

CTC

W
RT-2.

MANUFACTURED AND CERTIFIED BY

THERMO DESIGN
ENGINEERING LTD.

EDMONTON

ALBERTA

CANADA

UNIT NAME

TAG NUMBER

STABILIZER REBOILER

E-720

CR. NUMBER

SERIAL NUMBER

Ⓐ NUMBER

L-032.21

1630

M.A.W.P.

AT TEMP.

M.D.M.T.

AT PRESSURE

SS: 150 PSIG

SS: 350°F

-20°F

SS: 150 PSIG

TS: 245 PSIG

TS: 250°F

TS: 245 PSIG

YEAR BUILT

CORR. ALL

DRAWING NUMBER

1998

0.0625 IN

9087-0850-216

DIAMETER

LENGTH

CAPACITY

WEIGHT

10.75 IN OD

5-0 TS/TS

3.5 CU FT

1150 LBS

SHELL MATL

HEAD MATL

TBSHT. MATL

COIL MATL

SA-106-B

SA-234-WPB

SA-516-70N

SA-179

SHELL THK

HEAD MIN. THK

TBSHT. THK

COIL THK

0.365 IN

0.319 IN-RED

1.500 IN

14 BWG

0.319 IN

1.750 IN



TO: THERMO DESIGN ENGINEERING LTD
BOX 5557 STATION L
EDMONTON ALTA
T6C 4E9

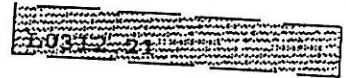
Account # 19971

Date: 98/03/18
Journal # 18765

Attn: JASON HARGREAVES
Re: THERMO DESIGN ENGINEERING LTD

DESIGN REGISTRATION

C.R.N.



Drawings / Documents	Description		
STABILIZER REBOILER 9097-0850-216 REV 1	MDMT	MAWT	MAWP
	Shellside	-20 F	350 F
	Tubeside	-20 F	250 F
			150 psi
			245 psi
	Heat transfer area = 86 sq. ft.		
	Code of Compliance: ASME Sec VIII Div 1, 95 Ed., A96.		

REGISTERED

Remarks: This design has been registered as noted above. An invoice for survey will follow in the amount of \$ 174.00

CRN issued in accordance with the ACI Policies on Reciprocal Recognition of Design Review for Registration. Alberta issued CRN L0312.2 on Feb. 26, 1998.

cb
Encl:
cc:

Yours truly,

R. Tunzon
R. TUNZON
Design Surveyor

Ministry of
Municipal Affairs
and Housing

Boiler and Elevator
Safety Branch

3rd Floor
750 Pacific Boulevard South - Unit 300
Vancouver BC V6B 5E7

Telephone: (604) 660-8254
Facsimile: (604) 775-2345

1	RFWN	150#	40	SHOWN	C	7,8,9,10	HEAT MEDIUM INLET
1	RFWN	150#	80	10" [254]	C	12,13	HEAT MEDIUM OUTLET
1	RFWN	150#	80	10" [254]	C	12,13	GLYCOL DRAIN
1	RFWN	150#	80	10" [254]	C	12	
1	EOL	6000#			A	11	TIC

* -- METHOD OF ATTACHMENT PER UW-16.1

ES:

INSTRUCTION IN ACCORDANCE WITH ASME CODE, SECTION VIII, DIV. 1,
1995 EDITION, 1996 ADDENDA.

PRESSURE: SHELL SIDE: 150 PSIG @ 350°F [1034 kPa @ 177°C]

TUBE SIDE: 245 PSIG @ 250°F [1689 kPa @ 121°C].

TEST: SHELL SIDE: 225 PSIG [1551 kPa]

TUBE SIDE: 367.5 PSIG [2534 kPa].

TOLERANCE: 1/16" [1.59 mm].

HEAT TREATMENT: NONE.

SPOT [UW-11(a)5(b)] / TS CORNER JOINT NDT PER UG-93(d)(3).

MIN METAL TEMPERATURE: -20°F [-29°C].

PER UG-20(f); TUBESHEETS PER UCS-66(a).

SS#: 861.2 (TDE-1, TDE-3, TDE-4).

SANDBLAST TO SSPC-SP6; ONE COAT ZINC CHROMATE PRIMER

7 COATS WARM GREY INDUSTRIAL ENAMEL - ON EXP. SURFACES ONLY.

1" [51] THK. HOT - MINERAL WOOL c/w 0.020" ALUMINUM JACKETING

WEIGHT: 1150 LBS [522 kg].

SHELL SIDE: 2.2 FT³ [0.06 m³].

TUBE SIDE: 1.3 FT³ [0.04 m³].

WELD SLAG.

THOROUGHLY CLEANED INSIDE & OUTSIDE.

EL V-710.

ALBERTA BOILERS SAFETY ASSOCIATION
PROVINCE OF ALBERTA
SAFETY CODES ACT

REG. No. **L-0312.2**

DWG. No. **9097-0850-216 Rev 1**

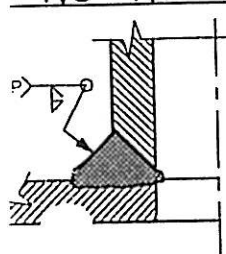
	Design Press kPa	Design Temp. °C
SHELL SIDE	1034	29/177
TUBE SIDE	1689	29/121

FEB 26 1998 ACCEPTED

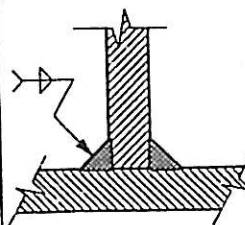
Date _____ Signed *[Signature]*

DJORDJE SRNIC
DESIGN SURVEY ENGINEER

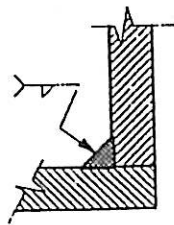
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-1,C-1,T-1



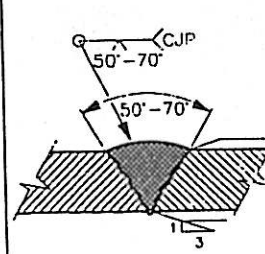
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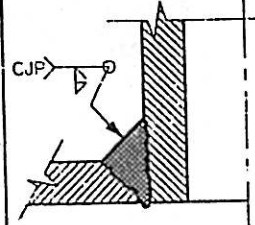
TYPE: FL-2



TYPE
L-1,G-1



TYPE
N-2, C-2





EQUIPMENT STATIC DATA FORM

TAQA NORTH DATA				
EQUIP NO.: 603FR002	RAMS ID TAG NO.: NEW	PRN: N/A	NAT'L BOARD #: N/A	CATEGORY:
PLANT/FIELD: CHINCHAGA GAS PLANT		LSD: C-032-H / 094-H-08	LOCATION: GAS PLANT	
EQUIP. NAME : STABILIZER REBOILER		CLASS : FR	TYPE: REBOILER	
SERVICE: ☒ Sweet ☐ Sour	H2S: N/A PPM	FLUID: CONDENSATE	S/D REQT.: ☐ Yes ☐ No ☐ Partial	
OPERATING PRESSURE: N/A ☐ kPa ☐ PSI		OPERATING TEMPERATURE: 30 ☒ °C ☐ °F		
OPERATING STATUS: ☒ IN SERVICE ☐ Not In Service		M/WAY(16"AND ABOVE): ☒ Yes ☒ No SIZE: 10"		

MANUFACTURING DATA				
MFG.: THERMO DESIGN LTD	DWG. NO.: 9097-0850-216	SERIAL NO.: 1630	YR. BUILT: 1998	STAMP: W
CRN: L0312.21	CODE/DIV.: ASME VIII DIV 1	PARA.: N/A	SUPPORT: ☒ Skirt ☐ Saddles ☐ Nozzles	
MAWP: 1034 ☒ kPa ☐ PSI	@ TEMP: 177 ☒ °C ☐ °F	MDMT: -29 ☐ °C ☐ °F	VOLUME: 3.5 ☐ M ³ ☒ FT ³	
FLANGE RATING: 150#	PWHT: ☐ Yes ☒ No ☐ N/A	RADIOGRAPHY: ☐ RT1 ☒ RT2 ☐ RT3 ☐ RT4	☐ Spot ☐ Full ☐ N/A	
SIZE : 273 ☒ mm. ☐ inch.	☐ ID ☒ OD	LENGTH: N/A ☐ mm. ☐ inch.	HEIGHT: 1524 ☒ mm ☐ inch.	
INSULATION TYPE: ☐ Fiberglass ☒ Wool ☐ Low Temp ☐ Asbestos Other:			INSULATION THK: 40 ☒ mm ☐ inch.	
SECTION	MATERIAL	NOMINAL mm	C.A. mm	
SHELL	SA-106-B	9.3 MM	1.6 MM	
HEAD	SA-234-WPB	8.1 MM	1.6 MM	
COMMENTS:				

TUBING DATA				
MAWP: 1689 ☒ kPa ☐ PSI	@ TEMP: 121 ☒ °C ☐ °F	TEMA CLASS: N/A	TYPE: SA-179	
TUBE SIZE: 152 mm. ☐ ID ☒ OD	NUMBER (QTY OF TUBES): ONE	GAUGE (BWG): 14	JOINT: ☐ Welded ☐ Rolled	
SECTION	MATERIAL	NOMINAL mm	C.A. mm	
TUBE SHELL	SA-516-70N	38.1 MM	1.6 MM	
TUBE SHELL	SA-516-70N	44.5 MM	1.6 MM	

TRAY/PACKING DATA		
TRAY TYPE: N/A	NUMBER (# OF TRAYS): N/A	PACKING TYPE: N/A
MATERIAL: N/A	MANUFACTURER: N/A	

COATING/LINING/CLADDING DATA			
AREA	TYPE	MATERIAL	YR. APPLIED
EXTERNAL:	EPOXY	N/A	N/A
INTERNAL:	N/A	N/A	N/A
LINING:	N/A	N/A	N/A
CLADDING:	STAINLESS STEEL	N/A	N/A

PRESSURE RELIEF DEVICES DATA		☐ PSV not located	☐ No PSV
EQUIP. NO.	TAG NO.	SET	CAPACITY
603SVVT002 (TUBE)	N/A	1689 ☒ kPa ☐ PSI	824 ☒ SCFM ☐ LB/hr. ☐ GAL/min.
N/A	N/A	N/A ☐ kPa ☐ PSI	☐ SCFM ☐ LB/hr. ☐ GAL/min.
N/A	N/A	N/A ☐ kPa ☐ PSI	☐ SCFM ☐ LB/hr. ☐ GAL/min.

FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURIZED VESSELS
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

CTC PG. 1 OF 2

1. Manufactured and certified by THERMO DESIGN ENGINEERING LTD., 1624 - 70 AVENUE, EDMONTON, ALBERTA CANADA T6P 1P5

(Name and address of Manufacturer)

2. Manufactured for Chauvco Res. Ltd. c/o Tartan Eng. Ltd., 1700, 800 - 6th Avenue S.W., Calgary, AB T2P 3G3

(Name and address of Purchaser)

3. Location of Installation Chinchaga Gas Plant, British Columbia, LSD: C-32-H/94-H-8

(Name and address)

4. Type: Vertical Reboiler #1630 L-0312.21 9097-0850-216/Rev.1 1998
(Horiz., vert., or sphere) (Tank separator, jkt. vessel, heat exh., etc.) (Mfg's serial No.) (CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)

5. ASME Code, Section VIII, Div. 1 Edition 1995, Addenda 1996
Edition and Addenda (date) Code Case No. Special Service per UG-120(d)

Items 6 - 11 Incl. to be completed for single wall vessels, jackets of jacketed vessels, shell of heat exchangers, or chamber of multi-chamber vessels.

6. Shell (a) No. of course(s): 1 (b) Overall length (ft & in.): 5'-0" TS/TS

Course(s)			Material		Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B & C)			Heat Treatment	
No.	Diameter, in.	Length (ft & in.)	Spec./Grade or Type		Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time
1	10.02"ID	4'-9 3/16"	SA-106-B		0.365"	0.0625"	Sml's Pipe	N/A	100	Sgl"V"	CS:Spot	100	N/A	N/A

7. Heads: (a) N/A N/A (b) N/A N/A

(Mat'l Spec. No., Grade or Type) H.T. - Time & Temp

(Mat'l Spec. No., Grade or Type) H.T. - Time & Temp

	Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.
(a)														
(b)														

If removable, bolts used (describe other fastening) N/A

(Mat'l Spec. No., Grade, Size, No.)

8. Type of jacket N/A Jacket closure N/A

(Describe as ogee & weld, bar, etc.)

; give dimensions N/A If bolted, describe or sketch.

9. MAWP 150 N/A psi at max. temp. 350 N/A ° F Min. design metal temp. -20 ° F at 150 psi.
(internal) (external) (internal) (external)

10. Impact test No, Exempt per UG-20(f)

(Indicate yes or no and the component(s) impact tested)

11. Hydro., pneu., or comb. test press 225 PSIG Proof test Hydrotest

Items 12 and 13 to be completed for tube sections.

12. Tubesheet: SA-516-70N (2 Pieces) 10.02" 1.5/1.75 0.0625" Welded
Stationary (Mat'l Spec. No.) Dia., in (subject to press.) Nom. thk., in. Corr. Allow., in. Attachment (welded or bolted)
N/A N/A N/A N/A N/A
Floating (Mat'l Spec. No.) Dia., in. Nom. thk., in. Corr. Allow., in. Attachment

13. Tubes: SA-179 0.75" 14 BWG 88 Straight
Mat'l Spec. No., Grade or Type O. D., in. Nom. thk., in. or gauge Number Type (Straight or U)

Items 14 - 18 incl. to be completed for inner chambers of jacketed vessels or channels of heat exchangers.

14. Shell (a) No. of course(s): N/A (b) Overall length (ft & in.): N/A

Course(s)			Material		Thickness		Long. Joint (Cat. A)			Circum. Joint (Cat. A, B & C)			Heat Treatment	
No.	Diameter, in.	Length (ft. & in.)	Spec./Grade or Type		Nom.	Corr.	Type	Full, Spot, None	Eff.	Type	Full, Spot, None	Eff.	Temp.	Time

15. Heads: (a) SA-234-WPB N/A (b) SA-234-WPB N/A

(Mat'l Spec. No., Grade or Type) H.T. - Time & Temp.

(Mat'l Spec. No., Grade or Type) H.T. - Time & Temp.

	Location (Top, Bottom, Ends)	Thickness		Radius		Elliptical Ratio	Conical Apex Angle	Hemispherical Radius	Flat Diameter	Side to Pressure		Category A		
		Min.	Corr.	Crown	Knuckle					Convex	Concave	Type	Full, Spot, None	Eff.
(a)	Top	0.319"	0.0625"		10X6"	Conc.	Red.					Sgl"V"	CS:Spot	100
	Bottom	0.319"	0.0625"								Concave	Sgl"V"	CS:Spot	100

If removable, bolts used (describe other fastening) N/A

(Mat'l Spec. No., Grade, Size, No.)

5. MAWP 245 N/A psi at max. temp. 250 N/A ° F Min. design metal temp -20 ° F at 245 psi.

(internal) (external) (internal) (external)

7. Impact test No, Exempt Per UG-20(f), T-Sheets Per UCS-66(a)

(Indicate yes or no and the component(s) impact tested)

3. Hydro., pneu., or comb. test pressure 367.5 PSIG Proof test Hydrotest

9. Nuts, inspection, and safety valve openings:

Purp. (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Flange Type	Material		Nozzle Thickness		Reinforcement Material	How Attached		Location (Insp. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
N1	1	2"	RFWN	SA-106-B	SA-105	0.218"	0.0625"	N/A	JW-16.1(c)	Welded	Head
N2	1	6"	RFWN	SA-234-WPB	SA-105	0.280"	0.0625"	N/A	JW-16.1(c)	Welded	Head
N3	1	2"	RFWN	SA-106-B	SA-105	0.218"	0.0625"	N/A	JW-16.1(c)	Welded	Shell
N4	1	2"	RFWN	SA-106-B	SA-105	0.218"	0.0625"	N/A	JW-16.1(c)	Welded	Shell
N5	1	2"	RFWN	SA-106-B	SA-105	0.218"	0.0625"	N/A	JW-16.1(c)	Welded	Head
C1	1	3/4"	E-O-L	SA-105	N/A	6000#	0.0625"	N/A	JW-16.1(a)	N/A	N2

10. Supports: Skirt No Lugs Legs 2 and Others Attached Bolted to V-710

(Yes or No.)

(No.)

(No.)

(Describe)

(Where and How)

11. Manufacturer's Partial Data Reports properly identified and signed by Commissioned Inspectors have been furnished for the following items of the report: List the name of part, item number, mfg's. name and identifying number)

12. Remarks: 10 3/4"OD x 5'-0" TS/TS, Stabilizer Reboiler "E-720"

Capacity: 3.5 Cu Ft

Heating Surface: 86.24 Sq Ft

Registered Drawing No.: 9097-0850-216/Rev.1 (Alberta & British Columbia)

PSV: On Vessel V-710

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. 22,145 Expires August 22, 19 99

Date 98.03.24 Name THERMO DESIGN ENGINEERING LTD.

(Manufacturer)

Signed Bill Hase (Representative)

CERTIFICATE OF SHOP INSPECTION

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and the State or Province of AB and employed by Alberta Boilers' Safety Association of in Edmonton have inspected the pressure vessel described in this Manufacturer's Data Report on March 24, 19 98, 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 this 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 98-3-24 Signed L Hayes Commissions 39R

CERTIFICATE OF FIELD ASSEMBLY COMPLIANCE

We certify that the statements on this report are correct and that the field assembly construction of all parts of this vessel conforms with the requirements of ASME Code, Section VIII, Division 1.

U Certificate of Authorization No. Expires , 19

Date Name Signed

(Assembler)

(Representative)

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by The National Board of Boiler and Pressure Vessel Inspectors and the State or Province of and employed by of have compared the statements in this Manufacturer's Data Report with the described pressure vessel and state that parts referred to as data items , not included in the certificate of shop inspection, have been inspected by me and to the best of my knowledge and belief, the Manufacturer has constructed and assembled this pressure vessel in accordance with ASME Code, Section VIII, Division 1. The described vessel was inspected and subjected to a hydrostatic test of psi. By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this 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.

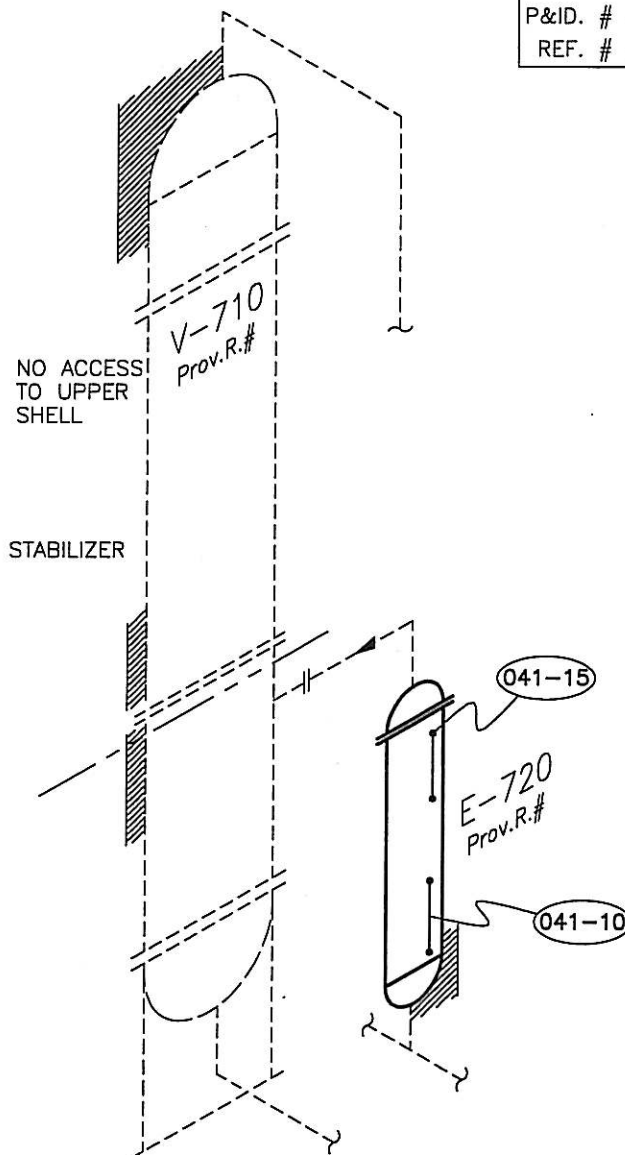
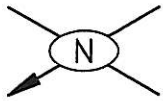
Date Signed Commissions

(Authorized Inspector)

(Nat'l Board incl. endorsement, State, Province and No.)



TESTING INC.

P&ID. # _____
REF. # _____

VESSEL DATA

P.E. No. E-720 Serial No. 1630 Prov. Reg. No. _____ C.R.N. L0312.21
MFR. THERMO DESIGN Code/Div. _____ Para _____ Code Stamp U
Yr. Bld. 1998 Yr. Inst. _____ Size 10 3/4" x 5' Service _____ PWHT _____
RT RT-2 Insulated YES

Nominal Thickness & Material

Head: .319" (8.1mm) Mat'l: SA 234 WPB C.A. .0625" (1.6mm) Reason _____
Head: _____ Mat'l: _____ C.A. _____ Reason _____
Shell: .365" (9.3mm) SA 106 B .0625" (1.6mm)
Shell: _____

Chan Hd: _____
Chan Sh: _____
Boot Hd: _____
Boot Sh: _____

MAWP Shell Side 150PSI @ Temp. -20/350°F
MAWP Tube Side 245PSI @ Temp. -20/250°F

COMMENTS: _____

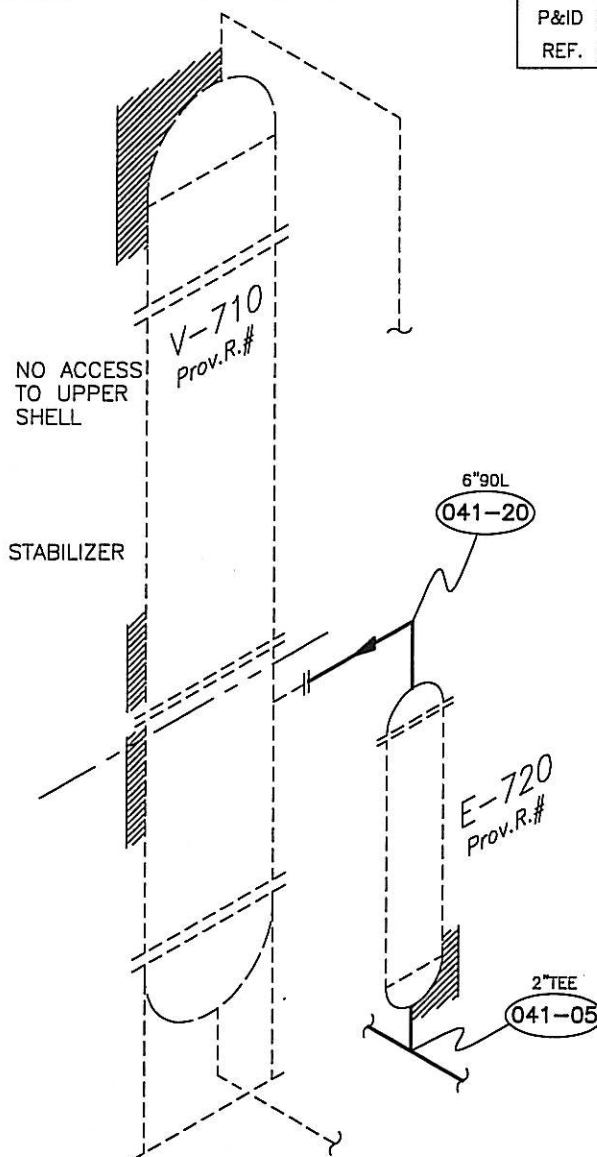
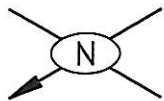
PIONEER NATURAL RESOURCES CANADA INC.
CHINCHAGA GAS PLANT
LSD C-32-H \ 94-H-8

STABILIZER REBOILER

TECH.: J.O.	REV. DATE:	DWG DATE: 99/12
CAD: WO	REVISION:	DRAWING: 041



TESTING INC.

P&ID # _____
REF. # _____

PIPING DATA

THICKNESS MEASUREMENT LOCATION:	SIZE	PROC.	LINE #	SPEC.	SCH.	NOM.THK.	API * CORR. ALLW. ** CALCULATED CORR.ALLW.	MIN.THK.	CAL.THK.	FLG. RATING
041-20	6"				40	7.1mm	ASTM	6.2mm		
041-05	2"				160	8.7mm	ASTM	7.6mm		

COMMENTS: _____

_____PIONEER NATURAL RESOURCES CANADA INC.
CHINCHAGA GAS PLANT
LSD C-32-H \ 94-H-8

STABILIZER REBOILER PIPING

TECH.: JO	REV.DATE:	DWG.DATE: 99/12
CAD: WO	REVISION:	DRAWING: 041A

**PIONEER NATURAL RESOURCES CANADA INC.
CHINCHAGA GAS PLANT**

RIVEST TESTING INC.

Item Desc.: C-32-H/94-H-8 / STABILIZER REBOILER

Equip. No.: E-720

Ser. No.: 1630

Prov. Reg.: N/A

Pt.Desc.: 2"TEE E-W

Point No.: 041-05

Line No.: N/A

Nominal: 8.700 Mths. Rem. To Min. Nom:

Good For Continued Service: YES

Corr. Allowance: ASTM Min. Cal. Wall Thk.:

Additional Assessment Of Data: YES

Min. Nominal: 7.613

Suggested Max Insp. Interval In Mths.: 12

Survey Dates:

1999-12

Data Readings	1	8.500	____.____
	2	9.400	____.____
	3	9.500	____.____
	4	9.600	____.____
	5	8.800	____.____

Data Evaluation

Lowest Reading	:	8.500
Average - Low 3	:	8.900
Thk.Remaining Above Min.	:	0.887
Indv. Short Term Rate (mm/yr)	:	
Short Term Rate (mm/yr)	:	
LongTerm Rate (mm/yr)	:	

Pt.Desc.: BTM.SHELL

Point No.: 041-10

Nominal: 9.300 Mths. Rem. To Min. Nom:

Good For Continued Service: YES

Corr. Allowance: 1.600 Min. Cal. Wall Thk.:

Additional Assessment Of Data: YES

Min. Nominal: 7.700

Suggested Max Insp. Interval In Mths.: 12

Survey Dates:

1999-12

Data Readings	1	9.600	____.____
	2	9.700	____.____
	3	9.500	____.____
	4	9.500	____.____
	5	9.700	____.____
	6	9.500	____.____

Data Evaluation

Lowest Reading	:	9.500
Average - Low 3	:	9.500
Thk.Remaining Above Min.	:	1.800
Indv. Short Term Rate (mm/yr)	:	
Short Term Rate (mm/yr)	:	
LongTerm Rate (mm/yr)	:	

PIONEER NATURAL RESOURCES CANADA INC.
CHINCHAGA GAS PLANT

RIVEST TESTING INC.

Item Desc.: C-32-H/94-H-8 / STABILIZER REBOILER
Equip. No.: E-720 Ser. No.: 1630

Prov. Reg.: N/A

Pt.Desc.: TOP SHELL

Point No.: 041-15

Nominal: 9.300 Mths. Rem. To Min. Nom:
Corr. Allowance: 1.600 Min. Cal. Wall Thk.:
Min. Nominal: 7.700

Good For Continued Service: YES
Additional Assessment Of Data: YES
Suggested Max Insp. Interval In Mths.: 12

Survey Dates: 1999-12
Data Readings

1	9.400	____.____
2	9.300	____.____
3	9.300	____.____
4	9.500	____.____
5	9.500	____.____
6	9.500	____.____

Data Evaluation

Lowest Reading : 9.300
Average - Low 3 : 9.333
Thk.Remaining Above Min. : 1.600
Indv. Short Term Rate (mm/yr) :
Short Term Rate (mm/yr) :
LongTerm Rate (mm/yr) :

**PIONEER NATURAL RESOURCES CANADA INC.
CHINCHAGA GAS PLANT**

RIVEST TESTING INC.

Item Desc.: C-32-H/94-H-8 / STABILIZER REBOILER
Equip. No.: E-720 Ser. No.: 1630

Prov. Reg.: N/A

Pt.Desc.: 6"90L B-T

Point No.: 041-20

Line No.: N/A

Nominal: 7.100 Mths. Rem. To Min. Nom:

Good For Continued Service: YES

Corr. Allowance: ASTM Min. Cal. Wall Thk.:

Additional Assessment Of Data: YES

Min. Nominal: 6.213

Suggested Max Insp. Interval In Mths.: 12

Survey Dates:

1999-12

Data Readings	1	7.900	____.____
	2	7.400	____.____
	3	7.400	____.____
	4	7.400	____.____
	5	7.600	____.____
	6	8.000	____.____
	7	8.200	____.____
	8	7.700	____.____

Data Evaluation

Lowest Reading : 7.400

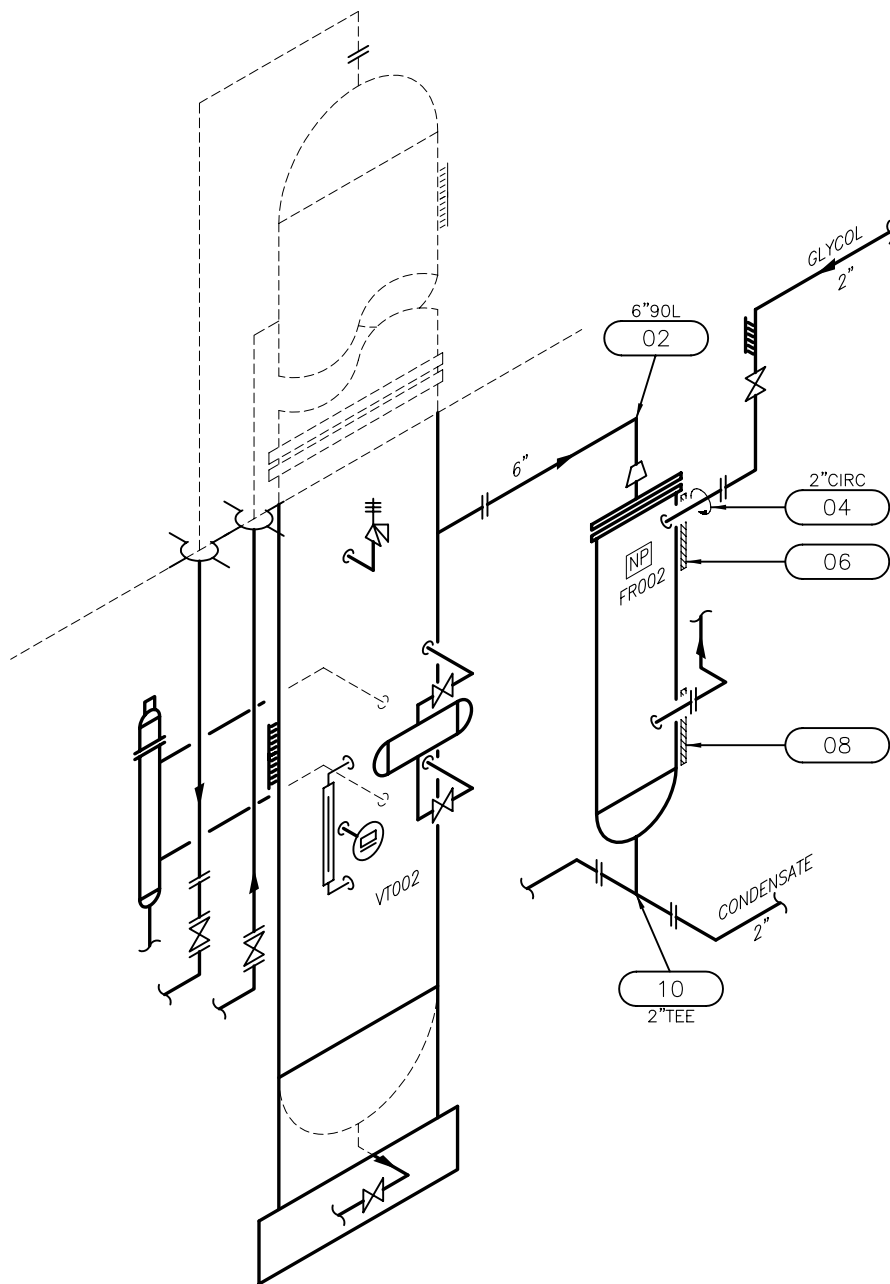
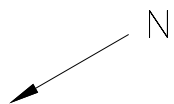
Average - Low 3 : 7.400

Thk.Remaining Above Min. : 1.187

Indv. Short Term Rate (mm/yr) :

Short Term Rate (mm/yr) :

LongTerm Rate (mm/yr) :



Integrity Testing
SERVICES

P.E. No.:	N/S	Yr. Bit.:	1998
OIP#	603FR002	Manway:	NO
Serial No.:	1630	Size:	273mm x 1524mm
P.R.N. (A)	N/S	Service:	SWEET
C.R.N.:	L0312.21	PWHT:	NO
Code/Div.:	ASME VIII DIV. 1	RT:	2
Para:	N/S	Insulated:	WOOL
C. Stamp:	U,W	N.B. No:	N/S
Manufacturer:	THERMO DESIGN LTD,		

Design & Materials Data

HEAD	SHELL
Material: SA-234-WPB	Material: SA-106-B
Nom.: 8.1mm	Nom.: 9.3mm
C.A.: 1.6mm	C.A.: 1.6mm
BOOT HEAD	BOOT SHELL
Material: _____	Material: _____
Nom.: _____	Nom.: _____
C.A.: _____	C.A.: _____
CHANNEL HEAD	CHANNEL SHELL
Material: _____	Material: _____
Nom.: _____	Nom.: _____
C.A.: _____	C.A.: _____
MAWP Shell Side: 1034 KPA	@ Temp.: 177°C
MAWP Tube Side: _____	@ Temp.: _____

CLIENT

TAQA NORTH

FACILITY

CHINCHAGA GAS PLANT

LSD C-032-H/094-H-08

ITEM

STABILIZER REBOILER

Comments: _____

BY: M.T.

DATE: 2008/04

DWG.# 031

TAQA North

Unit: N-603

FACILITY:	CHINCHAGA GAS PLANT	MANUFACTURER:	THERMO DESIGN ENGINEER
LSD:	C-032-H/094-H-08	DESIGN PRESSURE:	1034 kPa / 150 psi
ITEM DESC.:	STABILIZER REBOILER	DESIGN TEMP.:	177 C / 351 F
EQUIP / OIP#:	603FR002	RECOMMENDED NEXT INSP. DATE:	04/2013
PROV. REG. #:	N/S	RECOMMENDED RETIREMENT DATE:	06/2565
SERIAL #:	1630	REM. LIFE (from last survey 04/2008):	557.10 yrs.
CRN.:	L0312.21	TOTAL CAUTION / ACTION TML:	0

Item # (031)

TML No.: 2 6"90L T-B 150 #

DATE BUILT: 01/1998

AVERAGE THICKNESS MEASURED: 7.98 mm.

MATERIAL:

MINIMUM THICKNESS MEASURED: 7.70 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date mm/yyyy	B/L Survey Date mm/yyyy	Prev. Survey Date mm/yyyy	Prev. Survey Date mm/yyyy	Last Survey Date mm/yyyy	Last Survey Date mm/yyyy	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/ Caution Required Item
2.01	7.10	0.90	6.20	01/1998	7.10	N/A	N/A	04/2008	7.70	0.000	0.000	04/2013	04/2508	NO *
2.02	7.10	0.90	6.20	01/1998	7.10	N/A	N/A	04/2008	7.90	0.000	0.000	04/2013	12/2574	NO *
2.03	7.10	0.90	6.20	01/1998	7.10	N/A	N/A	04/2008	7.90	0.000	0.000	04/2013	12/2574	NO *
2.04	7.10	0.90	6.20	01/1998	7.10	N/A	N/A	04/2008	8.40	0.000	0.000	04/2013	08/2741	NO
2.05	7.10	0.90	6.20	01/1998	7.10	N/A	N/A	04/2008	8.00	0.000	0.000	04/2013	04/2608	NO *
2.06	7.10	0.90	6.20	01/1998	7.10	N/A	N/A	04/2008	7.80	0.000	0.000	04/2013	08/2541	NO *
2.07	7.10	0.90	6.20	01/1998	7.10	N/A	N/A	04/2008	8.10	0.000	0.000	04/2013	08/2641	NO
2.08	7.10	0.90	6.20	01/1998	7.10	N/A	N/A	04/2008	8.00	0.000	0.000	04/2013	04/2608	NO *

TML No.: 4 NOZ 2"CIRC 150 #

DATE BUILT: 01/1998

AVERAGE THICKNESS MEASURED: 5.83 mm.

MATERIAL:

MINIMUM THICKNESS MEASURED: 5.70 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date mm/yyyy	B/L Survey Date mm/yyyy	Prev. Survey Date mm/yyyy	Prev. Survey Date mm/yyyy	Last Survey Date mm/yyyy	Last Survey Date mm/yyyy	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/ Caution Required Item
4.01	5.50	1.60	3.90	01/1998	5.50	N/A	N/A	04/2008	5.90	0.000	0.000	04/2013	12/2674	NO
4.02	5.50	1.60	3.90	01/1998	5.50	N/A	N/A	04/2008	6.00	0.000	0.000	04/2013	04/2708	NO
4.03	5.50	1.60	3.90	01/1998	5.50	N/A	N/A	04/2008	5.70	0.000	0.000	04/2013	04/2608	NO *
4.04	5.50	1.60	3.90	01/1998	5.50	N/A	N/A	04/2008	5.70	0.000	0.000	04/2013	04/2608	NO *

(*) and GREEN Represent 25% of the TMLs, which have the earliest retirement dates.

BLUE (Caution TML) Corrosion Rate greater than 0.250mm/yr. or TML Remaining Life is less than 1.00 year.

RED (Action TML) TML with negative life.

If Baseline Survey Thickness Measurement was not taken at the time of Manufacture, then Nominal Thickness is used as Baseline Thickness.

TAQA North

Unit: N-603

FACILITY:	CHINCHAGA GAS PLANT	MANUFACTURER:	THERMO DESIGN ENGINEER
LSD:	C-032-H/094-H-08	DESIGN PRESSURE:	1034 kPa / 150 psi
ITEM DESC.:	STABILIZER REBOILER	DESIGN TEMP.:	177 C / 351 F
EQUIP / OIP#:	603FR002	RECOMMENDED NEXT INSP. DATE:	04/2013
PROV. REG. #:	N/S	RECOMMENDED RETIREMENT DATE:	06/2565
SERIAL #:	1630	REM. LIFE (from last survey 04/2008):	557.10 yrs.
CRN.:	L0312.21	TOTAL CAUTION / ACTION TML:	0

Item # (031)

TML No.: 6 TOP SH T-B

DATE BUILT: 01/1998

AVERAGE THICKNESS MEASURED: 9.52 mm.

MATERIAL: SA106-B

MINIMUM THICKNESS MEASURED: 9.40 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date mm/yyyy	B/L Survey	Prev. Survey Date mm/yyyy	Prev. Survey	Last Survey Date mm/yyyy	Last Survey	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/Caution Required Item
6.01	9.30	1.60	7.70	01/1998	9.30	N/A	N/A	04/2008	9.50	0.000	0.000	04/2013	04/2608	NO *
6.02	9.30	1.60	7.70	01/1998	9.30	N/A	N/A	04/2008	9.50	0.000	0.000	04/2013	04/2608	NO *
6.03	9.30	1.60	7.70	01/1998	9.30	N/A	N/A	04/2008	9.60	0.000	0.000	04/2013	08/2641	NO
6.04	9.30	1.60	7.70	01/1998	9.30	N/A	N/A	04/2008	9.70	0.000	0.000	04/2013	12/2674	NO
6.05	9.30	1.60	7.70	01/1998	9.30	N/A	N/A	04/2008	9.40	0.000	0.000	04/2013	12/2574	NO *
6.06	9.30	1.60	7.70	01/1998	9.30	N/A	N/A	04/2008	9.40	0.000	0.000	04/2013	12/2574	NO *

TML No.: 8 BTM SH T-B

DATE BUILT: 01/1998

AVERAGE THICKNESS MEASURED: 10.10 mm.

MATERIAL: SA106-B

MINIMUM THICKNESS MEASURED: 9.90 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date mm/yyyy	B/L Survey	Prev. Survey Date mm/yyyy	Prev. Survey	Last Survey Date mm/yyyy	Last Survey	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/Caution Required Item
8.01	9.30	1.60	7.70	01/1998	9.30	N/A	N/A	04/2008	10.40	0.000	0.000	04/2013	04/2908	NO
8.02	9.30	1.60	7.70	01/1998	9.30	N/A	N/A	04/2008	10.00	0.000	0.000	04/2013	12/2774	NO
8.03	9.30	1.60	7.70	01/1998	9.30	N/A	N/A	04/2008	10.00	0.000	0.000	04/2013	12/2774	NO
8.04	9.30	1.60	7.70	01/1998	9.30	N/A	N/A	04/2008	9.90	0.000	0.000	04/2013	08/2741	NO
8.05	9.30	1.60	7.70	01/1998	9.30	N/A	N/A	04/2008	10.30	0.000	0.000	04/2013	12/2874	NO
8.06	9.30	1.60	7.70	01/1998	9.30	N/A	N/A	04/2008	10.00	0.000	0.000	04/2013	12/2774	NO

(*) and GREEN Represent 25% of the TMLs, which have the earliest retirement dates.

BLUE (Caution TML) Corrosion Rate greater than 0.250mm/yr. or TML Remaining Life is less than 1.00 year.

RED (Action TML) TML with negative life.

If Baseline Survey Thickness Measurement was not taken at the time of Manufacture, then Nominal Thickness is used as Baseline Thickness.

TAQA North

Unit: N-603

FACILITY:	CHINCHAGA GAS PLANT	MANUFACTURER:	THERMO DESIGN ENGINEER
LSD:	C-032-H/094-H-08	DESIGN PRESSURE:	1034 kPa / 150 psi
ITEM DESC.:	STABILIZER REBOILER	DESIGN TEMP.:	177 C / 351 F
EQUIP / OIP#:	603FR002	RECOMMENDED NEXT INSP. DATE:	04/2013
PROV. REG. #:	N/S	RECOMMENDED RETIREMENT DATE:	06/2565
SERIAL #:	1630	REM. LIFE (from last survey 04/2008):	557.10 yrs.
CRN.:	L0312.21	TOTAL CAUTION / ACTION TML:	0

Item # (031)

TML No.: 10 NOZ 2"TEE 150 #

DATE BUILT: 01/1998

AVERAGE THICKNESS MEASURED: 9.68 mm.

MATERIAL:

MINIMUM THICKNESS MEASURED: 9.10 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date mm/yyyy	B/L Survey Date mm/yyyy	Prev. Survey Date mm/yyyy	Prev. Survey Date mm/yyyy	Last Survey Date mm/yyyy	Last Survey Date mm/yyyy	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/Caution Required Item
10.01	8.70	1.60	7.10	01/1998	8.70	N/A	N/A	04/2008	9.60	0.000	0.000	04/2013	08/2841	NO
10.02	8.70	1.60	7.10	01/1998	8.70	N/A	N/A	04/2008	9.80	0.000	0.000	04/2013	04/2908	NO
10.03	8.70	1.60	7.10	01/1998	8.70	N/A	N/A	04/2008	10.00	0.000	0.000	04/2013	12/2974	NO
10.04	8.70	1.60	7.10	01/1998	8.70	N/A	N/A	04/2008	9.90	0.000	0.000	04/2013	08/2941	NO
10.05	8.70	1.60	7.10	01/1998	8.70	N/A	N/A	04/2008	9.10	0.000	0.000	04/2013	12/2674	NO

(*) and GREEN Represent 25% of the TMLs, which have the earliest retirement dates.

BLUE (Caution TML) Corrosion Rate greater than 0.250mm/yr. or TML Remaining Life is less than 1.00 year.

RED (Action TML) TML with negative life.

If Baseline Survey Thickness Measurement was not taken at the time of Manufacture, then Nominal Thickness is used as Baseline Thickness.

DETAIL VESSEL AND PIPING INSPECTION REPORT

(Imperial)

GENERAL PRESSURE VESSEL INFORMATION

Company:	Pioneer Natural Resources Canada Inc.	LSD:	BC	C-32-H/94-H-8
Area/Facility:	Chinchaga Gas Plant	Inspection Date	06-Feb-02	Interval: 2 yrs
Vessel Name:	Stabilizer Reboiler	A No:	BC	MTL No: BLR212
Internal Coating Type:		Next External:	2/6/2003	Next Internal: Feb, 2004
Vessel Orientation:	Vertical	Internal Coating Lining:	0	
Vessel Type:	Glycol Reboiler	Fluid Type:		
Tag No:	E-720	Serial Number:	1630	
Separator Type:		Business Unit:		
Direct Fired Vessel:	N/A	Fired Tube:		Cost Centre:
Current Status:	In Service	Flame Arrester Date Required:		Date
Thermal Insulation:	Yes	Asbestos:	No	

PRESSURE VESSEL NAMEPLATE INFORMATION

MTL Number:	BLR212	Volume:	3.500 F3	CRN Number:	L-0312.21	Registered:	No
Serial Number:	1630	Size:	10.750 in O.D.	x	5 ft	0 in	Tan to Tan
Drawing Number:	9097-0850-216	P & ID Number:					
Shell Material:	SA-106-B	Bottom	Shell Thickness:	0.365	In		
		Top	Shell Thickness:	0.365	In		
Head Material:	SA-234WPB	Bottom	Head Thickness:	0.319	In		
		Top	Head Thickness:	0.319	In		
Tube Material:	SA-179	Tube Size(OD):	1.75	In	Tube Thickness:	1.500	In
Tubesheet Material:		Tubesheet Thickness:		In			
Channel Material:		Channel Type:		Channel Thickness:		In	
Design Pressure:	Shell: 150 psi	Operating Pressure:	Shell: psi				
	Tube: 245 psi		Tube: psi				
Design Temperature:	Shell: 350 F	Operating Temperature:	Shell: F				
	Tube: 250 F		Tube: F				
RT (XRay):	RT2	Heat Treatment:	No				
Code Parameters:		Joint Efficiency:					
Manufacturer:	Thermo Design Engineering	Year Built:	1998				
Corrosion Allowance:	0.063	Manway:	No				

DETAIL VESSEL AND PIPING INSPECTION REPORT

(Imperial)

GENERAL PRESSURE VESSEL INFORMATION

Company:	Pioneer Natural Resources Canada Inc.	LSD:	BC	C-32-H/94-H-8
Area/Facility:	Chinchaga Gas Plant	Inspection Date	06-Feb-02	Interval: 2 yrs
Vessel Name:	Stabilizer Reboiler	A No:	BC	MTL No: BLR212

VESSEL SHELL / HEADS / PIPING

External / Instrumentation Condition

The external surface of this vessel was insulated and cladded. The top head and bottom nozzle was painted with no visible evidence of leaks or corrosion.

Internal Condition

No internal access

Nozzle Condition

The external surface of the nozzle assemblies and associated welds were noted in good condition. No visible evidence of external corrosion was noted during this inspection.

Flange Condition

The flanges are bolted properly and there was no visible evidence of leakage.

Internal Piping

Not Applicable

External Piping

The external piping was insulated and painted with no evidence of leaks or corrosion noted.

Pipe Support Condition

The associated pipe supports were in good condition with no evidence of any mechanical damage or degradation.

Bolting Condition

The associated bolting and gaskets were in place and appeared to be tight.

Firetube Condition

Not Applicable

Demister Pad Condition

Not Applicable

Anode Condition

Not Applicable

Vessel Support

The 2 support angle legs were noted in good condition.

DETAIL VESSEL AND PIPING INSPECTION REPORT

(Imperial)

GENERAL PRESSURE VESSEL INFORMATION

Company:	Pioneer Natural Resources Canada Inc.	LSD:	BC	C-32-H/94-H-8
Area/Facility:	Chinchaga Gas Plant	Inspection Date	06-Feb-02	Interval: 2 yrs
Vessel Name:	Stabilizer Reboiler	A No:	BC	MTL No: BLR212

VESSEL COATING INSPECTION

Type of Coating

Coating Manufactuer and Type

Location

Coating Condition

VESSEL NONDESTRUCTIVE TESTING

NDE Type	UT Survey				
Location of Test					
Contractors Name	Rivest		Qualifications		
Last UT Survey Date	Feb 3, 2002	Interval	2 yrs	Next UT Date:	Feb 3, 2004
Survey By	MTL Testing Inc.				
Test Results					

VESSEL STATUS

Suitable for Further Service?	Yes	Repairs Required?	No
Owners Representative		Repairs Completed?	
Owners Date		Repairs Completed By	
		Repair Date	

Recommendations

Drop top head, video bottom head in 3 years
Service related PSV's
Repeat UT Survey in 3 years

Details of Repairs

DETAIL VESSEL AND PIPING INSPECTION REPORT

(Imperial)

GENERAL PRESSURE VESSEL INFORMATION

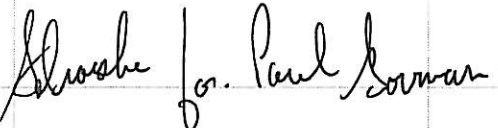
Company:	Pioneer Natural Resources Canada Inc.	LSD:	BC	C-32-H/94-H-8
Area/Facility:	Chinchaga Gas Plant	Inspection Date	06-Feb-02	Interval: 2 yrs
Vessel Name:	Stabilizer Reboiler	A No:	BC	MTL No: BLR212

PSV DATA

Side	Set Pressure psi	CRN Number	Manufacturer PSV Number	Model Serial Number	Capacity	Size Inches	Set Date
Shellside	245		Farris PNR7101	2741-U/SP CE-326747-1-KD	891 SCFM	1.5 x	Dec/1999

CURRENT VESSEL PROCESS CONDITIONS

Sweet Glycol	Sweet Gas	Sweet Condensate
--------------	-----------	------------------

Name (Printed)	Signature	Date
Visual Inspector Paul Gorman API510		February 06, 2002
QA Supervisor: (Chief Inspector)		
QA Administrator:		
ABSA Inspector:		

EQUIPMENT NO: 603FR002

Page of

FACILITY: Chinchaga Gas Plant

PROV. REG. NO:

EQUIPMENT NAME: Stabilizer Reboiler

TAG NO:

SIZE: 273mm OD x L/H 1524mm MAWP: 1034 kPa @ 177/-29 °C

LSD : C-032-H / 094-H-08

MANWAY ☐ YES ☒ NO

SERVICE:

FLUID: Condensate

☐ SOUR ☒ SWEET ☐ CRYOGENIC

SCOPE OF INSPECTION

TYPE OF INSPECTION:

CLEANING:

ACCESS:

☐ PRECOMMISSIONING

☐ AE

☐ MT

☐ RT

☒ GOOD

☐ FULL

☒ INITIAL

☐ ET

☐ MFL

☒ UT

☐ FAIR

☐ PARTIAL

☐ REINSPECTION

☐ LT

☐ PT

☒ VT

☐ INADEQUATE

☒ EXTERNAL

☐ OTHER

PLEASE ADD PAGES AND SKETCHES AS NEEDED (TURN OVER FOR SKETCH)

OBSERVATIONS:

☒ EXTERNAL

1. LADDERS, STAIRWAYS, PLATFORMS AND WALKWAYS ☒
2. FOUNDATIONS AND SUPPORTS ☒
3. NOZZLES ☒
4. GROUNDING CONNECTIONS ☒ Bolted to tower , tower is grounded
5. PROTECTIVE COATINGS AND INSULATION ☒
6. EXTERNAL METAL SURFACES ☐ N/A
7. FANS AND OTHER ANCILLARY EQUIPMENT ☐ N/A
8. PRESSURE RELIEF DEVICES ☐ Tube side PSV only, No shell side PSV .
9. NAME PLATE ☒
10. ULTRASONIC INSPECTION SURVEY ☒
11. INSPECTION REPORT COMPLETED ☒
12. NON CONFORMANCE COMPLETED ☐ N/A
13. OIP LABEL APPLIED ☒
14. PICTURE ON FILE ☒

COMMENTS

CHECKED BOX INDICATES ACCEPTANCE

RECOMMENDATIONS:

SUITABLE FOR

REMEDIAL ACTION

FURTHER SERVICE: ☒ YES ☐ NO

PRIORITY: ☐ HIGH ☐ MEDIUM ☐ LOW

INSPECTION PERFORMED BY: Mark Tomko

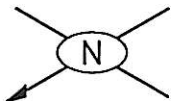
DATE OF INSPECTION 07 04 2008
(DD MONTH YYYY)

FOLLOW-UP INSPECTION REQ'D:

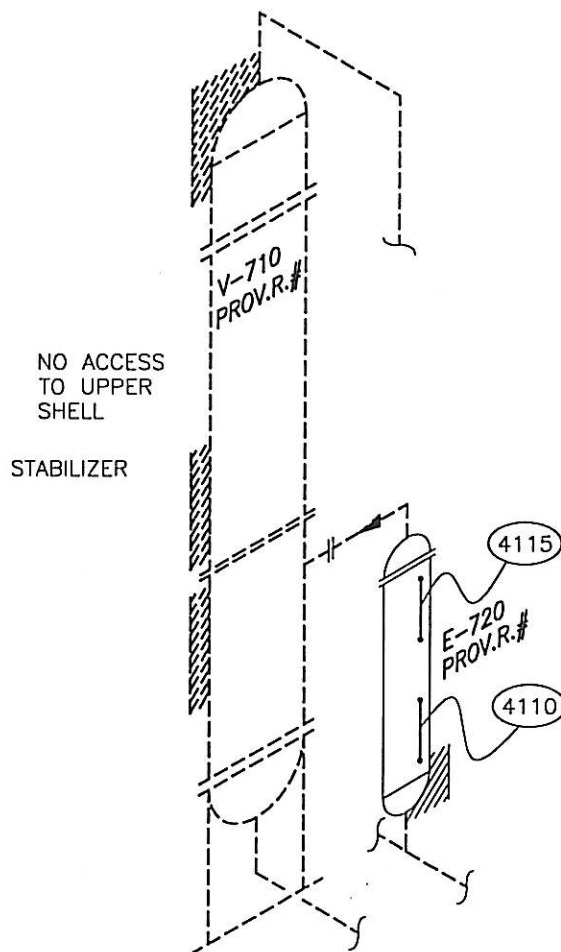
☐ YES ☒ NO

BY DATE:

(DD MONTH YYYY)



P&ID. # _____
REF. # _____



VESSEL DATA

Prov. Reg. No. _____ C.R.N. L0312.21 P.E. No. E-720 Serial No. 1630
MFR. THERMO DESIGN Code/Div. _____ Para _____ Code Stamp U
Yr. Bld. 1998 Yr. Inst. _____ Size 10 3/4"X5' Vol.: _____ Service _____ PWHT _____

Nominal Thickness & Material

Head: 8.1mm Mat'l: SA 234 WPB C.A.: 1.6mm
Head: _____
Shell: 9.3mm SA 106 B C.A.: 1.6mm
Shell: _____
Chan Hd: _____ C.A.: _____
Chan Sh: _____
Gas Boot Hd: _____ C.A.: _____
Gas Boot Sh.: _____
Liq. Boot Hd.: _____ C.A.: _____
Liq Boot Sh.: _____

Insulated YES R.T. 2

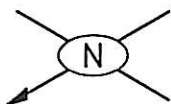
Repairs _____
COMMENTS _____

PIONEER NATURAL RESOURCES CANADA INC.
CHINCHAGA GAS PLANT
LSD C-32-H \ 94-H-8

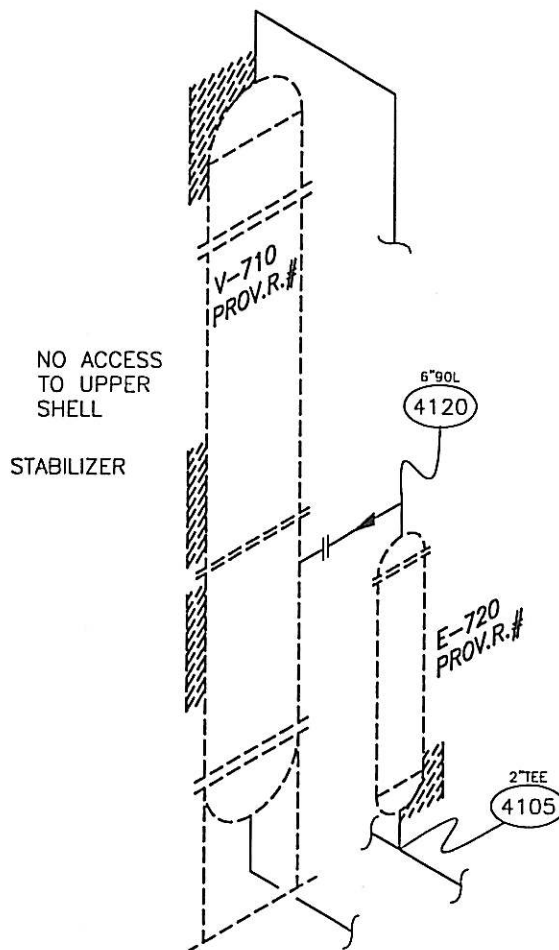
STABILIZER REBOILER

MAWP Shell Side 150psi @ Temp. -20/350°F
MAWP Tube Side 245psi @ Temp. -20/250°F

TECH.: J.OLIVER	REV.DATE:	DWG DATE: 02/2002
CAD: MKM	REVISION:	DRAWING: 041



P&ID. # _____
REF. # _____



PIPING DATA

TML	SIZE	MAT'L	FLG. RATING	PROC.	LINE #	SPEC.	SCH.	NOM. THK.	CORR.ALL			CAL. THK.	CODE
									* ASTM	** DESIGN	MIN.		
4120	6"						40	7.1mm	ASTM		6.2mm		
4105	2"						160	8.7mm	ASTM		7.6mm		

COMMENTS: _____

PIONEER NATURAL RESOURCES CANADA INC.
CHINCHAGA GAS PLANT
LSD C-32-H \ 94-H-8

STABILIZER REBOILER PIPING

TECH.: J.OLIVER	REV.DATE:	DWG DATE: 02/2002
CAD: MKM	REVISION:	DRAWING: 041A

Equip No E-720

Serial No 1630

Prov Reg No N/A

Description STABILIZER REBOILER

041 - 005

TML Description: 2" TEE E-W

T Nominal: 8.7

Min Nominal: 7.1

Corr Allowance: 1.6

*Data Readings**Data Evaluations*

Months Remaining to T Min: 338
 Min Calc'd Wall Thickness: N/A
 Thick Remain Above T Min: 1.3
 Short Term Corr Rate: N/A
 Long Term Corr Rate: N/A
 Months Remain to LFL: N/A
 Lowest Value - Last Reading: 8.4

Comment:

	Dec-99	Feb-02
Point 1	8.5	8.4
Point 2	9.4	9.3
Point 3	9.5	9.6
Point 4	9.6	9.7
Point 5	8.8	9.1
Point 6		
Point 7		
Point 8		
Point 9		
Point 10		
Point 11		
Point 12		
Average	9.2	9.2
Avg Low 3	8.9	8.9
Lowest	8.5	8.4

041 - 010

TML Description: BTM. SHELL

T Nominal: 9.3

Min Nominal: 7.7

Corr Allowance: 1.6

*Data Readings**Data Evaluations*

Months Remaining to T Min: 999
 Min Calc'd Wall Thickness: N/A
 Thick Remain Above T Min: 1.8
 Short Term Corr Rate: N/A
 Long Term Corr Rate: N/A
 Months Remain to LFL: N/A
 Lowest Value - Last Reading: 9.5

Comment:

	Dec-99	Feb-02
Point 1	9.6	9.7
Point 2	9.7	9.7
Point 3	9.5	9.5
Point 4	9.5	9.6
Point 5	9.7	9.7
Point 6	9.5	9.7
Point 7		
Point 8		
Point 9		
Point 10		
Point 11		
Point 12		
Average	9.6	9.7
Avg Low 3	9.5	9.6
Lowest	9.5	9.5

041 - 015

TML Description: TOP SHELL			
T Nominal: 9.3			
Min Nominal: 7.7			
Corr Allowance: 1.6			
<i>Data Readings</i>			
<i>Data Evaluations</i>		Dec-99	Feb-02
Months Remaining to T Min:	999	Point 1	9.4 9.5
Min Calc'd Wall Thickness:	N/A	Point 2	9.3 9.4
Thick Remain Above T Min:	1.7	Point 3	9.3 9.4
Short Term Corr Rate:	N/A	Point 4	9.5 9.5
Long Term Corr Rate:	N/A	Point 5	9.5 9.5
Months Remain to LFL:	26	Point 6	9.5 9.7
Lowest Value - Last Reading:	9.4	Point 7	
Comment:		Point 8	
		Point 9	
		Point 10	
		Point 11	
		Point 12	
		Average	9.4 9.5
		Avg Low 3	9.3 9.4
		Lowest	9.3 9.4

041 - 020

TML Description: 6" 90' L B-T			
T Nominal: 7.1			
Min Nominal: 5.5			
Corr Allowance: 1.6			
<i>Data Readings</i>			
<i>Data Evaluations</i>		Dec-99	Feb-02
Months Remaining to T Min:	999	Point 1	7.9 7.8
Min Calc'd Wall Thickness:	N/A	Point 2	7.4 8.2
Thick Remain Above T Min:	2.2	Point 3	7.4 7.7
Short Term Corr Rate:	N/A	Point 4	7.4 7.8
Long Term Corr Rate:	N/A	Point 5	7.6 7.9
Months Remain to LFL:	52	Point 6	8.0 8.0
Lowest Value - Last Reading:	7.7	Point 7	8.2 8.4
Comment:		Point 8	7.7 8.1
		Point 9	
		Point 10	
		Point 11	
		Point 12	
		Average	7.7 8.0
		Avg Low 3	7.4 7.8
		Lowest	7.4 7.7