to Pressure Code souspression
2:1 SE	SA-516-70N	18.5mm	1.6mm			2:1				CONCAVE
"	"	18.79mm	"			"				"

Removable bolts used (describe other fasteners) Boulons amovibles utilisés (décrire tout autre attache)	Material spec./Spec. du matériaux	Grade	Size/Dimension
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Pressure - Temperature/Pression - température				
Pressure Vessel Part Partie de l'appareil VESSEL	Constructed for max. allowable working pressure Construit pour une pression maximale de arche permise 1000psi 6895Kpa	At max. temperature A une temp. maximale 100F 37C	Min. temp. (when less than 20 C) Temp. min. (inférieure à 20 C) -20F -28C	Test pressure (hydro-pneumatic or comb.) Pression d'épreuve (hydro-pneumatique ou combinaison) 1500psi 10342Kpa

A2705118

Tube Section / Faisceau tubulaire					
Tubehost / Flaque tubulaire	Material Matériau	Diameter Diamètre	Nominal Thickness Épaisseur nominale	Cor. Allow. suspens. corrosion	Attachment Mode d'attachement
-	-	-	-	-	-
Tube material Matériau des tubes	Diameter Diamètre	Nominal Thickness (gauge) Épaisseur nominale (calbre)	Number Nombre	Type (Straight or U) Type (Droit ou U)	Heating Surface Surface de chauffe
-	-	-	-	-	-

Jacket / Chemise				
Type of Jacket Genre de chemise	Jacket Closure Fermature de chemise	Proof Test Pression d'épreuve	Heating Surface Surface de chauffe	Sketch Schéma
-	-	-	-	-

Safety Valve Outlets / Soupapes de sûreté		
Number/Nombre	Dimension	Location / Endroit
ONE (1)	2"NPT	SEE REF DWG V-91-1768-833 REV.1

Nozzle Openings / Tubulures et ouvertures									
Purpose But	Number Nombre	Dimension	Type	Material Matériau	Nominal Thickness Épaisseur nominale	Reinforcement Matériau de renfort	How attached Genre d'attaches	Location Endroit	
INLET	1	3"NPS	NOZZLE	SA-106-B	0.600"	N/A	WELDED	-	
OUTLET	1	"	"	"	"	"	"	SEE REF DWG	
H2O OUT	1	1"NPT	CPLG	SA-105	6000#	"	"	V-91-1768-833 Rev.1	
HC OUT	1	"	"	"	"	"	"	"	
H2O LC	1	2"NPT	"	"	"	"	"	"	
HC LC	1	"	"	"	"	"	"	"	
H2O LG	2	3/4"NPT	"	"	"	"	"	"	
HC LG	2	"	"	"	"	"	"	"	
TI	1	"	"	"	"	"	"	"	
PI	1	1/2"NPT	"	"	"	"	"	"	
PSV/INSP. INSP	1,1	2"NPT	"	"	"	"	"	"	
DRAIN	1	1"NPS	NOZZLE	SA-106-B	0.250"	"	"	"	
Skirt/Jupe Yes/Oui No/Non	Lugs / Number Craîtes / Nombre	Legs / Number Pieds / Nombre	Other Autres (Description)			Attached / (Where and How) Attaches / (Méthode et endroit)			
<input checked="" type="checkbox"/>			PIPE			BOTTOM HEAD, WELDED			

Remarks / Observations (Cubical capacity / Volume)		
Cubic capacity: Service:	0.622CuM SWEET HYDROCARBONS	Impact testing: EXEMPT FROM IMPACT TESTING AS PER UG-28(f)

Certificate of Compliance / Certificat de conformité

We certify that the statements made in this data report are correct and that the said vessel has been constructed in accordance with the Provincial Registered design below and the requirements of standard CSA b51.

Nous certifions que les données de la déclaration de conformité sont correctes et que l'appareil a été construit en accord avec l'enregistrement provincial ci-dessous et les exigences de la norme ACNOR B51.

Provincial Registered Design
Enregistrement provincial

K-1307.2

Manufacturer
Constructeur

OPSCO INDUSTRIES LTD.

Signature _____ Date 12/24/98

Certificate of Shop Inspection / Certificat d'inspection en usine

I, the undersigned, a duly authorized Boiler and Pressure Vessels Inspector Je soussigné, inspecteur autorisé de chaudières et appareil sous pression employed by employed par of of

**GENERAL SAFETY SERVICES DIVISION
ALBERTA LABOUR
CALGARY, ALBERTA, CANADA**

have inspected the above vessel and state that to the best of my knowledge and belief, the manufacturer has constructed the vessel in accordance with the Provincial registration CRN and the requirements of standard CSA B51.

ai inspecté l'appareil précité et autant que je crois que le constructeur a construit l'appareil en accord avec l'enregistrement provincial NEG _____ et les exigences de la norme ACNOR B51.

Inspector's Name
Nom de l'inspecteur

JOHN HERRIAM

Signature _____ Date 12/24/98

K-1307.2

Certificate of Compliance / Certificat de conformité

Field Work / Installation au chantier

We certify that the field installation of all parts of the vessel conforms with the requirements of Provincial Regulations.

Nous certifions que l'installation au chantier de toutes les composantes de l'appareil est conforme aux règlements provinciaux

Installers Name
Nom de l'installateur _____

Signature _____
Date _____

Certificate of / Certificat d'inspection

Field Inspection / Installation au chantier

I, the undersigned, a duly authorized Boiler and Pressure Vessels Inspector Je soussigné, inspecteur autorisé de chaudières et appareil sous pression employed by employed par

have inspected the items not covered by the Shop Inspection Certificate and the installation of the items and state that to the best of my knowledge and belief, the construction and assembly of the items are in accordance with the Provincial Regulations.

ai inspecté les composantes non couvertes par le certificat d'inspection en usine et l'installation de l'appareil et, autant que je sache, la construction et l'assemblage de l'appareil sont en accord avec les règlements provinciaux.

Inspector's Name
Nom de l'inspecteur _____

Signature _____ Date _____