



CERTIFIED BY  
**UNIVERSAL INDUSTRIES LTD.**  
 100 YOUNGMINSTER ALBERTA

W  
 RST

ITEM \_\_\_\_\_  
 VESSEL TYPE **EVKRO//SEPARATORE V-1013**  
 MAWP **2822.4 PSI** MAWP **1000 PSI**  
**1947 KEPA** **382 PSI**  
 DMT **20 AF** PRESSURE **2822.4 PSI**  
**2926** **1947 KEPA**  
 TUBE DIA \_\_\_\_\_ THK \_\_\_\_\_ GRADE \_\_\_\_\_  
 TUBE SHEET DIA \_\_\_\_\_ THK \_\_\_\_\_ GRADE \_\_\_\_\_  
 YEAR BUILT **1999** ISD **C-52-H/94-H-8**  
 SERIAL NO **98-12-6-1** DRINKS **1015912**

**Q411565**

**1015912**

## VESSEL DATA SHEET

SHT 1 OF 1

1 CLIENT PIONEER NATURAL RESOURCES CANADA INC.  
 2 PROJECT CHINCHAGA GAS PLANT  
 3 FABR. SPEC \_\_\_\_\_  
 4 STD. DRAWINGS \_\_\_\_\_  
 5 MANUFACTURER UNIVERSAL INDUSTRIES CORP.

MR NO. \_\_\_\_\_  
 TAG NO. V-103  
 SERVICE FWKO/DESAND VESSEL  
 REGISTRATION NO. K1059.12 (CRN)

### DESIGN DATA

7 REGISTERED YES PROVINCE OF ALBERTA/B.C.  
 8 OPERATE (internal) 862 kPag @ 25 °C  
 9 OPERATE (external) ATM. kPaa @ AMB °C  
 10 DESIGN (internal) 1947 kPag @ 93 °C  
 11 DESIGN (external) ATM. kPaa @ -29 °C  
 12 MINIMUM DESIGN METAL TEMPERATURE (°C) -29/38  
 13 STRESS RELIEF NO WHY \_\_\_\_\_  
 14 RADIOGRAPHY FULL JOINT EFF. SHELL (%) \_\_\_\_\_ HEAD (%) \_\_\_\_\_  
 15 WIND REF. PRESSURE (kPag) \_\_\_\_\_ EARTHQK. ZONE Zv=0 Za=0  
 16  ASME VIII DIV I  ASME VIII DIV II  
 17  SWEET SERVICE  SOUR SERVICE  
 18  HORIZONTAL  VERTICAL

### WEIGHTS

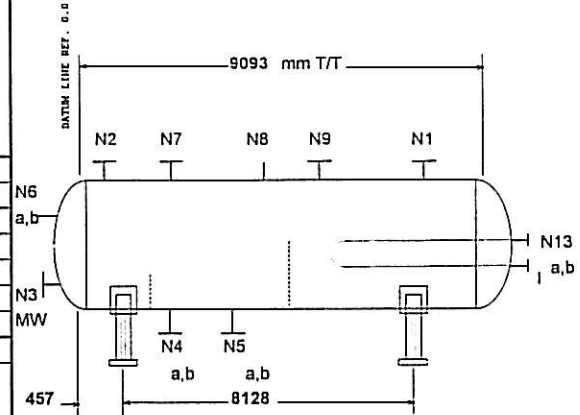
LESS INTERNALS (kg) 14681 INTERNALS WT (kg) \_\_\_\_\_  
 OPERATING WT (kg) 36788 HYDROTEST WT (kg) \_\_\_\_\_

	SHELL	HEADS
19		
20		
21	TYPE	
22	ASTM MATERIAL <u>SA-516-70</u>	<u>SA-516-70</u>
23	DESIGN THICKNESS (mm) <u>19.05</u>	<u>33.35/20.63</u>
24	CORROSION ALLOW (mm) <u>3.2</u>	<u>3.2</u>
25	TOTAL MIN THICK (mm) <u>22.25</u>	<u>36.55/23.83</u>

### FABRICATOR TO FURNISH

- |   |   |
|---|---|
| 27 <input type="radio"/> SKIRT & BASE RING<br>28 <input type="radio"/> LEGS<br>29 <input type="radio"/> SADDLES<br>30 <input type="radio"/> PLATFORM CLIPS<br>31 <input type="radio"/> PLATFORMS<br>32 <input type="radio"/> LADDER CLIPS<br>33 <input type="radio"/> LADDERS<br>34 <input type="radio"/> INSULATION RINGS<br>35 <input type="radio"/> PIPE SUPPORT CLIPS<br>36 <input type="radio"/> PIPE SUPPORTS<br>37 <input type="radio"/> TOP DAVIT<br>38 <input type="radio"/> MANWAY DAVIT<br>39 <input type="radio"/> MANWAY C/W GRAB RUNGS<br>40 <input type="radio"/> PAINTERS TROLLEY<br>41 <input type="radio"/> TRAY SUPPORT RINGS<br>42 <input type="radio"/> SEAL PAN SUPPORT<br>43 <input type="radio"/> MIST ELIMINATOR<br>44 <input type="radio"/> MIST ELIMINATOR SUPPORT<br>45 <input type="radio"/> DOWNCOMER SUPPORTS<br>46 <input type="radio"/> ANCHOR BOLT CHAIRS | 27 <input type="radio"/> SUPPORT GRID<br>28 <input checked="" type="radio"/> PIPE COIL<br>29 <input type="radio"/> LIFTING LUGS<br>30 <input type="radio"/> TAILING LUG<br>31 <input checked="" type="radio"/> SAND BLASTING<br>32 <input checked="" type="radio"/> EXTERNAL PAINTING / COATING<br>33 <input type="radio"/> INTERNAL COATING<br>34 <input checked="" type="radio"/> GROUND LUG<br>35 <input type="radio"/> INLET NOZZLE DISTRIB<br>36 <input type="radio"/> SPECIAL NOZZLE BKR<br>37 <input type="radio"/> VORTEX BREAKER<br>38 <input type="radio"/> SYPHON DRAIN<br>39 <input type="radio"/> STUDS & NUTS<br>40 <input type="radio"/> GASKETS<br>41 <input checked="" type="radio"/> BLIND FLANGES<br>42 <input type="radio"/> FIREPROOFING CLIPS<br>43 <input checked="" type="radio"/> BUILDING ENCLOSURE<br>44 _____<br>45 _____<br>46 _____ |
|---|---|

Note: All Dimensions in mm unless otherwise noted

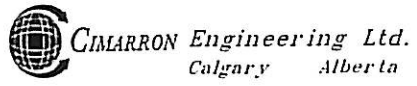


### CONNECTION SCHEDULE

MARK	SIZE	QTY	SERVICE	RATING	TYPE	ORIENT. °	'Z''	'J''	'X''	REMARKS
49	N1	12"	1	INLET	150#	RFWN				
50	N2	12"	1	GAS OUTLET	150#	RFWN				
51	N3	3"	1	EMULSION OUTLET	150#	RFWN				
52	N4	3"	2	DRAINS	150#	RFWN				
53	N5	3"	2	WATER OUTLET	150#	RFWN				
54	N6	3"	2	LEVEL BRIDGE OIL	150#	RFWN				
55	N7	2"	3	LEVEL BRIDGE WATER	150#	RFWN				
56	N8	2"	2	LEVEL BRIDGE WATER	150#	RFWN				
57	N9	1"	1	SAFETY RELIEF VALVE	150#	RFWN				
58	N13	2"	2	HEATING COIL IN/OUT	150#	RFWN				
59	MW	2"	2	MANWAY	150#	RFWN				NOTE 2

REMARKS: VENDOR TO COMPLETE DATA SHEET

1. Glycol heating coil design duty, 250,000 BTU/h.
2. See Equipment General Arrangement Drawing, V-10515-D101 for more detail.



JOB NO. PNR101  
 DATA SHEET NO. V-103

REV	DATE	BY
0	07/MAY99	GG



**CIMARRON**  
300, 6025 - 11<sup>th</sup> Street S.E.  
Calgary, Alberta T2H 2Z2

CLIENT:

PIONEER

SUBJECT:

PSV SIZE CHECK V-103

PAGE:

JOB No.:

PNR101

DATE:

JAN 21/99

BY:

GG

1) V-103 PSV CROSBY 6" 300<sup>#</sup> x 10" 150<sup>#</sup>  
JOS-35A

'R' ORIFICE 16 in<sup>2</sup> Area.

Jan 21/99 - per Jan 21 revision PSV changed to Crosby JOS-15-A, 4P6  
orifice 6.38" orifice. Still adequately sized for > 36 MMSCFD based on  
flare system backpressure.

2) Flare header flow rate check shows the following

FLOW	back pressure at inlet to 6" header
60 MMSCFD	214 psia
30 MMSCFD	108 psia

3) FARRIS PSV sizing program shows

@ ≈ 36 MMSCFD flow, and 110 psig backpressure,  
that a 3.6 in<sup>2</sup> M orifice works.

∴ In reality the PSV vent rate will be  
between 30-60 MMSCFD, wherever backpressure  
allows flow to be.

4) therefore we can use the 6" existing flare header  
for service





-TAQA NORTH DATA					
EQUIP NO.:	603VS002	RAMS ID TAG NO.:	NEW	PRN: A411565	CATEGORY:
PLANT/FIELD:	CHINCHAGA GAS PLANT	LSD:	C-032-H / 094-H-08	LOCATION:	GAS PLANT
EQUIP. NAME :	ALBERTA INLET SEPARATOR	CLASS :	VS	TYPE:	SEPARATOR
SERVICE:	<input checked="" type="checkbox"/> Sweet <input type="checkbox"/> Sour	H2S:	N/A PPM	FLUID:	GAS
OPERATING PRESSURE:	N/A <input type="checkbox"/> kPa <input type="checkbox"/> PSI	S/D REQT.:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	OPERATING TEMPERATURE:	4 <input checked="" type="checkbox"/> °C <input type="checkbox"/> °F
OPERATING STATUS:	<input checked="" type="checkbox"/> IN SERVICE <input type="checkbox"/> Not In Service	M/WAY(16"AND ABOVE):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	SIZE:	18"

MANUFACTURING DATA									
MFG.:	UNIVERSAL IND. LTD	DWG. NO.:	V-10515-D101 Rev.1	SERIAL NO.:	98-12-61	YR. BUILT:	1999	STAMP:	U,W
CRN:	K1059.12	CODE/DIV.:	ASME VIII DIV 1	PARA.:	N/A	SUPPORT:	<input type="checkbox"/> Skirt <input checked="" type="checkbox"/> Saddles <input type="checkbox"/> Nozzles		
MAWP:	1947 <input checked="" type="checkbox"/> kPa <input type="checkbox"/> PSI	@ TEMP:	38 <input checked="" type="checkbox"/> °C <input type="checkbox"/> °F	MDMT:	-29 <input checked="" type="checkbox"/> °C <input type="checkbox"/> °F	VOLUME:	N/A <input type="checkbox"/> M <sup>3</sup> <input type="checkbox"/> FT <sup>3</sup>		
FLANGE RATING:	150#	PWHT:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	RADIOGRAPHY:	<input checked="" type="checkbox"/> RT1 <input type="checkbox"/> RT2 <input type="checkbox"/> RT3 <input type="checkbox"/> RT4 <input type="checkbox"/> Spot <input type="checkbox"/> Full <input type="checkbox"/> N/A				
SIZE :	1829 <input checked="" type="checkbox"/> mm. <input type="checkbox"/> inch. <input type="checkbox"/> ID <input checked="" type="checkbox"/> OD	LENGTH:	12192 <input checked="" type="checkbox"/> mm. <input type="checkbox"/> inch.	HEIGHT:	N/A <input type="checkbox"/> mm. <input type="checkbox"/> inch.				
INSULATION TYPE:	<input checked="" type="checkbox"/> Fiberglass <input type="checkbox"/> Wool	<input type="checkbox"/> Low Temp <input type="checkbox"/> Asbestos	Other:	INSULATION THK:	25 <input checked="" type="checkbox"/> mm. <input type="checkbox"/> inch.				
SECTION	MATERIAL	NOMINAL mm	C.A. mm						
Shell	SA-516-70	19.1	3.2						
Hot End	SA-516-70N	33.4 min	3.2						
Cold End	SA-516-70N	20.6 min	3.2						
COMMENTS:									

TUBING DATA									
MAWP:	1586 <input checked="" type="checkbox"/> kPa <input type="checkbox"/> PSI	@ TEMP:	149 <input checked="" type="checkbox"/> °C <input type="checkbox"/> °F	TEMA CLASS:	N/A	TYPE:	U		
TUBE SIZE:	76.2 mm. <input type="checkbox"/> ID <input checked="" type="checkbox"/> OD	NUMBER (QTY OF TUBES):	1	GAUGE (BWG):	N/A	JOINT:	<input type="checkbox"/> Welded <input type="checkbox"/> Rolled		
SECTION	MATERIAL	NOMINAL mm	C.A. mm						
Coil	SA106B	7.6	3.2.						
N/A	N/A	N/A	N/A						
N/A	N/A	N/A	N/A						

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:	N/A	N/A	N/A
INTERNAL:	N/A	N/A	N/A
LINING:	N/A	N/A	N/A
CLADDING:	STAINLESS STEEL	304 SS	1999

PRESSURE RELIEF DEVICES DATA		<input type="checkbox"/> PSV not located	<input type="checkbox"/> No PSV	
EQUIP. NO.	TAG NO.	SET	CAPACITY	CAP UNITS/OTHER
603SVVS002	N/A	1951 <input checked="" type="checkbox"/> kPa <input type="checkbox"/> PSI	37205	<input checked="" type="checkbox"/> SCFM <input type="checkbox"/> LB/hr. <input type="checkbox"/> GAL/min.
N/A	N/A	N/A <input type="checkbox"/> kPa <input type="checkbox"/> PSI	N/A	<input type="checkbox"/> SCFM <input type="checkbox"/> LB/hr. <input type="checkbox"/> GAL/min.
N/A	N/A	N/A <input type="checkbox"/> kPa <input type="checkbox"/> PSI	N/A	<input type="checkbox"/> SCFM <input type="checkbox"/> LB/hr. <input type="checkbox"/> GAL/min.



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

D411565

1. Manufactured and certified by Universal Industries Corp., Box 1590 Lloydminster, AB S9V 1K5  
(Name and address of Manufacturer)
2. Manufactured for Pioneer Natural Resources Canada Inc. (Doug Robins, Box 23180, Grande Prairie, AB T8V 6X2)  
(Name and address of Purchaser)
3. Location of installation Chinchaga Gas Plant, BC LSD C-32-H/94-H-8  
(Name and address)
4. Type: Horizontal FWKO/Separator 98-12-61  
(Horiz., vert., or sphere) (Tank, separator, jkt. vessel, heat exh., etc.) (Mfg's serial no.)  
K1059-12 V-10515-D101 Rev. 1 N/A 1999  
(CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)
5. ASME Code, Section VIII, Div. 1 1998 N/A N/A  
Edition and Addenda (date) Code Case No. Special Service per UG-120(d)

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

6. Shell (a) No. of course(s): 3 (b) Overall length (ft & in.): 34' - 10 11/16"

Course(s) No.	Diameter in.	Length (ft & in)	Material Spec./Grade or Type	Thickness		Type	Long Joint (Cat. A)		Circum. Joint (Cat. A, B, & C)			Heat Treatment	
				Nom.	Corr.		Full.	Spot, None	Eff.	Type	Full.	Spot, None	Eff.
1	72" OD	10'	SA-516-70	.750"	.125"	1	Full	1.0	1	Full	1.0	N/A	N/A
2	72" OD	10'	SA-516-70	.750"	.125"	1	Full	1.0	1	Full	1.0	N/A	N/A
3	72" OD	10'	SA-516-70	.750"	.125"	1	Full	1.0	1	Full	1.0	N/A	N/A

7. Heads: (a) SA-516-70N (b) SA-516-70N  
(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
(a) Hot End	1.313"	.125	N/A	N/A	2:1 SE	N/A	N/A	N/A		Concave	1	Full	1.0
(b) Cold End	.8123"	.125	N/A	N/A	2:1 SE	N/A	N/A	N/A		Concave	1	Full	1.0

If removable, bolts used (describe other fastenings) 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.)

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

9. MAWP 282.4 psi at max. temp. 200 °F Min. design metal temp. -20 °F at 282.4 psi  
(internal) (external) (internal) (external)

10. Impact test N/A

11. Hydro., pneu., or comb. test press. 423.6 psig AB Proof test N/A  
(Indicate yes or no and the component(s) impact tested)

Items 12 and 13 to be completed for tube section.

12. Tubesheet: SA-516-70 25 1/8" x 55 1/8" 3 1/2" 1/8" Bolted  
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
13. Tubes: SA-106B 3" .300" 1 Attachment Multiple U Type  
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) No.	Diameter in.	Length (ft & in)	Material Spec./Grade or Type	Thickness		Type	Long Joint (Cat. A)		Circum. Joint (Cat. A, B, & C)			Heat Treatment	
				Nom.	Corr.		Full.	Spot, None	Eff.	Type	Full.	Spot, None	Eff.
		<u>N/A</u>											<u>N/A</u>

15. Heads: (a) N/A (b) 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
(a)													
(b)		<u>N/A</u>					<u>N/A</u>					<u>N/A</u>	

If removable, bolts used (describe other fastenings) N/A  
(Mat'l Spec. No., Grade, Size, No.)

411565

- 16 MAWP 230 psi (internal) N/A psi at max. temp. (external) 300 (internal) N/A °F (external) Min. design metal temp. -29 °F at 230 psi
- 17 Impact test N/A  
(Indicate yes or no and the component(s) impact tested)
- 18 Hydro., pneu., or comb. test press. 345 psi Proof test N/A
- 19 Nozzles, inspection, and safety valve openings:

Purpose (Inlet, Outlet, Drain, etc.)	No.	Diameter or Size	Flange Type	Material		Nozzle Thickness		Reinforcement Material	How Attached		Location (Inspec. Open.)
				Nozzle	Flange	Nom.	Corr.		Nozzle	Flange	
SEE U4 FORM											

- 20 Supports: Skirt No (Yes or No) Lugs 2 (No.) Legs No (No.) Others Saddles c/w Repads (Describe) Attached Under each end-welded (Where and how)
- 21 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)
- Coil S/N 99-01-01 CRN #K1059.12
- 22 Remarks: Job No. 10515  
 Capacity 868 Ft3  
S/N 98-12-61

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. 29,238 Expires Oct. 9 19 99  
 Date 99/02/12 Name Universal Industries Corp. Signed Engel Berman  
(Manufacturer) (Representative)

CERTIFICATE OF SHOP INSPECTION

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 Alberta Boiler Safety Association of Alberta have inspected the pressure vessel described in this Manufacturer's Data Report Feb 12, 19 99, 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 99 02 12 Signed [Signature] Commissions Alta 54CR  
(Authorized Inspector) (Natl Board (incl endorsement), State, Prov and No.)

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/or 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 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) (Natl Board incl. endorsement, State, Province and No.)



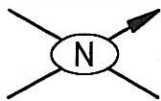
**FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET**  
As Required by the Provisions of the ASME Code Rules, Section VIII, Division 1

(A) 411565

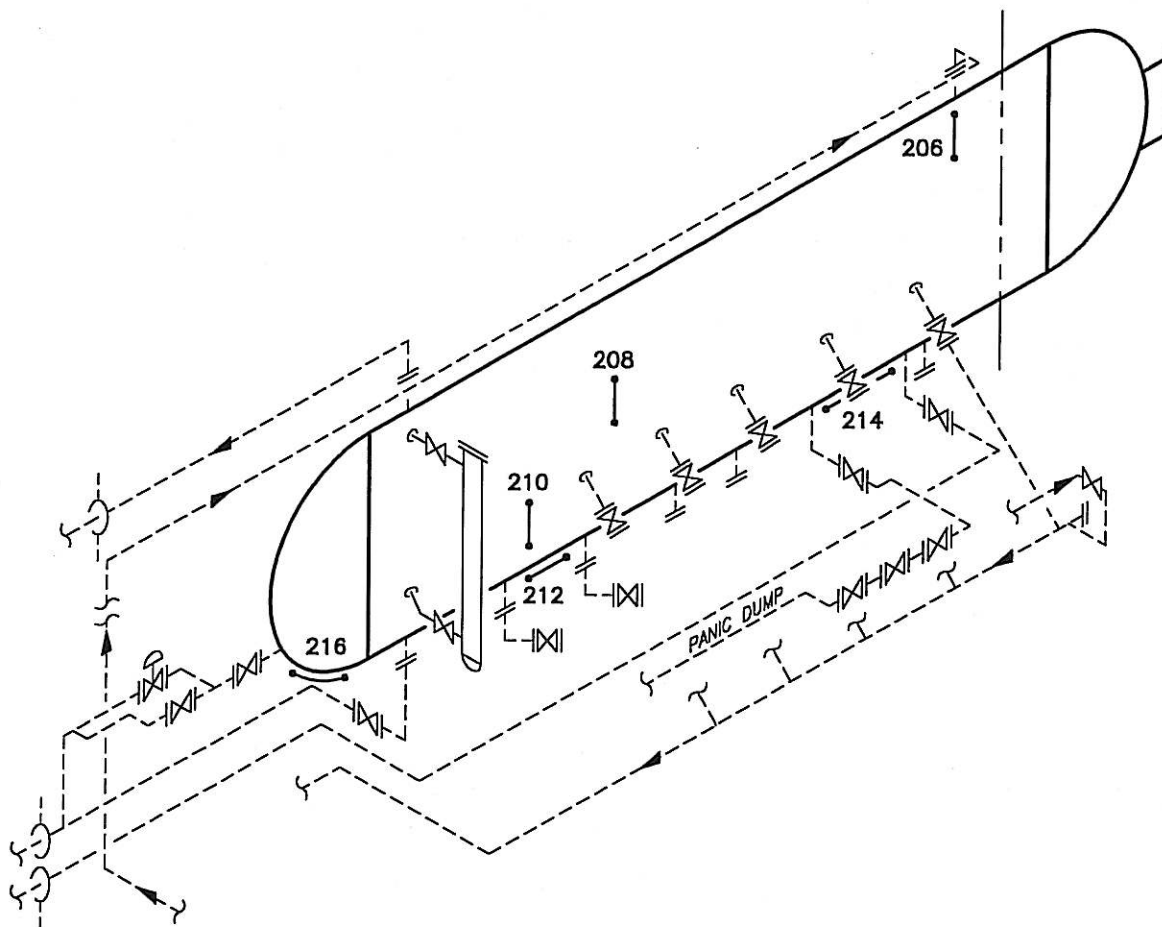
1. Manufactured and certified by Universal Industries Corp., Box 1590 Lloydminster, AB S9V 1K5  
(Name and address of Manufacturer)
2. Manufactured for Pioneer Natural Resources Canada Inc. (Doug Robins, Box 23180, Grande Prairie, AB T8V 6X2)  
(Name and address of Purchaser)
3. Location of installation Chinchaga Gas Plant, BC LSD C-32-H/94-H-8  
(Name and address)
4. Type: Horizontal FWKO/Separator 98-12-61  
(Horiz., vert. or sphere) (Tank, separator, heat exch., etc.) (Mfg's. serial no.)  
K1059.12 V-10515-D101 Rev. 1 N/A 1999  
(CRN) (Drawing No.) (Nat'l. Bd. No.) (Year built)
5. Nozzles, inspection and safety valve openings:

Purpose (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 UW16.1	Flange UW16.1	
Fluid Inlet	N1	12"	ANSI 150 RFWN	SA106B	SA105	.688"	.125"	SA516-70	Q	f-2	Shell
Gas Outlet	N2	12"	150RFWN	SA106B	SA105	.688"	.125"	SA516-70	Q	f-2	Shell
Emulsion Outlet	N3	3"	150RFWN	SA106B	SA105	.600"	.125"	--	e	f-2	Head
Drains	N4ab	3"	150RFWN	SA106B	SA105	.438"	.125"	SA516-70	Q	f-2	Shell
Water Outlets	N5ab	3"	150RFWN	SA106B	SA105	.438"	.125"	SA516-70	Q	f-2	Shell
Bridle (oil)	N6a	2"	150RFWN	SA106B	SA105	.436"	.125"	--	e	f-2	Shell
Bridle (oil)	N6b	2"	150RFWN	SA106B	SA105	.344"	.125"	--	e	f-2	Shell
Bridle (water)	N7ab	2"	150RFWN	SA106B	SA105	.344"	.125"	--	e	f-2	Shell
Bridle (water)	N7c	2"	150RFWN	SA106B	SA105	.436"	.125"	--	e	f-2	Shell
Bridle (Water Inlet)	N8a	2"	150RFWN	SA106B	SA105	.344"	.125"	--	e	f-2	Shell
Bridle (Water Inlet)	N8b	2"	150RFWN	SA106B	SA105	.436"	.125"	--	e	f-2	Shell
Safety RV	N9	4"	150RFWN	SA106B	SA105	.438"	.125"	SA516-70	Q	f-2	Shell
Spare	N10	3"	150RFWN	SA106B	SA105	.438"	.125"	SA516-70	Q	f-2	Shell
Desand In	N11ac	2"	150RFWN	SA106B	SA105	.344"	.125"	--	e	f-2	Shell
Desand Out	N129e	2"	150RFWN	SA106B	SA105	.344"	.125"	--	e	f-2	Shell
Heat Coil In	N13a	3"	150RFWN	SA106B	SA105	.438"	.125"	SA516-70	Q	f-2	Head
Heat Coil Out	N13b	3"	150RFWN	SA106B	SA105	.438"	.125"	SA516-70	Q	f-2	Head
Spare	N14	3"	150RFWN	SA106B	SA105	.438"	.125"	SA516-70	Q	f-2	Shell
Emul. Dram	N15	3"	150RFWN	SA106B	SA105	.438"	.125"	SA516-70	Q	f-2	Shell
Spare	N16	3"	150RFWN	SA106B	SA105	.438"	.125"	SA516-70	Q	f-2	Shell
Blowdown Out.	N17	3"	150RFWN	SA106B	SA105	.438"	.125"	SA516-70	Q	f-2	Shell
TI	C2ab	3/4"	--	SA105	--	THRU CPLG .125"	--	--	e	--	Shell
Sample Lines	C3ab	3/4"	--	SA105	--	THRU CPLG .125"	--	--	e	--	Shell
Spare	C4	1"	--	SA105	--	THRU CPLG .125"	--	--	e	--	Shell
Temp. Trans.	C5	3/4"	--	SA105	--	THRU CPLG .125"	--	--	e	--	Shell
Manways	M1ab	24"	150RFWN	SA106B	SA105	.500"	.125"	SA516-70	Q	f-2	Shell
Throat (corl)	T1	10"	--	--	Fab'd.	.875"	.125"	--	e	K	Head

Certificate of Authorization Type U No. 29,238 Expires Oct. 9, 1999  
 Date 99 02 12 Co. Name Universal Industries Corp. Signed Eng. A. Down  
 (Manufacturer) (Representative)  
 Date 99 02 12 Signed D. Maltais Commissions ALTA 54(R)  
 (Authorized Inspector) (Nat'l. Board (incl. endorsements), State, Prov. and No)



P&ID. # \_\_\_\_\_  
REF. # \_\_\_\_\_



### VESSEL DATA

P.E. No. V-103 Serial No. 98-12-61 Prov. Reg. No. A411565 C.R.N. K 1059.12  
MFR. UNIVERSAL Code/Div. \_\_\_\_\_ Para \_\_\_\_\_ Code Stamp U  
Yr. Bld. 1999 Yr. Inst. \_\_\_\_\_ Size \_\_\_\_\_ Service \_\_\_\_\_ PWHT \_\_\_\_\_  
RT 1 Insulated YES

### Nominal Thickness & Material

Head: \_\_\_\_\_ Mat'l: \_\_\_\_\_ C.A.: \_\_\_\_\_  
Head: \_\_\_\_\_  
Shell: \_\_\_\_\_  
Shell: \_\_\_\_\_  
Chan Hd: \_\_\_\_\_  
Chan Sh: \_\_\_\_\_  
Boot Hd: \_\_\_\_\_  
Boot Sh: \_\_\_\_\_

MAWP Shell Side 282.4 psi @ Temp. -20°F/100°F  
MAWP Tube Side \_\_\_\_\_ @ Temp. \_\_\_\_\_

COMMENTS: \_\_\_\_\_

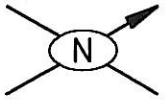
PIONEER NATURAL RESOURCES CANADA INC  
CHINCHAGA GAS PLANT  
LSD C-32-H \ 94-H-8

### FREE WATER KNOCK OUT

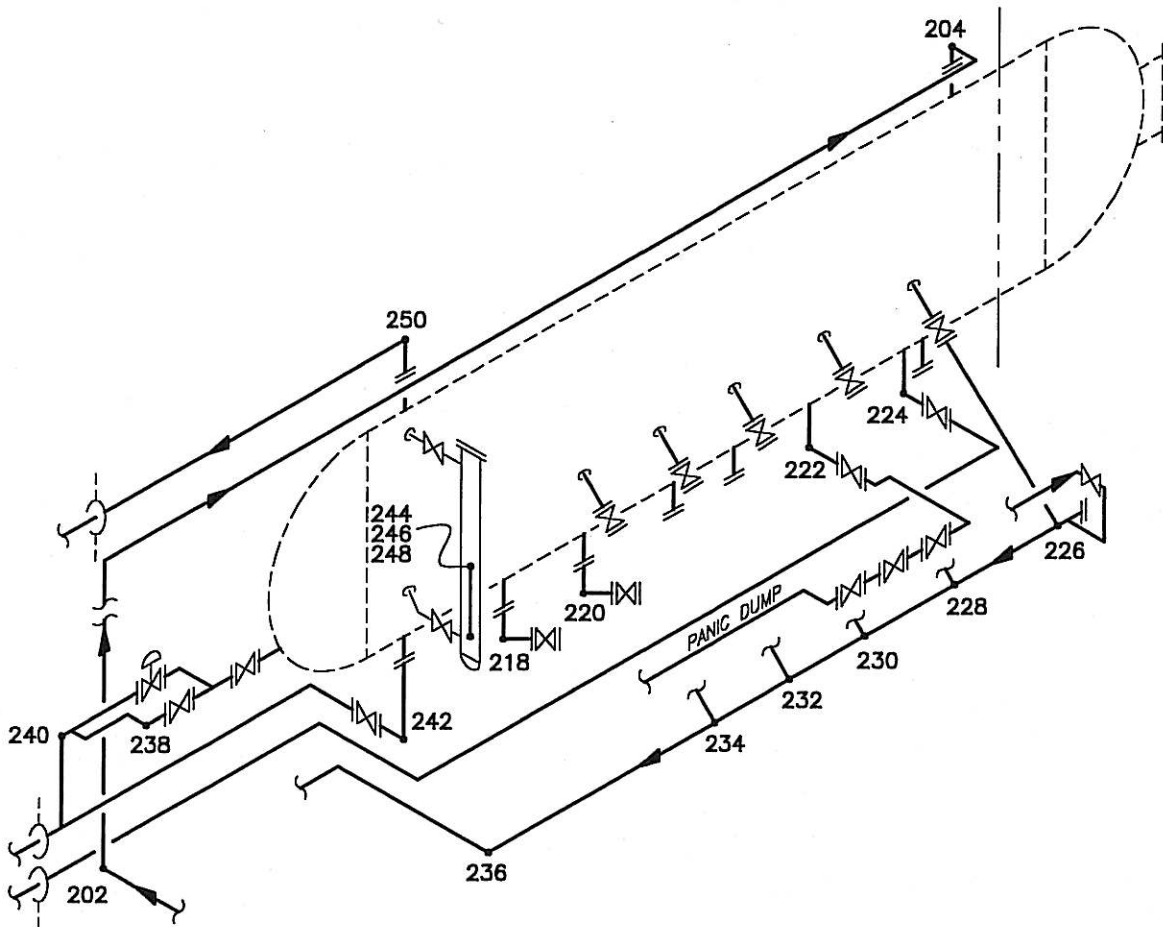
TECH.: <u>JO</u>	REV. DATE: _____	DWG DATE: <u>99/12</u>
CAD: <u>DR</u>	REVISION: _____	DRAWING: <u>002</u>



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
002-02	12"				40	10.3mm	ASTM	9.0mm		
002-04	12"				60	14.3mm	ASTM	12.5mm		
002-18/20/22/24/42	3"				40	5.5mm	ASTM	4.8mm		
002-26/28/30/32/34/36	4"				40	6.0mm	ASTM	5.3mm		
002-38/40	2"				40	3.9mm	ASTM	3.4mm		

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

FREE WATER KNOCK OUT PIPING

TECH.: JO	REV.DATE: _____	DWG.DATE: 99/12
CAD: DR	REVISION: _____	DRAWING: 002A

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

**RIVEST TESTING INC.**

Item Desc.: C-32-H/94-H-8 / FREE WATER KNOCK OUT

Equip. No.: V-103

Ser. No.: 98-12-61

Prov. Reg.: A411565

Pt.Desc.: 12"90L B-T

**Point No.: 002-02**

Line No.: N/A

Nominal: 10.300

Mths. Rem. To Min. Nom:

Good For Continued Service: YES

Corr. Allowance: ASTM

Min. Cal. Wall Thk.:

Additional Assessment Of Data: YES

Min. Nominal: 9.013

Suggested Max Insp. Interval In Mths.: 12

Survey Dates:

1999-12

Data Readings	1	10.700	____.____
	2	10.800	____.____
	3	10.300	____.____
	4	10.300	____.____
	5	10.800	____.____
	6	10.600	____.____
	7	10.900	____.____
	8	10.800	____.____
	9	10.700	____.____
	10	10.900	____.____
	11	11.000	____.____
	12	11.100	____.____

Data Evaluation

Lowest Reading	:	10.300
Average - Low 3	:	10.400
Thk.Remaining Above Min.	:	1.287
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 / FREE WATER KNOCK OUT  
Equip. No.: V-103 Ser. No.: 98-12-61

Prov. Reg.: A411565

Pt.Desc.: 12"90L T-B

**Point No.: 002-04**

Line No.: N/A

Nominal: 14.300 Mths. Rem. To Min. Nom:

Good For Continued Service: YES

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

Additional Assessment Of Data: YES

Min. Nominal: 12.513

Suggested Max Insp. Interval In Mths.: 12

Survey Dates:

1999-12

Data Readings		1999-12	
	1	14.800	____.____
	2	14.800	____.____
	3	14.900	____.____
	4	14.600	____.____
	5	14.700	____.____
	6	14.500	____.____
	7	14.600	____.____
	8	14.600	____.____
	9	14.400	____.____
	10	14.300	____.____
	11	14.300	____.____
	12	14.100	____.____

Data Evaluation

Lowest Reading : 14.100  
Average - Low 3 : 14.233  
Thk.Remaining Above Min. : 1.587  
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 / FREE WATER KNOCK OUT  
Equip. No.: V-103 Ser. No.: 98-12-61

Prov. Reg.: A411565

Pt.Desc.: N.UPPER SHELL

**Point No.: 002-06**

Nominal: 19.100 Mths. Rem. To Min. Nom:  
Corr. Allowance: N/S Min. Cal. Wall Thk.:  
Min. Nominal: 19.100

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

Survey Dates:

1999-12

Data Readings	1	19.900	____.____
	2	20.200	____.____
	3	20.000	____.____
	4	20.000	____.____
	5	20.100	____.____
	6	19.900	____.____

Data Evaluation

Lowest Reading : 19.900  
Average - Low 3 : 19.933  
Thk.Remaining Above Min. : 0.800  
Indv. Short Term Rate (mm/yr) :  
Short Term Rate (mm/yr) :  
LongTerm Rate (mm/yr) :

Comments:

ASSUMED NOMINAL

Pt.Desc.: CTR.SIDE SHELL

**Point No.: 002-08**

Nominal: 19.100 Mths. Rem. To Min. Nom:  
Corr. Allowance: N/S Min. Cal. Wall Thk.:  
Min. Nominal: 19.100

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

Survey Dates:

1999-12

Data Readings	1	19.700	____.____
	2	19.800	____.____
	3	19.800	____.____
	4	19.600	____.____
	5	19.700	____.____
	6	19.600	____.____

Data Evaluation

Lowest Reading : 19.600  
Average - Low 3 : 19.633  
Thk.Remaining Above Min. : 0.500  
Indv. Short Term Rate (mm/yr) :  
Short Term Rate (mm/yr) :  
LongTerm Rate (mm/yr) :

Comments:

ASSUMED NOMINAL

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

**RIVEST TESTING INC.**

Item Desc.: C-32-H/94-H-8 / FREE WATER KNOCK OUT  
Equip. No.: V-103 Ser. No.: 98-12-61

Prov. Reg.: A411565

Pt.Desc.: S.LOWER SHELL

**Point No.: 002-10**

Nominal: 19.100 Mths. Rem. To Min. Nom:  
Corr. Allowance: N/S Min. Cal. Wall Thk.:  
Min. Nominal: 19.100

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

Survey Dates: 1999-12  
Data Readings 1 20.000 \_\_\_\_\_.  
2 20.000 \_\_\_\_\_.  
3 19.800 \_\_\_\_\_.  
4 19.700 \_\_\_\_\_.  
5 19.800 \_\_\_\_\_.  
6 19.800 \_\_\_\_\_.  
\_\_\_\_\_.

Data Evaluation

Lowest Reading : 19.700  
Average - Low 3 : 19.767  
Thk.Remaining Above Min. : 0.600  
Indv. Short Term Rate (mm/yr) :  
Short Term Rate (mm/yr) :  
LongTerm Rate (mm/yr) :

Comments:  
ASSUMED NOMINAL

Pt.Desc.: S.BTM.CTR.SHELL

**Point No.: 002-12**

Nominal: 19.100 Mths. Rem. To Min. Nom:  
Corr. Allowance: N/S Min. Cal. Wall Thk.:  
Min. Nominal: 19.100

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

Survey Dates: 1999-12  
Data Readings 1 19.800 \_\_\_\_\_.  
2 19.800 \_\_\_\_\_.  
3 19.800 \_\_\_\_\_.  
4 19.800 \_\_\_\_\_.  
5 19.800 \_\_\_\_\_.  
6 19.800 \_\_\_\_\_.  
\_\_\_\_\_.

Data Evaluation

Lowest Reading : 19.800  
Average - Low 3 : 19.800  
Thk.Remaining Above Min. : 0.700  
Indv. Short Term Rate (mm/yr) :  
Short Term Rate (mm/yr) :  
LongTerm Rate (mm/yr) :

Comments:  
ASSUMED NOMINAL

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

**RIVEST TESTING INC.**

Item Desc.: C-32-H/94-H-8 / FREE WATER KNOCK OUT  
Equip. No.: V-103 Ser. No.: 98-12-61

Prov. Reg.: A411565

Pt.Desc.: N.BTM.CTR.SHELL

**Point No.: 002-14**

Nominal: 19.100 Mths. Rem. To Min. Nom:  
Corr. Allowance: N/S Min. Cal. Wall Thk.:  
Min. Nominal: 19.100

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

Survey Dates: 1999-12  
Data Readings

1	19.600	_____
2	19.600	_____
3	19.500	_____
4	19.800	_____
5	19.600	_____
6	19.600	_____

Data Evaluation

Lowest Reading : 19.500  
Average - Low 3 : 19.567  
Thk.Remaining Above Min. : 0.400  
Indv. Short Term Rate (mm/yr) :  
Short Term Rate (mm/yr) :  
LongTerm Rate (mm/yr) :

Comments:  
ASSUMED NOMINAL

Pt.Desc.: S.HEAD

**Point No.: 002-16**

Nominal: 22.200 Mths. Rem. To Min. Nom:  
Corr. Allowance: N/S Min. Cal. Wall Thk.:  
Min. Nominal: 22.200

Good For Continued Service: YES  
Additional Assessment Of Data: YES  
Suggested Max Insp. Interval In Mths.: 0

Survey Dates: 1999-12  
Data Readings

1	22.900	_____
2	22.200	_____
3	22.400	_____
4	22.500	_____
5	22.500	_____
6	22.400	_____

Data Evaluation

Lowest Reading : 22.200  
Average - Low 3 : 22.333  
Thk.Remaining Above Min. : 0.000  
Indv. Short Term Rate (mm/yr) :  
Short Term Rate (mm/yr) :  
LongTerm Rate (mm/yr) :

Comments:  
ASSUMED NOMINAL



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

**RIVEST TESTING INC.**

Item Desc.:	C-32-H/94-H-8 / FREE WATER KNOCK OUT		
Equip. No.:	V-103	Ser. No.:	98-12-61
		Prov. Reg.:	A411565

Pt.Desc.: 3"90L T-B **Point No.: 002-18**  
 Line No.: N/A  
 Nominal: 5.500 Mths. Rem. To Min. Nom: Good For Continued Service: YES  
 Corr. Allowance: ASTM Min. Cal. Wall Thk.: Additional Assessment Of Data: YES  
 Min. Nominal: 4.813 Suggested Max Insp. Interval In Mths.: 12

Survey Dates: 1999-12

Data Readings	1	6.000	____.____
	2	6.100	____.____
	3	6.100	____.____
	4	6.000	____.____
	5	6.100	____.____

Data Evaluation  
 Lowest Reading : 6.000  
 Average - Low 3 : 6.033  
 Thk.Remaining Above Min. : 1.187  
 Indv. Short Term Rate (mm/yr) :  
 Short Term Rate (mm/yr) :  
 LongTerm Rate (mm/yr) :

Pt.Desc.: 3"90L T-B **Point No.: 002-20**  
 Line No.: N/A  
 Nominal: 5.500 Mths. Rem. To Min. Nom: Good For Continued Service: YES  
 Corr. Allowance: ASTM Min. Cal. Wall Thk.: Additional Assessment Of Data: YES  
 Min. Nominal: 4.813 Suggested Max Insp. Interval In Mths.: 12

Survey Dates: 1999-12

Data Readings	1	6.100	____.____
	2	6.000	____.____
	3	6.000	____.____
	4	6.100	____.____
	5	5.900	____.____

Data Evaluation  
 Lowest Reading : 5.900  
 Average - Low 3 : 5.967  
 Thk.Remaining Above Min. : 1.087  
 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 / FREE WATER KNOCK OUT  
Equip. No.: V-103 Ser. No.: 98-12-61

Prov. Reg.: A411565

Pt.Desc.: 3"90L T-B

**Point No.: 002-22**

Line No.: N/A

Nominal: 5.500 Mths. Rem. To Min. Nom:  
Corr. Allowance: ASTM Min. Cal. Wall Thk.:  
Min. Nominal: 4.813

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

Survey Dates: 1999-12

Data Readings	1	6.400	____.____
	2	6.400	____.____
	3	6.500	____.____
	4	6.400	____.____
	5	6.400	____.____

Data Evaluation

Lowest Reading : 6.400  
Average - Low 3 : 6.400  
Thk.Remaining Above Min. : 1.587  
Indv. Short Term Rate (mm/yr) :  
Short Term Rate (mm/yr) :  
LongTerm Rate (mm/yr) :

Pt.Desc.: 3"90L T-B

**Point No.: 002-24**

Line No.: N/A

Nominal: 5.500 Mths. Rem. To Min. Nom:  
Corr. Allowance: ASTM Min. Cal. Wall Thk.:  
Min. Nominal: 4.813

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

Survey Dates: 1999-12

Data Readings	1	6.600	____.____
	2	6.600	____.____
	3	6.600	____.____
	4	6.600	____.____
	5	6.600	____.____

Data Evaluation

Lowest Reading : 6.600  
Average - Low 3 : 6.600  
Thk.Remaining Above Min. : 1.787  
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 / FREE WATER KNOCK OUT  
Equip. No.: V-103 Ser. No.: 98-12-61

Prov. Reg.: A411565

Pt.Desc.: 4"TEE R-L

**Point No.: 002-26**

Line No.: N/A

Nominal: 6.000 Mths. Rem. To Min. Nom:  
Corr. Allowance: ASTM Min. Cal. Wall Thk.:  
Min. Nominal: 5.250

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

Survey Dates: 1999-12

Data Readings		1999-12	
	1	5.800	____.____
	2	5.800	____.____
	3	5.900	____.____
	4	5.900	____.____
	5	6.000	____.____
	6	5.900	____.____

Data Evaluation

Lowest Reading : 5.800  
Average - Low 3 : 5.833  
Thk.Remaining Above Min. : 0.550  
Indv. Short Term Rate (mm/yr) :  
Short Term Rate (mm/yr) :  
LongTerm Rate (mm/yr) :

Pt.Desc.: 4"TEE R-L

**Point No.: 002-28**

Line No.: N/A

Nominal: 6.000 Mths. Rem. To Min. Nom:  
Corr. Allowance: ASTM Min. Cal. Wall Thk.:  
Min. Nominal: 5.250

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

Survey Dates: 1999-12

Data Readings		1999-12	
	1	5.900	____.____
	2	6.000	____.____
	3	6.100	____.____
	4	6.000	____.____
	5	6.100	____.____
	6	6.100	____.____

Data Evaluation

Lowest Reading : 5.900  
Average - Low 3 : 5.967  
Thk.Remaining Above Min. : 0.650  
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 / FREE WATER KNOCK OUT	Prov. Reg.: A411565
Equip. No.: V-103	Ser. No.: 98-12-61

Pt.Desc.: 4"TEE R-L **Point No.: 002-30**  
 Line No.: N/A  
 Nominal: 6.000 Mths. Rem. To Min. Nom: Good For Continued Service: YES  
 Corr. Allowance: ASTM Min. Cal. Wall Thk.: Additional Assessment Of Data: YES  
 Min. Nominal: 5.250 Suggested Max Insp. Interval In Mths.: 12

Survey Dates: 1999-12

Data Readings	1	5.900	____.____
	2	5.900	____.____
	3	6.000	____.____
	4	6.000	____.____
	5	5.900	____.____
	6	5.900	____.____

Data Evaluation

Lowest Reading : 5.900  
 Average - Low 3 : 5.900  
 Thk.Remaining Above Min. : 0.650  
 Indv. Short Term Rate (mm/yr) :  
 Short Term Rate (mm/yr) :  
 LongTerm Rate (mm/yr) :

Pt.Desc.: 4"TEE R-L **Point No.: 002-32**  
 Line No.: N/A  
 Nominal: 6.000 Mths. Rem. To Min. Nom: Good For Continued Service: YES  
 Corr. Allowance: ASTM Min. Cal. Wall Thk.: Additional Assessment Of Data: YES  
 Min. Nominal: 5.250 Suggested Max Insp. Interval In Mths.: 12

Survey Dates: 1999-12

Data Readings	1	6.200	____.____
	2	5.900	____.____
	3	5.900	____.____
	4	5.800	____.____
	5	6.000	____.____
	6	6.000	____.____

Data Evaluation

Lowest Reading : 5.800  
 Average - Low 3 : 5.867  
 Thk.Remaining Above Min. : 0.550  
 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 / FREE WATER KNOCK OUT  
Equip. No.: V-103 Ser. No.: 98-12-61

Prov. Reg.: A411565

Pt.Desc.: 4"TEE R-L

**Point No.: 002-34**

Line No.: N/A

Nominal: 6.000 Mths. Rem. To Min. Nom:  
Corr. Allowance: ASTM Min. Cal. Wall Thk.:  
Min. Nominal: 5.250

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

Survey Dates:

1999-12

Data Readings	1	6.300	____.____
	2	6.300	____.____
	3	6.200	____.____
	4	6.300	____.____
	5	6.400	____.____
	6	6.300	____.____

Data Evaluation

Lowest Reading : 6.200  
Average - Low 3 : 6.267  
Thk.Remaining Above Min. : 0.950  
Indv. Short Term Rate (mm/yr) :  
Short Term Rate (mm/yr) :  
LongTerm Rate (mm/yr) :

Pt.Desc.: 4"90L R-L

**Point No.: 002-36**

Line No.: N/A

Nominal: 6.000 Mths. Rem. To Min. Nom:  
Corr. Allowance: ASTM Min. Cal. Wall Thk.:  
Min. Nominal: 5.250

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

Survey Dates:

1999-12

Data Readings	1	6.600	____.____
	2	6.700	____.____
	3	6.500	____.____
	4	6.600	____.____
	5	6.700	____.____
	6	6.700	____.____

Data Evaluation

Lowest Reading : 6.500  
Average - Low 3 : 6.567  
Thk.Remaining Above Min. : 1.250  
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 / FREE WATER KNOCK OUT  
Equip. No.: V-103 Ser. No.: 98-12-61

Prov. Reg.: A411565

Pt.Desc.: 2"90L R-L

**Point No.: 002-38**

Line No.: N/A

Nominal: 3.900 Mths. Rem. To Min. Nom:  
Corr. Allowance: ASTM Min. Cal. Wall Thk.:  
Min. Nominal: 3.413

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

<u>Survey Dates:</u>		<u>1999-12</u>	
Data Readings	1	4.700	____.____
	2	4.700	____.____
	3	4.700	____.____
	4	4.700	____.____
	5	4.700	____.____

Data Evaluation

Lowest Reading : 4.700  
Average - Low 3 : 4.700  
Thk.Remaining Above Min. : 1.287  
Indv. Short Term Rate (mm/yr) :  
Short Term Rate (mm/yr) :  
LongTerm Rate (mm/yr) :

Pt.Desc.: 2"90L T-B

**Point No.: 002-40**

Line No.: N/A

Nominal: 3.900 Mths. Rem. To Min. Nom:  
Corr. Allowance: ASTM Min. Cal. Wall Thk.:  
Min. Nominal: 3.413

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

<u>Survey Dates:</u>		<u>1999-12</u>	
Data Readings	1	4.600	____.____
	2	4.700	____.____
	3	4.600	____.____
	4	4.600	____.____
	5	4.600	____.____

Data Evaluation

Lowest Reading : 4.600  
Average - Low 3 : 4.600  
Thk.Remaining Above Min. : 1.187  
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 / FREE WATER KNOCK OUT	Prov. Reg.: A411565
Equip. No.: V-103	Ser. No.: 98-12-61

Pt.Desc.: 3"90L T-B

**Point No.: 002-42**

Line No.: N/A

Nominal: 5.500 Mths. Rem. To Min. Nom:

Good For Continued Service: YES

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

Additional Assessment Of Data: YES

Min. Nominal: 4.813

Suggested Max Insp. Interval In Mths.: 12

Survey Dates: 1999-12

Data Readings	1	6.400	____.____
	2	6.400	____.____
	3	6.400	____.____
	4	6.200	____.____
	5	6.200	____.____

Data Evaluation

Lowest Reading : 6.200

Average - Low 3 : 6.267

Thk.Remaining Above Min. : 1.387

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 / FREE WATER KNOCK OUT  
Equip. No.: V-103 Ser. No.: 98-12-61

Prov. Reg.: A411565

Pt.Desc.: BTM.SHELL NORTH FLOAT COLUMN

**Point No.: 002-44**

Nominal: 7.100 Mths. Rem. To Min. Nom:  
Corr. Allowance: N/S Min. Cal. Wall Thk.:  
Min. Nominal: 7.100

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

<u>Survey Dates:</u>	<u>1999-12</u>	
Data Readings	1	7.600 ____.
	2	7.500 ____.
	3	7.500 ____.
	4	7.500 ____.
	5	7.500 ____.
	6	7.500 ____.
	7	7.600 ____.
	8	7.600 ____.
	9	7.500 ____.
	10	7.500 ____.
	11	7.500 ____.
	12	7.500 ____.

Data Evaluation

Lowest Reading : 7.500  
Average - Low 3 : 7.500  
Thk.Remaining Above Min. : 0.400  
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 / FREE WATER KNOCK OUT	Prov. Reg.: A411565
Equip. No.: V-103	Ser. No.: 98-12-61

Pt.Desc.: BTM.SHELL SOUTH FLOAT COLUMN

**Point No.: 002-48**

Nominal: 7.100	Mths. Rem. To Min. Nom: _____	Good For Continued Service: YES
Corr. Allowance: N/S	Min. Cal. Wall Thk.: _____	Additional Assessment Of Data: YES
Min. Nominal: 7.100		Suggested Max Insp. Interval In Mths.: 12

<u>Survey Dates:</u>	<u>1999-12</u>	
Data Readings	1	7.900 ____.
	2	7.900 ____.
	3	7.900 ____.
	4	8.000 ____.
	5	8.000 ____.
	6	8.000 ____.
	7	8.000 ____.
	8	7.900 ____.
	9	7.900 ____.
	10	7.800 ____.
	11	7.800 ____.
	12	8.000 ____.

Data Evaluation

Lowest Reading	:	7.800
Average - Low 3	:	7.833
Thk.Remaining Above Min.	:	0.700
Indv. Short Term Rate (mm/yr)	:	
Short Term Rate (mm/yr)	:	
LongTerm Rate (mm/yr)	:	

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

**RIVEST TESTING INC.**

Item Desc.: C-32-H/94-H-8 / FREE WATER KNOCK OUT  
Equip. No.: V-103 Ser. No.: 98-12-61

Prov. Reg.: A411565

Pt.Desc.: 12"90L B-T

**Point No.: 002-50**

Line No.: N/A

Nominal: 12.700 Mths. Rem. To Min. Nom:  
Corr. Allowance: ASTM Min. Cal. Wall Thk.:  
Min. Nominal: 11.113

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

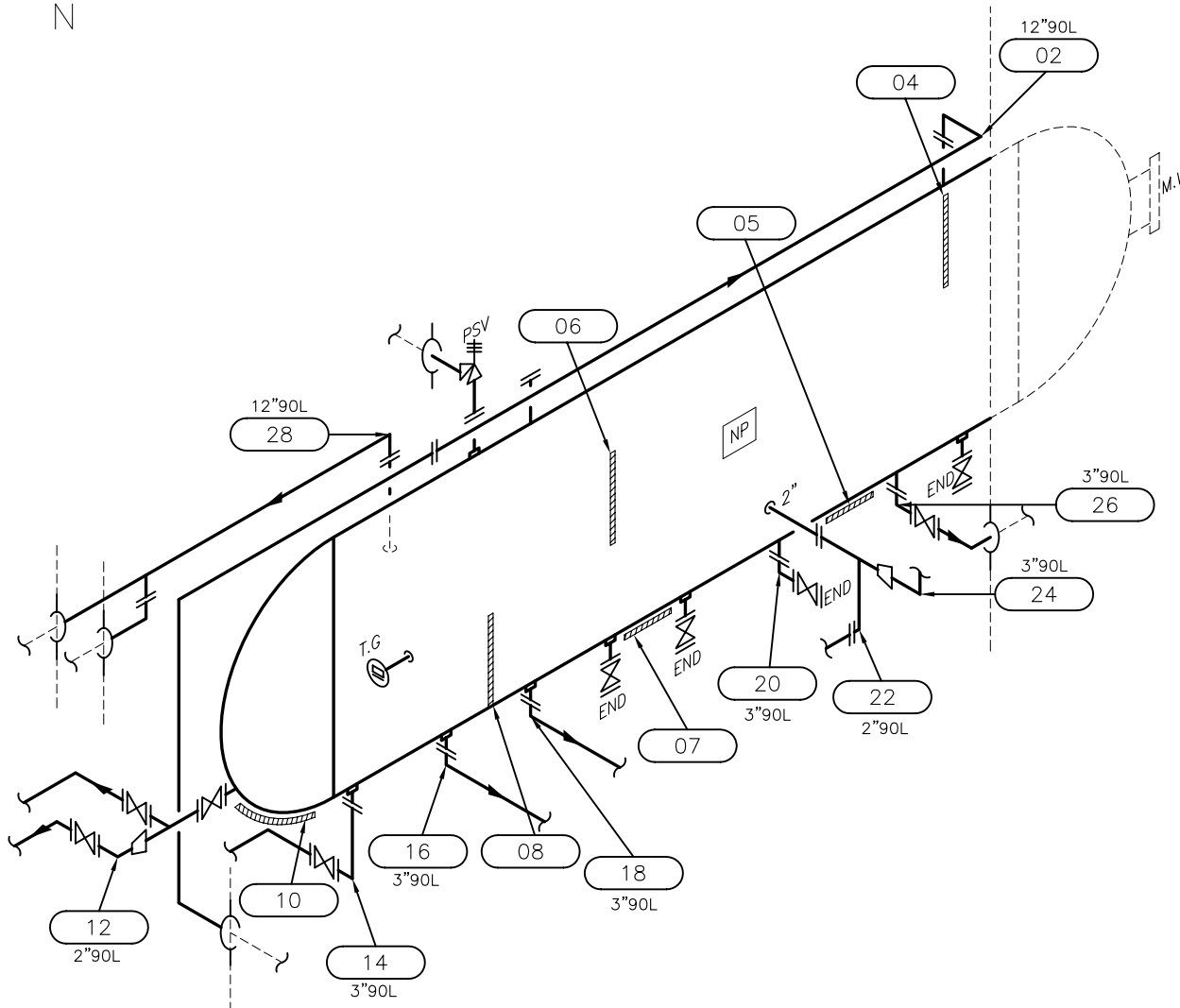
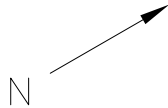
Survey Dates:

1999-12

Data Readings	1	14.800	____.____
	2	14.400	____.____
	3	14.300	____.____
	4	14.200	____.____
	5	14.300	____.____
	6	14.100	____.____
	7	14.100	____.____
	8	14.600	____.____
	9	14.600	____.____
	10	14.600	____.____
	11	14.600	____.____
	12	14.600	____.____

Data Evaluation

Lowest Reading : 14.100  
Average - Low 3 : 14.133  
Thk.Remaining Above Min. : 2.987  
Indv. Short Term Rate (mm/yr) :  
Short Term Rate (mm/yr) :  
LongTerm Rate (mm/yr) :



P.E. No.: N/S Yr. Bilt.: 1999  
 OIP# 603VS002 Manway: YES  
 Serial No.: 98-12-61 Size: 1829mm x 12192mm  
 P.R.N. (A) 411565 Service: SWEET  
 C.R.N.: K1059.12 PWHT: NO  
 Code/Div.: ASME VIII DIV. 1 RT: 1  
 Para: N/S Insulated: YES  
 C. Stamp: UW N.B. No: N/S  
 Manufacturer: UNIVERSAL IND. LTD.

**Design & Materials Data**

<b>HEAD</b>	<b>SHELL</b>
Material: <u>SA516-70N</u>	Material: <u>SA516-70</u>
Nom.: <u>33.4mm MIN/20.6mm</u>	Nom.: <u>19.1mm</u>
C.A.: <u>3.2mm</u>	C.A.: <u>3.2mm</u>
<b>BOOT HEAD</b>	<b>BOOT SHELL</b>
Material: _____	Material: _____
Nom.: _____	Nom.: _____
C.A.: _____	C.A.: _____
<b>CHANNEL HEAD</b>	<b>CHANNEL SHELL</b>
Material: _____	Material: _____
Nom.: _____	Nom.: _____
C.A.: _____	C.A.: _____
MAWP Shell Side: <u>1947 KPA</u>	⊙ Temp.: <u>38°C</u>
MAWP Tube Side: <u>1586 KPA</u>	⊙ Temp.: <u>149°C</u>

CLIENT: **TAQA NORTH**

FACILITY: **CHINCHAGA GAS PLANT**

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

ITEM: **ALBERTA INLET SEPARATOR**

Comments: ALL INSULATED (VESSEL) NOT PIPING

BY: M.T. DATE: 2008/04 DWG.# 005

## TAQA North

Unit: N-603

FACILITY:	CHINCHAGA GAS PLANT	MANUFACTURER:	UNIVERSAL IND. LTD.
LSD:	C-032-H/094-H-08	DESIGN PRESSURE:	1947 kPa / 282 psi
ITEM DESC.:	A411565 - ALBERTA INLET SEPARATOR	DESIGN TEMP.:	38 C / 100 F
EQUIP / OIP#:	603VS002	RECOMMENDED NEXT INSP. DATE:	10/2009
PROV. REG. #:	A411565	RECOMMENDED RETIREMENT DATE:	05/2129
SERIAL #:	98-12-61	REM. LIFE (from last survey 04/2008):	121.10 yrs.
CRN.:	K1059.12	TOTAL CAUTION / ACTION TML:	0

### Item # (005)

#### COMMENTS:

2008/04 - TML 10.06 READING @ H.A.Z.  
 TML 14.05 READING @ H.A.Z.  
 TML 16.05 READING @ H.A.Z.  
 TML 18.05 READING @ H.A.Z.  
 TML 20.05 READING @ H.A.Z.

#### TML No.: 2 12"90L T-B 150 #

DATE BUILT: 01/1999

AVERAGE THICKNESS MEASURED: 14.10 mm.

MATERIAL:

MINIMUM THICKNESS MEASURED: 13.70 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date	B/L Survey	Prev. Survey Date	Prev. Survey	Last Survey Date	Last Survey	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/Caution Required Item
				mm/yyyy		mm/yyyy		mm/yyyy						
2.01	12.70	1.60	11.10	01/1999	12.70	N/A	N/A	04/2008	14.10	0.000	0.000	04/2013	04/3008	NO
2.02	12.70	1.60	11.10	01/1999	12.70	N/A	N/A	04/2008	14.20	0.000	0.000	04/2013	08/3041	NO
2.03	12.70	1.60	11.10	01/1999	12.70	N/A	N/A	04/2008	14.50	0.000	0.000	04/2013	08/3141	NO
2.04	12.70	1.60	11.10	01/1999	12.70	N/A	N/A	04/2008	14.20	0.000	0.000	04/2013	08/3041	NO
2.05	12.70	1.60	11.10	01/1999	12.70	N/A	N/A	04/2008	14.30	0.000	0.000	04/2013	12/3074	NO
2.06	12.70	1.60	11.10	01/1999	12.70	N/A	N/A	04/2008	14.10	0.000	0.000	04/2013	04/3008	NO
2.07	12.70	1.60	11.10	01/1999	12.70	N/A	N/A	04/2008	14.20	0.000	0.000	04/2013	08/3041	NO
2.08	12.70	1.60	11.10	01/1999	12.70	N/A	N/A	04/2008	14.10	0.000	0.000	04/2013	04/3008	NO
2.09	12.70	1.60	11.10	01/1999	12.70	N/A	N/A	04/2008	14.10	0.000	0.000	04/2013	04/3008	NO
2.10	12.70	1.60	11.10	01/1999	12.70	N/A	N/A	04/2008	13.90	0.000	0.000	04/2013	08/2941	NO
2.11	12.70	1.60	11.10	01/1999	12.70	N/A	N/A	04/2008	13.80	0.000	0.000	04/2013	04/2908	NO
2.12	12.70	1.60	11.10	01/1999	12.70	N/A	N/A	04/2008	13.70	0.000	0.000	04/2013	12/2874	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:	UNIVERSAL IND. LTD.
LSD:	C-032-H/094-H-08	DESIGN PRESSURE:	1947 kPa / 282 psi
ITEM DESC.:	A411565 - ALBERTA INLET SEPARATOR	DESIGN TEMP.:	38 C / 100 F
EQUIP / OIP#:	603VS002	RECOMMENDED NEXT INSP. DATE:	10/2009
PROV. REG. #:	A411565	RECOMMENDED RETIREMENT DATE:	05/2129
SERIAL #:	98-12-61	REM. LIFE (from last survey 04/2008):	121.10 yrs.
CRN.:	K1059.12	TOTAL CAUTION / ACTION TML:	0

### Item # (005)

#### COMMENTS:

2008/04 - TML 10.06 READING @ H.A.Z.  
 TML 14.05 READING @ H.A.Z.  
 TML 16.05 READING @ H.A.Z.  
 TML 18.05 READING @ H.A.Z.  
 TML 20.05 READING @ H.A.Z.

#### TML No.: 4 UPPER SH T-B

DATE BUILT: 01/1999

AVERAGE THICKNESS MEASURED: 19.32 mm.

MATERIAL: SA516-70

MINIMUM THICKNESS MEASURED: 19.30 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date	B/L Survey	Prev. Survey Date	Prev. Survey	Last Survey Date	Last Survey	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/Caution Required Item
				mm/yyyy		mm/yyyy		mm/yyyy						
4.01	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO
4.02	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO
4.03	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO
4.04	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO
4.05	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.40	0.000	0.000	04/2013	12/3174	NO
4.06	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO

#### TML No.: 5 BTM SH N-S

DATE BUILT: 01/1999

AVERAGE THICKNESS MEASURED: 19.25 mm.

MATERIAL: SA516-70

MINIMUM THICKNESS MEASURED: 19.20 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date	B/L Survey	Prev. Survey Date	Prev. Survey	Last Survey Date	Last Survey	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/Caution Required Item
				mm/yyyy		mm/yyyy		mm/yyyy						
5.01	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.20	0.000	0.000	04/2013	04/3108	NO
5.02	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.20	0.000	0.000	04/2013	04/3108	NO
5.03	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO
5.04	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO
5.05	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO
5.06	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.20	0.000	0.000	04/2013	04/3108	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:	UNIVERSAL IND. LTD.
LSD:	C-032-H/094-H-08	DESIGN PRESSURE:	1947 kPa / 282 psi
ITEM DESC.:	A411565 - ALBERTA INLET SEPARATOR	DESIGN TEMP.:	38 C / 100 F
EQUIP / OIP#:	603VS002	RECOMMENDED NEXT INSP. DATE:	10/2009
PROV. REG. #:	A411565	RECOMMENDED RETIREMENT DATE:	05/2129
SERIAL #:	98-12-61	REM. LIFE (from last survey 04/2008):	121.10 yrs.
CRN.:	K1059.12	TOTAL CAUTION / ACTION TML:	0

### Item # (005)

#### COMMENTS:

2008/04 - TML 10.06 READING @ H.A.Z.  
 TML 14.05 READING @ H.A.Z.  
 TML 16.05 READING @ H.A.Z.  
 TML 18.05 READING @ H.A.Z.  
 TML 20.05 READING @ H.A.Z.

#### TML No.: 6 SIDE SH T-B

DATE BUILT: 01/1999

AVERAGE THICKNESS MEASURED: 19.28 mm.

MATERIAL: SA516-70

MINIMUM THICKNESS MEASURED: 19.20 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date	B/L Survey	Prev. Survey Date	Prev. Survey	Last Survey Date	Last Survey	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/Caution Required Item
				mm/yyyy		mm/yyyy		mm/yyyy						
6.01	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO
6.02	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO
6.03	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO
6.04	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO
6.05	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.20	0.000	0.000	04/2013	04/3108	NO
6.06	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO

#### TML No.: 7 BTM SH N-S

DATE BUILT: 01/1999

AVERAGE THICKNESS MEASURED: 19.25 mm.

MATERIAL: SA516-70

MINIMUM THICKNESS MEASURED: 19.20 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date	B/L Survey	Prev. Survey Date	Prev. Survey	Last Survey Date	Last Survey	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/Caution Required Item
				mm/yyyy		mm/yyyy		mm/yyyy						
7.01	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.20	0.000	0.000	04/2013	04/3108	NO
7.02	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO
7.03	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO
7.04	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO
7.05	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.20	0.000	0.000	04/2013	04/3108	NO
7.06	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.20	0.000	0.000	04/2013	04/3108	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:	UNIVERSAL IND. LTD.
LSD:	C-032-H/094-H-08	DESIGN PRESSURE:	1947 kPa / 282 psi
ITEM DESC.:	A411565 - ALBERTA INLET SEPARATOR	DESIGN TEMP.:	38 C / 100 F
EQUIP / OIP#:	603VS002	RECOMMENDED NEXT INSP. DATE:	10/2009
PROV. REG. #:	A411565	RECOMMENDED RETIREMENT DATE:	05/2129
SERIAL #:	98-12-61	REM. LIFE (from last survey 04/2008):	121.10 yrs.
CRN.:	K1059.12	TOTAL CAUTION / ACTION TML:	0

### Item # (005)

#### COMMENTS:

2008/04 - TML 10.06 READING @ H.A.Z.  
 TML 14.05 READING @ H.A.Z.  
 TML 16.05 READING @ H.A.Z.  
 TML 18.05 READING @ H.A.Z.  
 TML 20.05 READING @ H.A.Z.

#### TML No.: 8 LOWER SH T-B

DATE BUILT: 01/1999

AVERAGE THICKNESS MEASURED: 19.43 mm.

MATERIAL: SA516-70

MINIMUM THICKNESS MEASURED: 19.30 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date	B/L Survey	Prev. Survey Date	Prev. Survey	Last Survey Date	Last Survey	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/Caution Required Item
				mm/yyyy		mm/yyyy		mm/yyyy						
8.01	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	20.00	0.000	0.000	04/2013	12/3374	NO
8.02	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.40	0.000	0.000	04/2013	12/3174	NO
8.03	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO
8.04	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO
8.05	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO
8.06	19.10	3.20	15.90	01/1999	19.10	N/A	N/A	04/2008	19.30	0.000	0.000	04/2013	08/3141	NO

#### TML No.: 10 BTM HD T-B

DATE BUILT: 01/1999

AVERAGE THICKNESS MEASURED: 21.95 mm.

MATERIAL: SA51670N

MINIMUM THICKNESS MEASURED: 21.70 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date	B/L Survey	Prev. Survey Date	Prev. Survey	Last Survey Date	Last Survey	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/Caution Required Item
				mm/yyyy		mm/yyyy		mm/yyyy						
10.01	23.80	3.20	20.60	01/1999	23.80	N/A	N/A	04/2008	22.50	0.000	0.140	04/2013	11/2021	NO *
10.02	23.80	3.20	20.60	01/1999	23.80	N/A	N/A	04/2008	21.70	0.000	0.226	09/2010	02/2013	NO *
10.03	23.80	3.20	20.60	01/1999	23.80	N/A	N/A	04/2008	21.90	0.000	0.206	06/2011	07/2014	NO *
10.04	23.80	3.20	20.60	01/1999	23.80	N/A	N/A	04/2008	22.00	0.000	0.196	11/2011	06/2015	NO *
10.05	23.80	3.20	20.60	01/1999	23.80	N/A	N/A	04/2008	21.90	0.000	0.206	06/2011	07/2014	NO *
10.06	23.80	3.20	20.60	01/1999	23.80	N/A	N/A	04/2008	21.70	0.000	0.226	09/2010	02/2013	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:	UNIVERSAL IND. LTD.
LSD:	C-032-H/094-H-08	DESIGN PRESSURE:	1947 kPa / 282 psi
ITEM DESC.:	A411565 - ALBERTA INLET SEPARATOR	DESIGN TEMP.:	38 C / 100 F
EQUIP / OIP#:	603VS002	RECOMMENDED NEXT INSP. DATE:	10/2009
PROV. REG. #:	A411565	RECOMMENDED RETIREMENT DATE:	05/2129
SERIAL #:	98-12-61	REM. LIFE (from last survey 04/2008):	121.10 yrs.
CRN.:	K1059.12	TOTAL CAUTION / ACTION TML:	0

### Item # (005)

#### COMMENTS:

2008/04 - TML 10.06 READING @ H.A.Z.  
 TML 14.05 READING @ H.A.Z.  
 TML 16.05 READING @ H.A.Z.  
 TML 18.05 READING @ H.A.Z.  
 TML 20.05 READING @ H.A.Z.

#### TML No.: 12 2"90L N-W 150 #

DATE BUILT: 01/1999

AVERAGE THICKNESS MEASURED: 4.34 mm.

MATERIAL:

MINIMUM THICKNESS MEASURED: 4.20 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date	B/L Survey Date	Prev. Survey Date	Prev. Survey Date	Last Survey Date	Last Survey Date	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/ Caution Required Item
				mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy					
12.01	3.90	0.50	3.40	01/1999	3.90	N/A	N/A	04/2008	4.60	0.000	0.000	04/2013	04/2408	NO
12.02	3.90	0.50	3.40	01/1999	3.90	N/A	N/A	04/2008	4.30	0.000	0.000	04/2013	04/2308	NO *
12.03	3.90	0.50	3.40	01/1999	3.90	N/A	N/A	04/2008	4.20	0.000	0.000	04/2013	12/2274	NO *
12.04	3.90	0.50	3.40	01/1999	3.90	N/A	N/A	04/2008	4.30	0.000	0.000	04/2013	04/2308	NO *
12.05	3.90	0.50	3.40	01/1999	3.90	N/A	N/A	04/2008	4.30	0.000	0.000	04/2013	04/2308	NO *

#### TML No.: 14 3"90L T-B 150 #

DATE BUILT: 01/1999

AVERAGE THICKNESS MEASURED: 5.96 mm.

MATERIAL:

MINIMUM THICKNESS MEASURED: 5.80 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date	B/L Survey Date	Prev. Survey Date	Prev. Survey Date	Last Survey Date	Last Survey Date	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/ Caution Required Item
				mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy					
14.01	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	6.10	0.000	0.000	04/2013	08/2441	NO
14.02	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	6.00	0.000	0.000	04/2013	04/2408	NO
14.03	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.90	0.000	0.000	04/2013	12/2374	NO
14.04	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.80	0.000	0.000	04/2013	08/2341	NO
14.05	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	6.00	0.000	0.000	04/2013	04/2408	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:	UNIVERSAL IND. LTD.
LSD:	C-032-H/094-H-08	DESIGN PRESSURE:	1947 kPa / 282 psi
ITEM DESC.:	A411565 - ALBERTA INLET SEPARATOR	DESIGN TEMP.:	38 C / 100 F
EQUIP / OIP#:	603VS002	RECOMMENDED NEXT INSP. DATE:	10/2009
PROV. REG. #:	A411565	RECOMMENDED RETIREMENT DATE:	05/2129
SERIAL #:	98-12-61	REM. LIFE (from last survey 04/2008):	121.10 yrs.
CRN.:	K1059.12	TOTAL CAUTION / ACTION TML:	0

### Item # (005)

#### COMMENTS:

2008/04 - TML 10.06 READING @ H.A.Z.  
 TML 14.05 READING @ H.A.Z.  
 TML 16.05 READING @ H.A.Z.  
 TML 18.05 READING @ H.A.Z.  
 TML 20.05 READING @ H.A.Z.

#### TML No.: 16 3"90L T-B 150 #

DATE BUILT: 01/1999

AVERAGE THICKNESS MEASURED: 5.62 mm.

MATERIAL:

MINIMUM THICKNESS MEASURED: 5.50 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date	B/L Survey Date	Prev. Survey Date	Prev. Survey Date	Last Survey Date	Last Survey Date	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/ Caution Required Item
				mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy					
16.01	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.70	0.000	0.000	04/2013	04/2308	NO *
16.02	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.70	0.000	0.000	04/2013	04/2308	NO *
16.03	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.50	0.000	0.000	04/2013	08/2241	NO *
16.04	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.50	0.000	0.000	04/2013	08/2241	NO *
16.05	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.70	0.000	0.000	04/2013	04/2308	NO *

#### TML No.: 18 3"90L T-B 150 #

DATE BUILT: 01/1999

AVERAGE THICKNESS MEASURED: 5.50 mm.

MATERIAL:

MINIMUM THICKNESS MEASURED: 5.40 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date	B/L Survey Date	Prev. Survey Date	Prev. Survey Date	Last Survey Date	Last Survey Date	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/ Caution Required Item
				mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy					
18.01	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.40	0.000	0.010	04/2013	04/2067	NO *
18.02	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.50	0.000	0.000	04/2013	08/2241	NO *
18.03	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.40	0.000	0.010	04/2013	04/2067	NO *
18.04	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.50	0.000	0.000	04/2013	08/2241	NO *
18.05	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.70	0.000	0.000	04/2013	04/2308	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:	UNIVERSAL IND. LTD.
LSD:	C-032-H/094-H-08	DESIGN PRESSURE:	1947 kPa / 282 psi
ITEM DESC.:	A411565 - ALBERTA INLET SEPARATOR	DESIGN TEMP.:	38 C / 100 F
EQUIP / OIP#:	603VS002	RECOMMENDED NEXT INSP. DATE:	10/2009
PROV. REG. #:	A411565	RECOMMENDED RETIREMENT DATE:	05/2129
SERIAL #:	98-12-61	REM. LIFE (from last survey 04/2008):	121.10 yrs.
CRN.:	K1059.12	TOTAL CAUTION / ACTION TML:	0

### Item # (005)

#### COMMENTS:

2008/04 - TML 10.06 READING @ H.A.Z.  
 TML 14.05 READING @ H.A.Z.  
 TML 16.05 READING @ H.A.Z.  
 TML 18.05 READING @ H.A.Z.  
 TML 20.05 READING @ H.A.Z.

#### TML No.: 20 3"90L T-B 150 #

DATE BUILT: 01/1999

AVERAGE THICKNESS MEASURED: 5.76 mm.

MATERIAL:

MINIMUM THICKNESS MEASURED: 5.70 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date	B/L Survey Date	Prev. Survey Date	Prev. Survey Date	Last Survey Date	Last Survey Date	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/ Caution Required Item
				mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy					
20.01	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.70	0.000	0.000	04/2013	04/2308	NO *
20.02	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.80	0.000	0.000	04/2013	08/2341	NO
20.03	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.80	0.000	0.000	04/2013	08/2341	NO
20.04	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.80	0.000	0.000	04/2013	08/2341	NO
20.05	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.70	0.000	0.000	04/2013	04/2308	NO *

#### TML No.: 22 2"90L T-B 150 #

DATE BUILT: 01/1999

AVERAGE THICKNESS MEASURED: 5.06 mm.

MATERIAL:

MINIMUM THICKNESS MEASURED: 4.90 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date	B/L Survey Date	Prev. Survey Date	Prev. Survey Date	Last Survey Date	Last Survey Date	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/ Caution Required Item
				mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy					
22.01	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.20	0.000	0.033	04/2013	05/2020	NO *
22.02	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	4.90	0.000	0.066	01/2009	10/2009	NO *
22.03	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.10	0.000	0.043	09/2011	03/2015	NO *
22.04	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.00	0.000	0.053	02/2010	01/2012	NO *
22.05	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.10	0.000	0.043	09/2011	03/2015	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:	UNIVERSAL IND. LTD.
LSD:	C-032-H/094-H-08	DESIGN PRESSURE:	1947 kPa / 282 psi
ITEM DESC.:	A411565 - ALBERTA INLET SEPARATOR	DESIGN TEMP.:	38 C / 100 F
EQUIP / OIP#:	603VS002	RECOMMENDED NEXT INSP. DATE:	10/2009
PROV. REG. #:	A411565	RECOMMENDED RETIREMENT DATE:	05/2129
SERIAL #:	98-12-61	REM. LIFE (from last survey 04/2008):	121.10 yrs.
CRN.:	K1059.12	TOTAL CAUTION / ACTION TML:	0

### Item # (005)

#### COMMENTS:

2008/04 - TML 10.06 READING @ H.A.Z.  
 TML 14.05 READING @ H.A.Z.  
 TML 16.05 READING @ H.A.Z.  
 TML 18.05 READING @ H.A.Z.  
 TML 20.05 READING @ H.A.Z.

#### TML No.: 24 3"90L B-T 150 #

DATE BUILT: 01/1999

AVERAGE THICKNESS MEASURED: 5.86 mm.

MATERIAL:

MINIMUM THICKNESS MEASURED: 5.70 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date	B/L Survey Date	Prev. Survey Date	Prev. Survey Date	Last Survey Date	Last Survey Date	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/ Caution Required Item
				mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy					
24.01	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.70	0.000	0.000	04/2013	04/2308	NO *
24.02	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.70	0.000	0.000	04/2013	04/2308	NO *
24.03	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	6.00	0.000	0.000	04/2013	04/2408	NO
24.04	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	5.80	0.000	0.000	04/2013	08/2341	NO
24.05	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	6.10	0.000	0.000	04/2013	08/2441	NO

#### TML No.: 26 3"90L T-B 150 #

DATE BUILT: 01/1999

AVERAGE THICKNESS MEASURED: 6.30 mm.

MATERIAL:

MINIMUM THICKNESS MEASURED: 6.20 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date	B/L Survey Date	Prev. Survey Date	Prev. Survey Date	Last Survey Date	Last Survey Date	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/ Caution Required Item
				mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy	mm/yyyy					
26.01	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	6.20	0.000	0.000	04/2013	12/2474	NO
26.02	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	6.40	0.000	0.000	04/2013	08/2541	NO
26.03	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	6.30	0.000	0.000	04/2013	04/2508	NO
26.04	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	6.30	0.000	0.000	04/2013	04/2508	NO
26.05	5.50	0.70	4.80	01/1999	5.50	N/A	N/A	04/2008	6.30	0.000	0.000	04/2013	04/2508	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:	UNIVERSAL IND. LTD.
LSD:	C-032-H/094-H-08	DESIGN PRESSURE:	1947 kPa / 282 psi
ITEM DESC.:	A411565 - ALBERTA INLET SEPARATOR	DESIGN TEMP.:	38 C / 100 F
EQUIP / OIP#:	603VS002	RECOMMENDED NEXT INSP. DATE:	10/2009
PROV. REG. #:	A411565	RECOMMENDED RETIREMENT DATE:	05/2129
SERIAL #:	98-12-61	REM. LIFE (from last survey 04/2008):	121.10 yrs.
CRN.:	K1059.12	TOTAL CAUTION / ACTION TML:	0

### Item # (005)

#### COMMENTS:

2008/04 - TML 10.06 READING @ H.A.Z.  
 TML 14.05 READING @ H.A.Z.  
 TML 16.05 READING @ H.A.Z.  
 TML 18.05 READING @ H.A.Z.  
 TML 20.05 READING @ H.A.Z.

#### TML No.: 28 12"45L B-T 150 #

DATE BUILT: 01/1999

AVERAGE THICKNESS MEASURED: 9.75 mm.

MATERIAL:

MINIMUM THICKNESS MEASURED: 9.20 mm.

Pts.	Nom. Thick.	Corr. Allow.	Min. Thick.	B/L Survey Date	B/L Survey	Prev. Survey Date	Prev. Survey	Last Survey Date	Last Survey	Short Term Rate	Long Term Rate	TML Insp. Due	TML Retire. Date	Action/ Caution Required Item
				mm/yyyy		mm/yyyy		mm/yyyy						
28.01	9.50	1.20	8.30	01/1999	9.50	N/A	N/A	04/2008	10.10	0.000	0.000	04/2013	04/2608	NO
28.02	9.50	1.20	8.30	01/1999	9.50	N/A	N/A	04/2008	9.60	0.000	0.000	04/2013	08/2441	NO
28.03	9.50	1.20	8.30	01/1999	9.50	N/A	N/A	04/2008	9.70	0.000	0.000	04/2013	12/2474	NO
28.04	9.50	1.20	8.30	01/1999	9.50	N/A	N/A	04/2008	9.80	0.000	0.000	04/2013	04/2508	NO
28.05	9.50	1.20	8.30	01/1999	9.50	N/A	N/A	04/2008	9.40	0.000	0.010	04/2013	07/2116	NO *
28.06	9.50	1.20	8.30	01/1999	9.50	N/A	N/A	04/2008	9.80	0.000	0.000	04/2013	04/2508	NO
28.07	9.50	1.20	8.30	01/1999	9.50	N/A	N/A	04/2008	10.00	0.000	0.000	04/2013	12/2574	NO
28.08	9.50	1.20	8.30	01/1999	9.50	N/A	N/A	04/2008	9.20	0.000	0.033	04/2013	07/2035	NO *
28.09	9.50	1.20	8.30	01/1999	9.50	N/A	N/A	04/2008	9.90	0.000	0.000	04/2013	08/2541	NO
28.10	9.50	1.20	8.30	01/1999	9.50	N/A	N/A	04/2008	9.70	0.000	0.000	04/2013	12/2474	NO
28.11	9.50	1.20	8.30	01/1999	9.50	N/A	N/A	04/2008	10.10	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.

## 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 C-32-H/94-H-08	Inspection Date:	13-Dec-99	Interval: 2 yrs
Vessel Name:	Full Water Knockout	A No:	BC-411565	MTL No: VSL148

### VESSEL SHELL / HEADS / PIPING

#### External / Instrumentation Condition

The external surface of this vessel was insulated and clad. The vessel was painted with no evidence of corrosion. The pressure retaining welds were intact and revealed no signs of deterioration or visible cracking. The associated instrumentation appeared to be in good working order.

#### Internal Condition

No internal access

#### Nozzle Condition

The external surface of the nozzle assemblies and associated welds are intact with no evidence of degradation and therefore noted in good condition.

#### Flange Condition

All flanged, NPT, tubing connections were noted in good condition with no evidence of corrosion.

#### Internal Piping

Not Applicable

#### External Piping

The piping was painted with no visible corrosion noted. The associated pressure welds were intact and revealed no signs of deterioration or visible cracking.

#### 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

The heater coil, oval tubesheet, and bolting was noted in good condition externally.

#### Demister Pad Condition

Not Applicable

#### Anode Condition

Not Applicable

#### Vessel Support

The skid and saddle supports 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 C-32-H/94-H-08	Inspection Date:	13-Dec-99	Interval: 2 yrs
Vessel Name:	Full Water Knockout	A No:	BC-411565	MTL No: VSL148

### PSV DATA

Side	Set Pressure psi	CRN Number	Manufacturer PSV Number	Model Serial Number	Capacity	Size Inches	Set Date
Shellside	283		Crosby PNR1031	JOS-15/A SE-19918-1	37205 SCFM	4 x 6	Dec/1999

### CURRENT VESSEL PROCESS CONDITIONS

Sweet Gas

Name (Printed)	Signature	Date
Visual Inspector L. G. (Les) Martel API510		December 13, 1999
QA Supervisor: (Chief Inspector)		
QA Administrator:		
ABSA Inspector:		

## 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 C-32-H/94-H-08	Inspection Date:	13-Dec-99	Interval: 2 yrs
Vessel Name:	Full Water Knockout	A No:	BC-411565	MTL No: VSL148

### VESSEL COATING INSPECTION

Type of Coating

Coating Manufacturer and Type

Location

Coating Condition

### VESSEL NONDESTRUCTIVE TESTING

NDE Type	Initial UT Survey			
Location of Test				
Contractors Name	Rivest	Qualifications		
Last UT Survey Date	Dec 1, 1999	Interval	2 yrs	Next UT Date: Dec 1, 2001
Survey By	Rivest 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

Schedule FWKO for internal inspection within 3 years (if not done in 1999).  
 Insure vessel drain and de-sand nozzles are cleaned for inspection.  
 Remove desand trays as required for cleaning drain nozzles etc.  
 Evaluate Heat Medium Coil (clean)  
 Next PSV servicing 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:	Full Water Knockout	A No:	BC-411565	MTL No: VSL148
Internal Coating Type:		Next External:	2/6/2003	Next Internal: Feb, 2004
Vessel Orientation:	Horizontal	Internal Coating Lining:	0	
Vessel Type:	Horizontal Vessel	Fluid Type:		
Tag No:	V-103	Serial Number:	98-1261	
Separator Type:		Business Unit:		
Direct Fired Vessel:	N/A	Fired Tube:		
Current Status:	In Service	Flame Arrester Date Required:	Date	
Thermal Insulation:	Yes	Asbestos:	No	

## PRESSURE VESSEL NAMEPLATE INFORMATION

MTL Number:	VSL148	Volume:	CRN Number:	K-1059.12	Registered:	Yes
Serial Number:	98-1261		Size:	in	x	0 ft 0 in
Drawing Number:	V-10515-D101 Rev. 1		P & ID Number:			
Shell Material:			Shell Thickness:	In		
			Shell Thickness:	In		
Head Material:			Head Thickness:	In		
			Head Thickness:	In		
Tube Material:	SA-106-B	Tube Size(OD):	3.5 In	Tube Thickness:	0.300 In	
Tubesheet Material:	SA-516 Gr.70		Tubesheet Thickness:	3.25 In		
Channel Material:		Channel Type:		Channel Thickness:	In	
Design Pressure:	Shell:	282 psi	Operating Pressure:	Shell:	psi	
	Tube:	230 psi		Tube:	psi	
Design Temperature:	Shell:	100 F	Operating Temperature:	Shell:	F	
	Tube:	300 F		Tube:	F	
RT (XRay):	RT1		Heat Treatment:	No		
Code Parameters:			Joint Efficiency:			
Manufacturer:	Universal Industries Corp.		Year Built:	1999		
Corrosion Allowance:	0.125		Manway:	Yes		

**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:	Full Water Knockout	A No:	BC-411565	MTL No: VSL148

**VESSEL SHELL / HEADS / PIPING****External / Instrumentation Condition**

The external surface of this vessel was insulated and cladded. The vessel was painted with no evidence of corrosion. The pressure retaining welds were intact and revealed no signs of deterioration or visible cracking. The associated instrumentation appeared to be in good working order.

**Internal Condition**

No internal access

**Nozzle Condition**

The external surface of the nozzle assemblies and associated welds are intact with no evidence of degradation and therefore noted in good condition.

**Flange Condition**

All flanged, NPT, tubing connections were noted in good condition with no evidence of corrosion.

**Internal Piping**

Not Applicable

**External Piping**

The piping was painted with no visible corrosion noted. The associated pressure welds were intact and revealed no signs of deterioration or visible cracking.

**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**

The heater coil, oval tubesheet, and bolting was noted in good condition externally.

**Demister Pad Condition**

Not Applicable

**Anode Condition**

Not Applicable

**Vessel Support**

The skid and saddle supports 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:	Full Water Knockout	A No:	BC-411565	MTL No: VSL148

## VESSEL COATING INSPECTION

Type of Coating

Coating Manufacturer and Type

Location

Coating Condition

## VESSEL NONDESTRUCTIVE TESTING

NDE Type	Initial 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

Schedule FWKO for internal inspection within 3 years (if not done in 1999).  
 Insure vessel drain and de-sand nozzles are cleaned for inspection.  
 Remove desand trays as required for cleaning drain nozzles etc.  
 Evaluate Heat Medium Coil (clean)  
 Next PSV servicing in 3 years

Details of Repairs



INSPECTION GROUP INC.

# 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:	Full Water Knockout	A No:	BC-411565	MTL No: VSL148

PSV DATA							
Side	Set Pressure psi	CRN Number	Manufacturer PSV Number	Model Serial Number	Capacity	Size Inches	Set Date
Shellside	283		Crosby PNR1031	JOS-15/A SE-19918-1	#Error	4 x 6	Dec/1999

CURRENT VESSEL PROCESS CONDITIONS
Sweet Gas

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

## 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:	Full Water Knockout	A No:	BC-411565	MTL No: VSL148
Internal Coating Type:		Next External:	2/6/2003	Next Internal: Feb, 2004
Vessel Orientation:	Horizontal	Internal Coating Lining:	0	
Vessel Type:	Horizontal Vessel	Fluid Type:		
Tag No:	V-103	Serial Number:	98-1261	
Separator Type:		Business Unit:		
Direct Fired Vessel:	N/A	Fired Tube:		
Current Status:	In Service	Flame Arrester Date Required:	Date	
Thermal Insulation:	Yes	Asbestos:	No	

### PRESSURE VESSEL NAMEPLATE INFORMATION

MTL Number:	VSL148	Volume:	CRN Number:	K-1059.12	Registered:	Yes
Serial Number:	98-1261		Size:	in	x	0 ft 0 in
Drawing Number:	V-10515-D101 Rev. 1		P & ID Number:			
Shell Material:			Shell Thickness:	In		
			Shell Thickness:	In		
Head Material:			Head Thickness:	In		
			Head Thickness:	In		
Tube Material:	SA-106-B	Tube Size(OD):	3.5 In	Tube Thickness:	0.300 In	
Tubesheet Material:	SA-516 Gr.70		Tubesheet Thickness:	3.25 In		
Channel Material:		Channel Type:		Channel Thickness:	In	
Design Pressure:	Shell:	282 psi	Operating Pressure:	Shell:	psi	
	Tube:	230 psi		Tube:	psi	
Design Temperature:	Shell:	100 F	Operating Temperature:	Shell:	F	
	Tube:	300 F		Tube:	F	
RT (XRay):	RT1	Heat Treatment:	No			
Code Parameters:		Joint Efficiency:				
Manufacturer:	Universal Industries Corp.	Year Built:	1999			
Corrosion Allowance:	0.125	Manway:	Yes			



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:	Full Water Knockout	A No:	BC-411565	MTL No: VSL148

VESSEL SHELL / HEADS / PIPING

External / Instrumentation Condition

The external surface of this vessel was insulated and cladded. The vessel was painted with no evidence of corrosion. The pressure retaining welds were intact and revealed no signs of deterioration or visible cracking. The associated instrumentation appeared to be in good working order.

Internal Condition

No internal access

Nozzle Condition

The external surface of the nozzle assemblies and associated welds are intact with no evidence of degradation and therefore noted in good condition.

Flange Condition

All flanged, NPT, tubing connections were noted in good condition with no evidence of corrosion.

Internal Piping

Not Applicable

External Piping

The piping was painted with no visible corrosion noted. The associated pressure welds were intact and revealed no signs of deterioration or visible cracking.

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

The heater coil, oval tubesheet, and bolting was noted in good condition externally.

Demister Pad Condition

Not Applicable

Anode Condition

Not Applicable

Vessel Support

The skid and saddle supports 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:	Full Water Knockout	A No:	BC-411565	MTL No: VSL148

**VESSEL COATING INSPECTION***Type of Coating**Coating Manufactuer and Type**Location**Coating Condition***VESSEL NONDESTRUCTIVE TESTING**

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

**VESSEL STATUS**

<i>Suitable for Further Service?</i>	Yes	<i>Repairs Required?</i>	No
<i>Owners Representative</i>		<i>Repairs Completed?</i>	
<i>Owners Date</i>		<i>Repairs Completed By</i>	
		<i>Repair Date</i>	

Recommendations

Schedule FWKO for internal inspection within 3 years (if not done in 1999).  
 Insure vessel drain and de-sand nozzles are cleaned for inspection.  
 Remove desand trays as required for cleaning drain nozzles etc.  
 Evaluate Heat Medium Coil (clean)  
 Next PSV servicing in 3 years

Details of Repairs

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## DETAIL VESSEL AND PIPING INSPECTION REPORT

(Imperial)

### GENERAL PRESSURE VESSEL INFORMATION

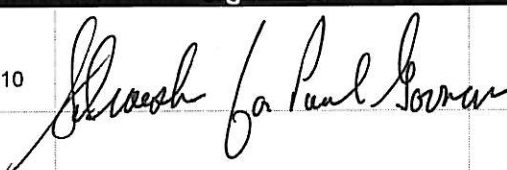
Company:	Pioneer Natural Resources Canada Inc.	LSD:	BC	C-32-H/94-H-8
Area/Facility:	Chinchaga Gas Plant	Inspection Date	06-Feb-02	Interval: 2 yrs
Vessel Name:	Full Water Knockout	A No:	BC-411565	MTL No: VSL148

### PSV DATA

Side	Set Pressure psi	CRN Number	Manufacturer PSV Number	Model Serial Number	Capacity	Size Inches	Set Date
Shellside	283		Crosby PNR1031	JOS-15/A SE-19918-1	#Error	4 x 6	Dec/1999

### CURRENT VESSEL PROCESS CONDITIONS

Sweet Gas

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



**EQUIPMENT NO: 603VS002**

Page of

FACILITY: Chinchaga Gas Plant

PROV. REG. NO: A411565

EQUIPMENT NAME: Alberta Inlet Separator

TAG NO:

SIZE: 1524mm OD x 12192mm L/H

MAWP: 1947 kPa @ 38/-29 °C

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

MANWAY  YES  NO

SERVICE: FLUID: Gas

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  Solid
3. NOZZLES
4. GROUNDING CONNECTIONS  Skid is grounded
5. PROTECTIVE COATINGS AND INSULATION
6. EXTERNAL METAL SURFACES  Insulated
7. FANS AND OTHER ANCILLARY EQUIPMENT  N/A
8. PRESSURE RELIEF DEVICES
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

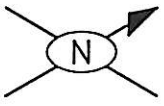
INSPECTION PERFORMED BY: Mark Tomko

DATE OF INSPECTION 03 04 2008  
(DD MONTH YYYY)

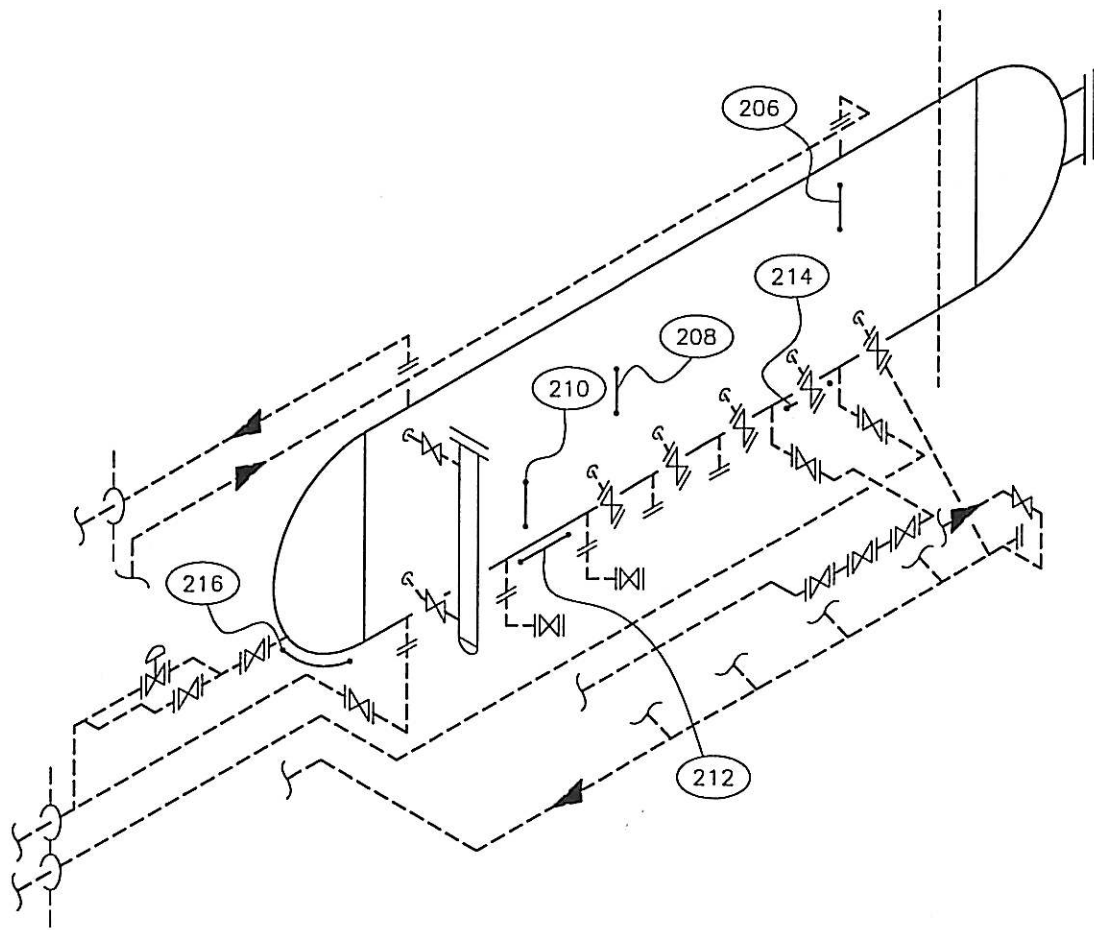
FOLLOW-UP INSPECTION REQ'D:

YES  NO BY DATE:

(DD MONTH YYYY)



P&ID. # \_\_\_\_\_  
REF. # \_\_\_\_\_



### VESSEL DATA

Prov. Reg. No. A411565 C.R.N. K 1059.2 P.E. No. V-103 Serial No. 98-12-61  
MFR. UNIVERSAL Code/Div. \_\_\_\_\_ Para \_\_\_\_\_ Code Stamp U  
Yr. Bld. 1999 Yr. Inst. \_\_\_\_\_ Size \_\_\_\_\_ Vol.: \_\_\_\_\_ Service \_\_\_\_\_ PWHT \_\_\_\_\_

**Nominal Thickness & Material**

Head: _____	Mat'l: _____	C.A.: _____	Insulated <u>YES</u>	R.T. <u>1</u>
Head: _____	_____	_____	Repairs _____	_____
Shell: _____	_____	C.A.: _____	COMMENTS _____	_____
Shell: _____	_____	_____	_____	_____
Chan Hd: _____	_____	C.A.: _____	_____	_____
Chan Sh: _____	_____	_____	_____	_____
Gas Boot Hd: _____	_____	C.A.: _____	_____	_____
Gas Boot Sh: _____	_____	_____	_____	_____
Liq. Boot Hd.: _____	_____	C.A.: _____	_____	_____
Liq Boot Sh.: _____	_____	_____	_____	_____

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

**FREE WATER KNOCK OUT**

TECH.: J.OLIVER	REV.DATE:	DWG DATE: 02/2002
CAD: MKM	REVISION:	DRAWING: 002

MAWP Shell Side 282.4 PSI @ Temp. -20°F/100°F  
MAWP Tube Side \_\_\_\_\_ @ Temp. \_\_\_\_\_

Equip No	V-103	Serial No	98-12-61	Prov Reg No	A411565
Description	FREE WATER KNOCK OUT				

002 - 006

TML Description: N. UPPER SHELL	
T Nominal:	19.1
Min Nominal:	19.1
Corr Allowance:	N/A
<i>Data Readings</i>	
<i>Data Evaluations</i>	Dec-99    Feb-02
	Point 1    19.9    19.6
	Point 2    20.2    19.8
	Point 3    20.0    19.7
	Point 4    20.0    19.6
	Point 5    20.1    19.9
	Point 6    19.9    19.6
	Point 7
	Point 8
	Point 9
	Point 10
	Point 11
	Point 12
Months Remaining to T Min:	43
Min Calc'd Wall Thickness:	N/A
Thick Remain Above T Min:	0.5
Short Term Corr Rate:	N/A
Long Term Corr Rate:	N/A
Months Remain to LFL:	43
Lowest Value - Last Reading:	19.6
Comment:	
	Average    20.0    19.7
	Avg Low 3    19.9    19.6
	Lowest    19.9    19.6

002 - 008

TML Description: CTR. SIDE SHELL	
T Nominal:	19.1
Min Nominal:	19.1
Corr Allowance:	N/A
<i>Data Readings</i>	
<i>Data Evaluations</i>	Dec-99    Feb-02
	Point 1    19.7    19.5
	Point 2    19.8    19.5
	Point 3    19.8    19.7
	Point 4    19.6    19.4
	Point 5    19.7    19.5
	Point 6    19.6    19.5
	Point 7
	Point 8
	Point 9
	Point 10
	Point 11
	Point 12
Months Remaining to T Min:	39
Min Calc'd Wall Thickness:	N/A
Thick Remain Above T Min:	0.3
Short Term Corr Rate:	N/A
Long Term Corr Rate:	N/A
Months Remain to LFL:	39
Lowest Value - Last Reading:	19.4
Comment:	
	Average    19.7    19.5
	Avg Low 3    19.6    19.5
	Lowest    19.6    19.4

\* Unless otherwise displayed, all measurements displayed in millimeters

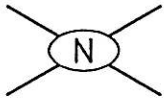
TML Description: S. LOWER SHELL T Nominal: 19.1 Min Nominal: 19.1 Corr Allowance: N/A				
		<i>Data Readings</i>		
<i>Data Evaluations</i>		Dec-99	Feb-02	
		Point 1	20.0	19.7
Months Remaining to T Min: 26		Point 2	20.0	19.6
Min Calc'd Wall Thickness: N/A		Point 3	19.8	19.5
Thick Remain Above T Min: 0.3		Point 4	19.7	19.4
Short Term Corr Rate: N/A		Point 5	19.8	19.5
Long Term Corr Rate: N/A		Point 6	19.8	19.4
Months Remain to LFL: 26		Point 7		
Lowest Value - Last Reading: 19.4		Point 8		
Comment:		Point 9		
		Point 10		
		Point 11		
		Point 12		
		Average	19.9	19.5
		Avg Low 3	19.8	19.4
		Lowest	19.7	19.4

TML Description: S. BTM. CTR. SHELL T Nominal: 19.1 Min Nominal: 19.1 Corr Allowance: N/A				
		<i>Data Readings</i>		
<i>Data Evaluations</i>		Dec-99	Feb-02	
		Point 1	19.8	19.5
Months Remaining to T Min: 35		Point 2	19.8	19.5
Min Calc'd Wall Thickness: N/A		Point 3	19.8	19.6
Thick Remain Above T Min: 0.4		Point 4	19.8	19.6
Short Term Corr Rate: N/A		Point 5	19.8	19.6
Long Term Corr Rate: N/A		Point 6	19.8	19.6
Months Remain to LFL: 35		Point 7		
Lowest Value - Last Reading: 19.5		Point 8		
Comment:		Point 9		
		Point 10		
		Point 11		
		Point 12		
		Average	19.8	19.6
		Avg Low 3	19.8	19.5
		Lowest	19.8	19.5

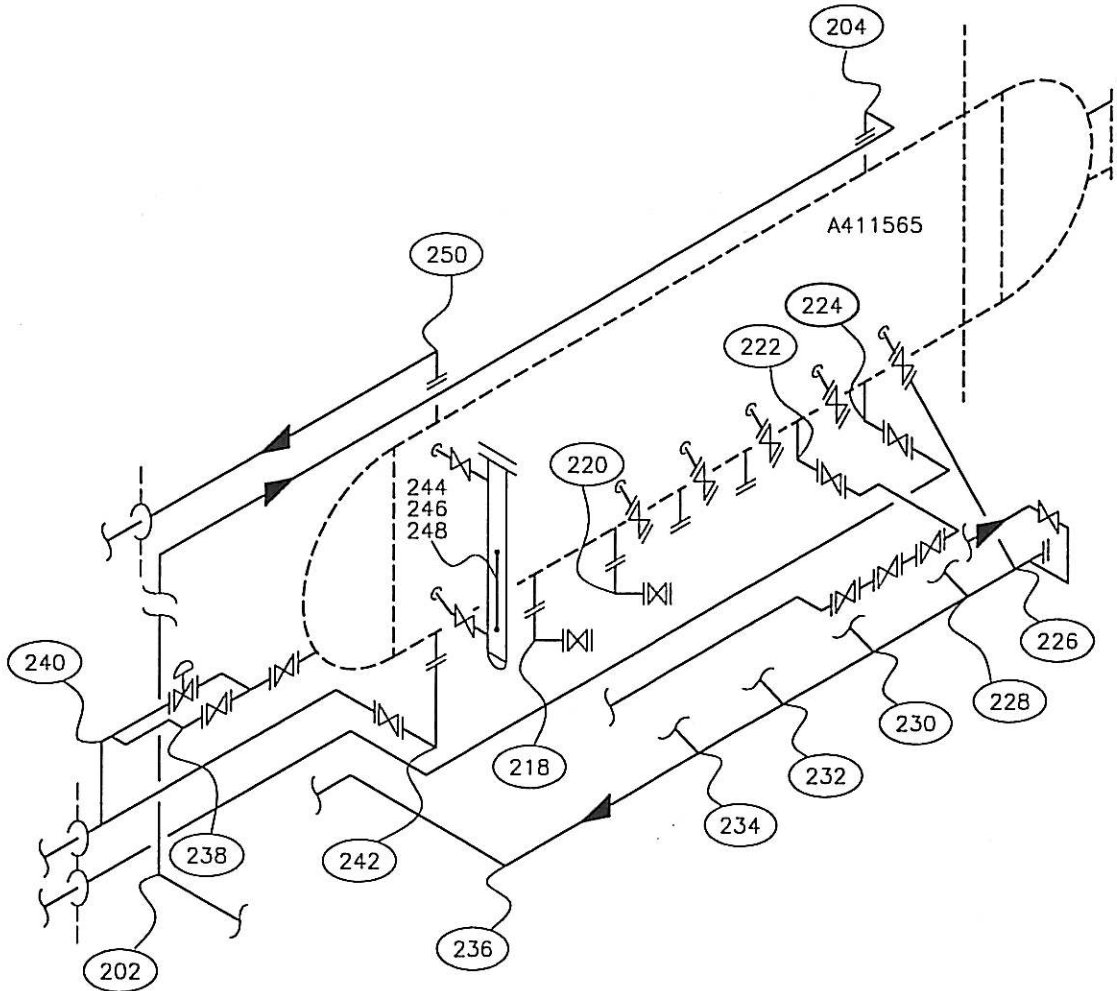
\* Unless otherwise displayed, all measurements displayed in millimeters

TML Description: N. BTM. CTR. SHELL T Nominal: 19.1 Min Nominal: 19.1 Corr Allowance: N/A				
<i>Data Readings</i>				
<i>Data Evaluations</i>		Dec-99	Feb-02	
	Months Remaining to T Min:	78		
	Min Calc'd Wall Thickness:	N/A		
	Thick Remain Above T Min:	0.3		
	Short Term Corr Rate:	N/A		
	Long Term Corr Rate:	N/A		
	Months Remain to LFL:	78		
	Lowest Value - Last Reading:	19.4		
		Point 1	19.6	19.4
		Point 2	19.6	19.5
		Point 3	19.5	19.5
		Point 4	19.8	19.4
	Point 5	19.6	19.5	
	Point 6	19.6	19.4	
	Point 7			
	Point 8			
	Point 9			
	Point 10			
	Point 11			
	Point 12			
	Average	19.6	19.5	
	Avg Low 3	19.6	19.4	
	Lowest	19.5	19.4	
Comment:				

TML Description: S. HEAD T Nominal: 22.2 Min Nominal: 22.2 Corr Allowance: N/A				
<i>Data Readings</i>				
<i>Data Evaluations</i>		Dec-99	Feb-02	
	Months Remaining to T Min:	N/A		
	Min Calc'd Wall Thickness:	N/A		
	Thick Remain Above T Min:	N/A		
	Short Term Corr Rate:	N/A		
	Long Term Corr Rate:	N/A		
	Months Remain to LFL:	N/A		
	Lowest Value - Last Reading:	21.9		
		Point 1	22.9	21.9
		Point 2	22.2	21.9
		Point 3	22.4	22.1
		Point 4	22.5	22.2
	Point 5	22.5	22.3	
	Point 6	22.4	22.2	
	Point 7			
	Point 8			
	Point 9			
	Point 10			
	Point 11			
	Point 12			
	Average	22.5	22.1	
	Avg Low 3	22.3	22.0	
	Lowest	22.2	21.9	
Comment:				



P&ID. # \_\_\_\_\_  
 REF. # \_\_\_\_\_



### PIPING DATA

CORR.ALL

\* ASTM

NOM. \*\* DESIGN MIN. CAL.

THK. \*\*\* CALC. THK. THK. CODE

TML	SIZE	MAT'L	FLG. RATING	PROC.	LINE #	SPEC.	SCH.	NOM. THK.	** DESIGN CALC.	MIN. THK.	CAL. THK.	CODE
202	12"						40	10.3mm	ASTM	9.0mm		
204	12"						60	14.3mm	ASTM	12.5mm		
218/20	3"						40	5.5mm	ASTM	4.8mm		
222/224	3"						40	5.5mm	ASTM	4.8mm		
242	3"						40	5.5mm	ASTM	4.8mm		
226/28	4"						40	6.0mm	ASTM	5.3mm		
230/232	4"						40	6.0mm	ASTM	5.3mm		

COMMENTS: \_\_\_\_\_  
 234/236--4"--40--6.0mm--ASTM--5.3mm  
 238/40--2"--40--3.9mm--ASTM  
 3.4mm

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

FREE WATER KNOCK OUT PIPING

TECH.: J.OLIVER	REV.DATE:	DWG DATE: 02/2002
CAD: MKM	REVISION:	DRAWING: 002A

Equip No N/A	Serial No N/A	Prov Reg No N/A
Description		

**002 - 002**

TML Description: 12" 90' L B-T T Nominal: 10.3 Min Nominal: 9.0 Corr Allowance: ASTM																																																		
<i>Data Readings</i>																																																		
<i>Data Evaluations</i>		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Dec-99</th> <th style="text-align: center;">Feb-02</th> </tr> </thead> <tbody> <tr><td>Point 1</td><td style="text-align: center;">10.7</td><td style="text-align: center;">10.6</td></tr> <tr><td>Point 2</td><td style="text-align: center;">10.8</td><td style="text-align: center;">10.7</td></tr> <tr><td>Point 3</td><td style="text-align: center;">10.3</td><td style="text-align: center;">10.2</td></tr> <tr><td>Point 4</td><td style="text-align: center;">10.3</td><td style="text-align: center;">10.2</td></tr> <tr><td>Point 5</td><td style="text-align: center;">10.8</td><td style="text-align: center;">10.5</td></tr> <tr><td>Point 6</td><td style="text-align: center;">10.6</td><td style="text-align: center;">10.2</td></tr> <tr><td>Point 7</td><td style="text-align: center;">10.9</td><td style="text-align: center;">10.6</td></tr> <tr><td>Point 8</td><td style="text-align: center;">10.8</td><td style="text-align: center;">10.7</td></tr> <tr><td>Point 9</td><td style="text-align: center;">10.7</td><td style="text-align: center;">10.6</td></tr> <tr><td>Point 10</td><td style="text-align: center;">10.9</td><td style="text-align: center;">10.8</td></tr> <tr><td>Point 11</td><td style="text-align: center;">11.0</td><td style="text-align: center;">10.8</td></tr> <tr><td>Point 12</td><td style="text-align: center;">11.1</td><td style="text-align: center;">10.9</td></tr> <tr><td>Average</td><td style="text-align: center;">10.7</td><td style="text-align: center;">10.6</td></tr> <tr><td>Avg Low 3</td><td style="text-align: center;">10.4</td><td style="text-align: center;">10.2</td></tr> <tr><td>Lowest</td><td style="text-align: center;">10.3</td><td style="text-align: center;">10.2</td></tr> </tbody> </table>		Dec-99	Feb-02	Point 1	10.7	10.6	Point 2	10.8	10.7	Point 3	10.3	10.2	Point 4	10.3	10.2	Point 5	10.8	10.5	Point 6	10.6	10.2	Point 7	10.9	10.6	Point 8	10.8	10.7	Point 9	10.7	10.6	Point 10	10.9	10.8	Point 11	11.0	10.8	Point 12	11.1	10.9	Average	10.7	10.6	Avg Low 3	10.4	10.2	Lowest	10.3	10.2
	Dec-99	Feb-02																																																
Point 1	10.7	10.6																																																
Point 2	10.8	10.7																																																
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Point 10	10.9	10.8																																																
Point 11	11.0	10.8																																																
Point 12	11.1	10.9																																																
Average	10.7	10.6																																																
Avg Low 3	10.4	10.2																																																
Lowest	10.3	10.2																																																
Months Remaining to T Min: 312 Min Calc'd Wall Thickness: N/A Thick Remain Above T Min: 1.2 Short Term Corr Rate: N/A Long Term Corr Rate: N/A Months Remain to LFL: N/A Lowest Value - Last Reading: 10.2																																																		
Comment:																																																		

**002 - 004**

TML Description: 12" 90' L T-B T Nominal: 14.3 Min Nominal: 12.5 Corr Allowance: ASTM																																																		
<i>Data Readings</i>																																																		
<i>Data Evaluations</i>		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Dec-99</th> <th style="text-align: center;">Feb-02</th> </tr> </thead> <tbody> <tr><td>Point 1</td><td style="text-align: center;">14.8</td><td style="text-align: center;">14.5</td></tr> <tr><td>Point 2</td><td style="text-align: center;">14.8</td><td style="text-align: center;">14.5</td></tr> <tr><td>Point 3</td><td style="text-align: center;">14.9</td><td style="text-align: center;">14.8</td></tr> <tr><td>Point 4</td><td style="text-align: center;">14.6</td><td style="text-align: center;">14.5</td></tr> <tr><td>Point 5</td><td style="text-align: center;">14.7</td><td style="text-align: center;">14.5</td></tr> <tr><td>Point 6</td><td style="text-align: center;">14.5</td><td style="text-align: center;">14.3</td></tr> <tr><td>Point 7</td><td style="text-align: center;">14.6</td><td style="text-align: center;">14.3</td></tr> <tr><td>Point 8</td><td style="text-align: center;">14.6</td><td style="text-align: center;">14.3</td></tr> <tr><td>Point 9</td><td style="text-align: center;">14.4</td><td style="text-align: center;">14.2</td></tr> <tr><td>Point 10</td><td style="text-align: center;">14.3</td><td style="text-align: center;">14.1</td></tr> <tr><td>Point 11</td><td style="text-align: center;">14.3</td><td style="text-align: center;">14.0</td></tr> <tr><td>Point 12</td><td style="text-align: center;">14.1</td><td style="text-align: center;">13.9</td></tr> <tr><td>Average</td><td style="text-align: center;">14.6</td><td style="text-align: center;">14.3</td></tr> <tr><td>Avg Low 3</td><td style="text-align: center;">14.2</td><td style="text-align: center;">14.0</td></tr> <tr><td>Lowest</td><td style="text-align: center;">14.1</td><td style="text-align: center;">13.9</td></tr> </tbody> </table>		Dec-99	Feb-02	Point 1	14.8	14.5	Point 2	14.8	14.5	Point 3	14.9	14.8	Point 4	14.6	14.5	Point 5	14.7	14.5	Point 6	14.5	14.3	Point 7	14.6	14.3	Point 8	14.6	14.3	Point 9	14.4	14.2	Point 10	14.3	14.1	Point 11	14.3	14.0	Point 12	14.1	13.9	Average	14.6	14.3	Avg Low 3	14.2	14.0	Lowest	14.1	13.9
	Dec-99	Feb-02																																																
Point 1	14.8	14.5																																																
Point 2	14.8	14.5																																																
Point 3	14.9	14.8																																																
Point 4	14.6	14.5																																																
Point 5	14.7	14.5																																																
Point 6	14.5	14.3																																																
Point 7	14.6	14.3																																																
Point 8	14.6	14.3																																																
Point 9	14.4	14.2																																																
Point 10	14.3	14.1																																																
Point 11	14.3	14.0																																																
Point 12	14.1	13.9																																																
Average	14.6	14.3																																																
Avg Low 3	14.2	14.0																																																
Lowest	14.1	13.9																																																
Months Remaining to T Min: 182 Min Calc'd Wall Thickness: N/A Thick Remain Above T Min: 1.4 Short Term Corr Rate: N/A Long Term Corr Rate: N/A Months Remain to LFL: N/A Lowest Value - Last Reading: 13.9																																																		
Comment:																																																		

\* Unless otherwise displayed, all measurements displayed in millimeters

TML Description: 3" 90' L T-B T Nominal: 5.5 Min Nominal: 4.8 Corr Allowance: ASTM		<i>Data Readings</i>	
<i>Data Evaluations</i>  Months Remaining to T Min: 78 Min Calc'd Wall Thickness: N/A Thick Remain Above T Min: 0.9 Short Term Corr Rate: N/A Long Term Corr Rate: N/A Months Remain to LFL: 17 Lowest Value - Last Reading: 5.7		Dec-99	Feb-02
	Point 1	6.0	6.0
	Point 2	6.1	5.9
	Point 3	6.1	5.7
	Point 4	6.0	5.9
	Point 5	6.1	6.0
	Point 6		
	Point 7		
	Point 8		
	Point 9		
	Point 10		
	Point 11		
Point 12			
	Average	6.1	5.9
	Avg Low 3	6.0	5.8
	Lowest	6.0	5.7
Comment:			

TML Description: 3" 90' L T-B T Nominal: 5.5 Min Nominal: 4.8 Corr Allowance: ASTM		<i>Data Readings</i>	
<i>Data Evaluations</i>  Months Remaining to T Min: 117 Min Calc'd Wall Thickness: N/A Thick Remain Above T Min: 0.9 Short Term Corr Rate: N/A Long Term Corr Rate: N/A Months Remain to LFL: 26 Lowest Value - Last Reading: 5.7		Dec-99	Feb-02
	Point 1	6.1	5.7
	Point 2	6.0	5.7
	Point 3	6.0	5.8
	Point 4	6.1	5.8
	Point 5	5.9	5.8
	Point 6		
	Point 7		
	Point 8		
	Point 9		
	Point 10		
	Point 11		
Point 12			
	Average	6.0	5.8
	Avg Low 3	6.0	5.7
	Lowest	5.9	5.7
Comment:			

\* Unless otherwise displayed, all measurements displayed in millimeters



TML Description: 3" 90' L T-B T Nominal: 5.5 Min Nominal: 4.8 Corr Allowance: ASTM			<i>Data Readings</i>	
<i>Data Evaluations</i>  Months Remaining to T Min: 113 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: 52 Lowest Value - Last Reading: 6.1			Dec-99	Feb-02
	Point 1		6.4	6.3
	Point 2		6.4	6.2
	Point 3		6.5	6.1
	Point 4		6.4	6.2
	Point 5		6.4	6.2
	Point 6			
	Point 7			
	Point 8			
	Point 9			
	Point 10			
	Point 11			
	Point 12			
	Average	6.4	6.2	
	Avg Low 3	6.4	6.2	
	Lowest	6.4	6.1	
Comment:				

TML Description: 3" 90' L T-B T Nominal: 5.5 Min Nominal: 4.8 Corr Allowance: ASTM			<i>Data Readings</i>	
<i>Data Evaluations</i>  Months Remaining to T Min: 68 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: 31 Lowest Value - Last Reading: 6.1			Dec-99	Feb-02
	Point 1		6.6	6.3
	Point 2		6.6	6.3
	Point 3		6.6	6.4
	Point 4		6.6	6.1
	Point 5		6.6	6.2
	Point 6			
	Point 7			
	Point 8			
	Point 9			
	Point 10			
	Point 11			
	Point 12			
	Average	6.6	6.3	
	Avg Low 3	6.6	6.2	
	Lowest	6.6	6.1	
Comment:				

TML Description: 4" TEE R-L T Nominal: 6.0 Min Nominal: 5.2 Corr Allowance: ASTM			<i>Data Readings</i>	
<i>Data Evaluations</i>			Dec-99	Feb-02
			Point 1	5.8
Months Remaining to T Min:	999	Point 2	5.8	5.8
Min Calc'd Wall Thickness:	N/A	Point 3	5.9	5.8
Thick Remain Above T Min:	0.6	Point 4	5.9	5.8
Short Term Corr Rate:	N/A	Point 5	6.0	5.9
Long Term Corr Rate:	N/A	Point 6	5.9	6.0
Months Remain to LFL:	N/A	Point 7		
Lowest Value - Last Reading:	5.8	Point 8		
Comment:		Point 9		
		Point 10		
		Point 11		
		Point 12		
		Average	5.9	5.9
		Avg Low 3	5.8	5.8
		Lowest	5.8	5.8

TML Description: 4" TEE R-L T Nominal: 6.0 Min Nominal: 5.2 Corr Allowance: ASTM			<i>Data Readings</i>	
<i>Data Evaluations</i>			Dec-99	Feb-02
			Point 1	5.9
Months Remaining to T Min:	65	Point 2	6.0	5.7
Min Calc'd Wall Thickness:	N/A	Point 3	6.1	5.7
Thick Remain Above T Min:	0.5	Point 4	6.0	5.9
Short Term Corr Rate:	N/A	Point 5	6.1	6.0
Long Term Corr Rate:	N/A	Point 6	6.1	5.9
Months Remain to LFL:	N/A	Point 7		
Lowest Value - Last Reading:	5.7	Point 8		
Comment:		Point 9		
		Point 10		
		Point 11		
		Point 12		
		Average	6.0	5.8
		Avg Low 3	6.0	5.7
		Lowest	5.9	5.7

TML Description: 4" TEE R-L T Nominal: 6.0 Min Nominal: 5.2 Corr Allowance: ASTM			<i>Data Readings</i>	
<i>Data Evaluations</i>  Months Remaining to T Min: 65 Min Calc'd Wall Thickness: N/A Thick Remain Above T Min: 0.5 Short Term Corr Rate: N/A Long Term Corr Rate: N/A Months Remain to LFL: N/A Lowest Value - Last Reading: 5.7			Dec-99	Feb-02
	Point 1		5.9	5.7
	Point 2		5.9	5.8
	Point 3		6.0	5.7
	Point 4		6.0	5.8
	Point 5		5.9	5.8
	Point 6		5.9	5.7
	Point 7			
	Point 8			
	Point 9			
	Point 10			
	Point 11			
	Point 12			
Comment:			Average	5.9      5.8
			Avg Low 3	5.9      5.7
			Lowest	5.9      5.7

TML Description: 4" TEE R-L T Nominal: 6.0 Min Nominal: 5.2 Corr Allowance: ASTM			<i>Data Readings</i>	
<i>Data Evaluations</i>  Months Remaining to T Min: 130 Min Calc'd Wall Thickness: N/A Thick Remain Above T Min: 0.5 Short Term Corr Rate: N/A Long Term Corr Rate: N/A Months Remain to LFL: N/A Lowest Value - Last Reading: 5.7			Dec-99	Feb-02
	Point 1		6.2	6.0
	Point 2		5.9	5.7
	Point 3		5.9	5.7
	Point 4		5.8	5.7
	Point 5		6.0	5.8
	Point 6		6.0	5.8
	Point 7			
	Point 8			
	Point 9			
	Point 10			
	Point 11			
	Point 12			
Comment:			Average	6.0      5.8
			Avg Low 3	5.9      5.7
			Lowest	5.8      5.7

TML Description: 4" TEE R-L T Nominal: 6.0 Min Nominal: 5.2 Corr Allowance: ASTM			<i>Data Readings</i>	
<i>Data Evaluations</i>  Months Remaining to T Min: 61 Min Calc'd Wall Thickness: N/A Thick Remain Above T Min: 0.7 Short Term Corr Rate: N/A Long Term Corr Rate: N/A Months Remain to LFL: N/A Lowest Value - Last Reading: 5.9			Dec-99	Feb-02
	Point 1		6.3	6.0
	Point 2		6.3	6.0
	Point 3		6.2	5.9
	Point 4		6.3	6.0
	Point 5		6.4	6.0
	Point 6		6.3	6.0
	Point 7			
	Point 8			
	Point 9			
	Point 10			
	Point 11			
Point 12				
	Average	6.3	6.0	
	Avg Low 3	6.3	6.0	
	Lowest	6.2	5.9	
Comment:				

TML Description: 4" 90' L R-L T Nominal: 6.0 Min Nominal: 5.2 Corr Allowance: ASTM			<i>Data Readings</i>	
<i>Data Evaluations</i>  Months Remaining to T Min: 999 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: 6.5			Dec-99	Feb-02
	Point 1		6.6	6.5
	Point 2		6.7	6.5
	Point 3		6.5	6.5
	Point 4		6.6	6.6
	Point 5		6.7	6.8
	Point 6		6.7	6.6
	Point 7			
	Point 8			
	Point 9			
	Point 10			
	Point 11			
Point 12				
	Average	6.6	6.6	
	Avg Low 3	6.6	6.5	
	Lowest	6.5	6.5	
Comment:				

TML Description: 2" 90' L R-L T Nominal: 3.9 Min Nominal: 3.4 Corr Allowance: ASTM			<i>Data Readings</i>	
<i>Data Evaluations</i>  Months Remaining to T Min: 87 Min Calc'd Wall Thickness: N/A Thick Remain Above T Min: 1.0 Short Term Corr Rate: N/A Long Term Corr Rate: N/A Months Remain to LFL: 43 Lowest Value - Last Reading: 4.4			Dec-99	Feb-02
	Point 1		4.7	4.4
	Point 2		4.7	4.4
	Point 3		4.7	4.4
	Point 4		4.7	4.4
	Point 5		4.7	4.6
	Point 6			
	Point 7			
	Point 8			
	Point 9			
	Point 10			
	Point 11			
Point 12				
	Average	4.7	4.4	
	Avg Low 3	4.7	4.4	
	Lowest	4.7	4.4	
Comment:				

TML Description: 2" 90' L T-B T Nominal: 3.9 Min Nominal: 3.4 Corr Allowance: ASTM			<i>Data Readings</i>	
<i>Data Evaluations</i>  Months Remaining to T Min: 130 Min Calc'd Wall Thickness: N/A Thick Remain Above T Min: 1.0 Short Term Corr Rate: N/A Long Term Corr Rate: N/A Months Remain to LFL: 65 Lowest Value - Last Reading: 4.4			Dec-99	Feb-02
	Point 1		4.6	4.4
	Point 2		4.7	4.6
	Point 3		4.6	4.5
	Point 4		4.6	4.4
	Point 5		4.6	4.4
	Point 6			
	Point 7			
	Point 8			
	Point 9			
	Point 10			
	Point 11			
Point 12				
	Average	4.6	4.5	
	Avg Low 3	4.6	4.4	
	Lowest	4.6	4.4	
Comment:				

TML Description: 3" 90' L T-B T Nominal: 5.5 Min Nominal: 4.8 Corr Allowance: ASTM		<i>Data Readings</i>	
<i>Data Evaluations</i>  Months Remaining to T Min: 999 Min Calc'd Wall Thickness: N/A Thick Remain Above T Min: 1.5 Short Term Corr Rate: N/A Long Term Corr Rate: N/A Months Remain to LFL: 208 Lowest Value - Last Reading: 6.3		Dec-99	Feb-02
	Point 1	6.4	6.3
	Point 2	6.4	6.3
	Point 3	6.4	6.4
	Point 4	6.2	6.3
	Point 5	6.2	6.3
	Point 6		
	Point 7		
	Point 8		
	Point 9		
	Point 10		
	Point 11		
Point 12			
	Average	6.3	6.3
	Avg Low 3	6.3	6.3
	Lowest	6.2	6.3
Comment:			

TML Description: BTM SHELL NORTH FLOAT COLUMN T Nominal: 7.1 Min Nominal: 6.2 Corr Allowance: ASTM		<i>Data Readings</i>	
<i>Data Evaluations</i>  Months Remaining to T Min: 30 Min Calc'd Wall Thickness: N/A Thick Remain Above T Min: 0.7 Short Term Corr Rate: N/A Long Term Corr Rate: N/A Months Remain to LFL: N/A Lowest Value - Last Reading: 6.9		Dec-99	Feb-02
	Point 1	7.6	7.5
	Point 2	7.5	7.5
	Point 3	7.5	7.4
	Point 4	7.5	7.4
	Point 5	7.5	7.5
	Point 6	7.5	7.5
	Point 7	7.6	7.5
	Point 8	7.6	7.5
	Point 9	7.5	7.5
	Point 10	7.5	7.4
	Point 11	7.5	7.4
Point 12	7.5	6.9	
	Average	7.5	7.4
	Avg Low 3	7.5	7.2
	Lowest	7.5	6.9
Comment:			

TML Description: BTM. SHELL CTR. FLOAT COLUMN T Nominal: 7.1 Min Nominal: 6.2 Corr Allowance: ASTM			
		<i>Data Readings</i>	
<i>Data Evaluations</i>		Dec-99	Feb-02
Months Remaining to T Min:	143	Point 1	8.0 7.8
Min Calc'd Wall Thickness:	N/A	Point 2	7.6 7.8
Thick Remain Above T Min:	1.1	Point 3	7.9 7.8
Short Term Corr Rate:	N/A	Point 4	7.8 7.7
Long Term Corr Rate:	N/A	Point 5	7.8 7.6
Months Remain to LFL:	26	Point 6	7.8 7.7
Lowest Value - Last Reading:	7.3	Point 7	7.6 7.5
Comment:		Point 8	7.7 7.5
		Point 9	7.6 7.5
		Point 10	7.7 7.4
		Point 11	7.7 7.5
		Point 12	7.5 7.3
		Average	7.7 7.6
		Avg Low 3	7.6 7.4
		Lowest	7.5 7.3

TML Description: BTM. SHELL SOUTH FLOAT COLUMN T Nominal: 7.1 Min Nominal: 6.2 Corr Allowance: ASTM			
		<i>Data Readings</i>	
<i>Data Evaluations</i>		Dec-99	Feb-02
Months Remaining to T Min:	390	Point 1	7.9 7.8
Min Calc'd Wall Thickness:	N/A	Point 2	7.9 7.8
Thick Remain Above T Min:	1.5	Point 3	7.9 7.8
Short Term Corr Rate:	N/A	Point 4	8.0 7.8
Long Term Corr Rate:	N/A	Point 5	8.0 7.8
Months Remain to LFL:	156	Point 6	8.0 7.9
Lowest Value - Last Reading:	7.7	Point 7	8.0 7.9
Comment:		Point 8	7.9 7.8
		Point 9	7.9 7.8
		Point 10	7.8 7.8
		Point 11	7.8 7.7
		Point 12	8.0 7.9
		Average	7.9 7.8
		Avg Low 3	7.8 7.8
		Lowest	7.8 7.7

TML Description: 12" 90' L B-T

T Nominal: 12.7

Min Nominal: 11.1

Corr Allowance: ASTM

*Data Readings*

<i>Data Evaluations</i>		<i>Data Readings</i>		
		Dec-99	Feb-02	
Months Remaining to T Min:	754	Point 1	14.8	14.8
Min Calc'd Wall Thickness:	N/A	Point 2	14.4	14.2
Thick Remain Above T Min:	2.9	Point 3	14.3	14.2
Short Term Corr Rate:	N/A	Point 4	14.2	14.0
Long Term Corr Rate:	N/A	Point 5	14.3	14.2
Months Remain to LFL:	338	Point 6	14.1	14.1
Lowest Value - Last Reading:	14.0	Point 7	14.1	14.0
Comment:		Point 8	14.6	14.4
		Point 9	14.6	14.4
		Point 10	14.6	14.5
		Point 11	14.6	14.3
		Point 12	14.6	14.6
		Average	14.4	14.3
		Avg Low 3	14.1	14.0
		Lowest	14.1	14.0



**ULTRASONIC EXAMINATION REPORT**

REPORT No.: **UT - 1828 - 014 - MAJ**

Page: 1 of 3

Client: Taqa North  
 District: Northern LSD: C-32-H / 94-H-08  
 Facility: Chinchaga Gas Plant  
 Item(s) Examined: 603VS002 Heat Coil  
 Acceptance Criteria: Client Review Rev. / Date: N/S  
 Procedure No.: ITS-UT02 Rev. / Date: Rev.1 / Oct-11  
 Technique No.: Technique 01 Thickness Measurements Rev. / Date: Rev.1 / Oct-11

ITS Job No.: 1828  
 Date: July 15, 2012  
 Time: 5:00 PM  
 W.O. No.: N/A  
 P.O. No.: N/A  
 Cost Code: N/A  
 AFE: 11200624  
 Other: N/A

**Equipment Data:**

PRN: (A) N/S Serial No.: 99-01-01 Equip. No.: 603VS002 CRN: K-1059.21  
 Material: SA-106-B Thickness: 7.6mm Other: V-103

**Surface Condition:**

Base Metal  Machined  Shot Blasted  Wire Wheeled  As Ground  As Welded  Painted  Coated  Other: N/A  
 < 0°C (32°F)  0°C (32°F) to 54°C (130°F)  55°C (131°F) to 100°C (212°F)  > 100°C (212°F)

**Ultrasonic Equipment:**

Instrument: Krautkramer Model: USN 58L Serial No.: O1P514 Cal. Due Date: 9-Jan-13  
 Cal. Block: 2.5-12.5mm Step Wedge Serial No.: Nov-19 Couplant: UTX  
 Cal. Block: N/A Serial No.: N/A  
 Transducer Cable(s): Type: BNC - Micro Dot Length: 6'

**Transducer:**

Serial No.:	Angle (X°):	Frequency (MHz):	Size (mm):	Type		Primary Reference (db) (%FSH):	Scanning Sensitivity (db):	Transfer Value (db):	Range (mm):
				Single	Dual				
705183	0	10	6.375	<input type="checkbox"/>	<input checked="" type="checkbox"/>	48dB @ 80% FSH	+6dB to maintain 80% FSH	N/A	0-25
				<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>				
				<input type="checkbox"/>	<input type="checkbox"/>				

**Examination Details:**

**SCOPE:** To perform Ultrasonic Thickness measurements in the specified location to determine if the examined areas are fit for continued service. All locations were cleaned to an acceptable level for the examination performed.

**RESULTS:** All scanned locations are within the specified thickness or greater. The 3" heating coil has a nominal thickness of 7.6mm with a corrosion allowance of 1.6mm, the lowest reading found was 6.8mm at locations (O and S).  
 \*Note: There is a pit about half wall around location (J). The ultrasound probe could not get a single due to the rough surface. Refer to the visual inspection where a pit gauge was used for the depth of the indication.

**CONCLUSION:** Client to review information. Pending visual coil may or may not be fit for continued service.

Client Representative: \_\_\_\_\_ Sign: \_\_\_\_\_ Date: \_\_\_\_\_

**Technician(s):**

Sign:   
 Print: Mike Johnston  
 Level: 2  
 Certification No.: 12240

Sign:   
 Print: Rob Kassian  
 Level: \_\_\_\_\_  
 Certification No.: 15532

Report Review:   
 Initial

Scope of Services: The agreement of Integrity Testing Services Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested inspection of specific equipment provided for in writing and the preparation of reports or similar documents reflecting the inspection data obtained or the opinion formulated on the basis of such inspection. It is expressly understood that all descriptions, comments and expressions of opinion or observations of the examiner and are not intended nor can they be construed as representations or warranties as to the actual circumstances. ITS is not assuming any responsibilities of the owner/operator, and the owner/operator retains complete responsibility for the engineering, repair and use decisions as a result of the inspection data or other information provided by ITS. In no event shall ITS's liability in respect of the services referred to herein exceed the amount paid for such services.  
 Standard of Care: In performing the services provided, Integrity Testing Services Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by ITS.

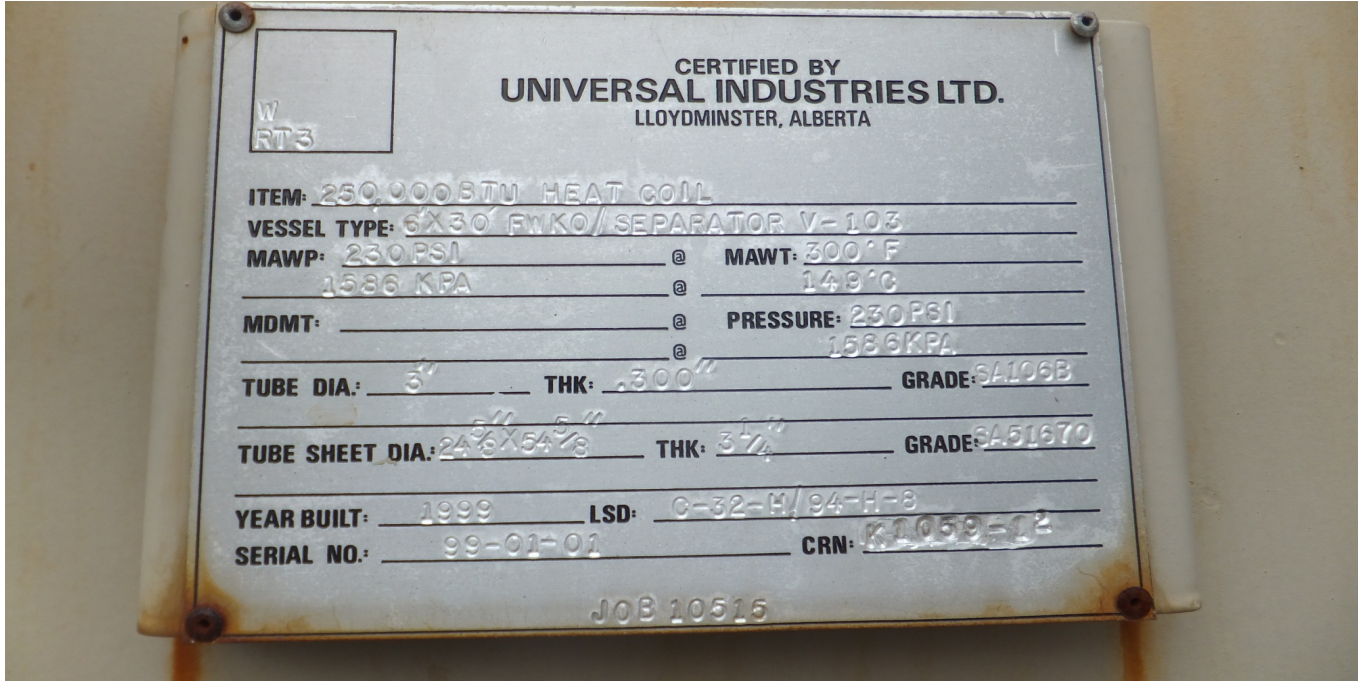
**CONTINUATION EXAMINATION REPORT**

REPORT No.: **UT - 1828 - 014 - MAJ**

Page: **2** of **3**

Client: Taqa North  
Item(s) Examined: 603VS002 Heat Coil

ITS Job No.: 1828  
Date: July 15, 2012



1<sup>st</sup> Technician:

Print: Mike Johnston

Sign: 

**CONTINUATION EXAMINATION REPORT**

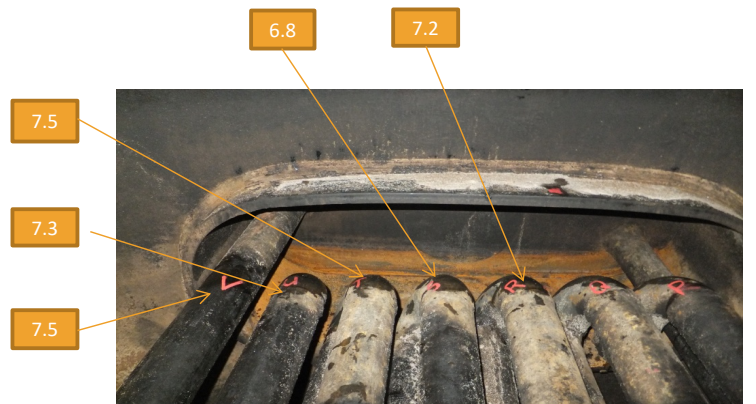
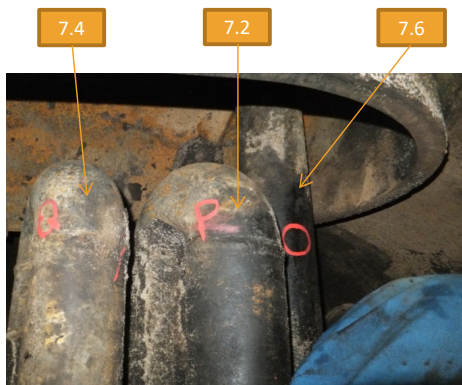
REPORT No.: **UT - 1828 - 014 - MAJ**

Page: **3** of **3**

Client: **Taqa North**  
Item(s) Examined: **603VS002 Heat Coil**

ITS Job No.: **1828**

Date: **July 15, 2012**



1<sup>st</sup> Technician:

Print: **Mike Johnston**

Sign:

## EQUIPMENT INTERNAL INSPECTION REPORT

<b>Customer:</b>	TAQA North	<b>ITS Job No.:</b>	1828
<b>District:</b>	Northern	<b>Date:</b>	12-Jul-2012
<b>Facility:</b>	Chinchaga Gas Plant	<b>LSD:</b>	C-32-H/94-H-8
<b>Equip. Description:</b>	Alberta Inlet Separator	<b>Serial No.:</b>	98-12-61
<b>Equip./OIP No.:</b>	603VS002	<b>PRN:</b>	A411565
<b>Equip. Type:</b> <input type="checkbox"/> Column <input type="checkbox"/> Cooler <input type="checkbox"/> Exchanger <input type="checkbox"/> Furnace <input type="checkbox"/> Heater <input type="checkbox"/> Plate Exchanger <input type="checkbox"/> Reboiler <input checked="" type="checkbox"/> Vessel <input type="checkbox"/> Other:			

Head (1)	Head (2)	Shell	Boot Shell/Head
<input type="checkbox"/> Top <input checked="" type="checkbox"/> North <input type="checkbox"/> West	<input type="checkbox"/> Bottom <input checked="" type="checkbox"/> South <input type="checkbox"/> East	<input checked="" type="checkbox"/> Top <input checked="" type="checkbox"/> Bottom	<input checked="" type="checkbox"/> Not Applicable
<input type="checkbox"/> Flat <input type="checkbox"/> FLG <input checked="" type="checkbox"/> ELL <input type="checkbox"/> ECC <input type="checkbox"/> HEMI	<input type="checkbox"/> Flat <input type="checkbox"/> FLG <input checked="" type="checkbox"/> ELL <input type="checkbox"/> ECC <input type="checkbox"/> HEMI	<input type="checkbox"/> Good Condition <input checked="" type="checkbox"/> Internal Corrosion	<input type="checkbox"/> Good Condition <input type="checkbox"/> Internal Corrosion
<input checked="" type="checkbox"/> Good Condition	<input checked="" type="checkbox"/> Good Condition	<input checked="" type="checkbox"/> Pitting: 0.040 in <small>(max depth)</small>	<input type="checkbox"/> Pitting: <small>(max depth)</small>
<input type="checkbox"/> Internal Corrosion	<input type="checkbox"/> Internal Corrosion	<input type="checkbox"/> Wear/Erosion	<input type="checkbox"/> Wear/Erosion
<input type="checkbox"/> Pitting: <small>(max depth)</small>	<input type="checkbox"/> Pitting: <small>(max depth)</small>	<input type="checkbox"/> Cracked	<input type="checkbox"/> Cracked
<input type="checkbox"/> Wear/Erosion	<input type="checkbox"/> Wear/Erosion	<input type="checkbox"/> Blistered	<input type="checkbox"/> Blistered
<input type="checkbox"/> Cracked	<input type="checkbox"/> Cracked	<input type="checkbox"/> Scale	<input type="checkbox"/> Scale
<input type="checkbox"/> Blistered	<input type="checkbox"/> Blistered	<input type="checkbox"/> Coated	<input type="checkbox"/> Coated
<input type="checkbox"/> Scale	<input type="checkbox"/> Scale	<input type="checkbox"/> Mechanical Damage	<input type="checkbox"/> Mechanical Damage
<input type="checkbox"/> Coated	<input type="checkbox"/> Coated	<input type="checkbox"/> Bulged/ Distorted/ Deformation	<input type="checkbox"/> Bulged/ Distorted/ Deformation
<input type="checkbox"/> Mechanical Damage	<input type="checkbox"/> Mechanical Damage	<input type="checkbox"/> See Comments	<input type="checkbox"/> See Comments
<input type="checkbox"/> Bulged/ Distorted/ Deformation	<input type="checkbox"/> Bulged/ Distorted/ Deformation		
<input type="checkbox"/> See Comments	<input type="checkbox"/> See Comments		

Channel Head	Internal Welds	Internal Nozzles	Drum
<input checked="" type="checkbox"/> Not Applicable	<input type="checkbox"/> Good Condition	<input type="checkbox"/> Good Condition	<input type="checkbox"/> Mud <input type="checkbox"/> Steam
<input type="checkbox"/> Good Condition	<input type="checkbox"/> Poor Quality	<input checked="" type="checkbox"/> Internal Corrosion	<input checked="" type="checkbox"/> Not Applicable
<input type="checkbox"/> Internal Corrosion	<input checked="" type="checkbox"/> Internal Corrosion	<input type="checkbox"/> Pitting: <small>(max depth)</small>	<input type="checkbox"/> Good Condition
<input type="checkbox"/> Pitting: <small>(max depth)</small>	<input type="checkbox"/> Pitting: <small>(max depth)</small>	<input type="checkbox"/> Wear/Erosion	<input type="checkbox"/> Internal Corrosion
<input type="checkbox"/> Wear/Erosion	<input type="checkbox"/> Wear/Erosion	<input type="checkbox"/> Cracked	<input type="checkbox"/> Pitting: <small>(max depth)</small>
<input type="checkbox"/> Cracked	<input type="checkbox"/> Cracked	<input type="checkbox"/> Scale	<input type="checkbox"/> Wear/Erosion
<input type="checkbox"/> Blistered	<input type="checkbox"/> Scale	<input type="checkbox"/> Coated	<input type="checkbox"/> Cracked
<input type="checkbox"/> Scale	<input type="checkbox"/> Coated	<input type="checkbox"/> Plugged	<input type="checkbox"/> Blistered
<input type="checkbox"/> Coated	<input type="checkbox"/> Mechanical Damage	<input type="checkbox"/> Poor Welding	<input type="checkbox"/> Scale
<input type="checkbox"/> Mechanical Damage	<input type="checkbox"/> See Comments	<input type="checkbox"/> Leaking	<input type="checkbox"/> Coated
<input type="checkbox"/> Bulged/ Distorted/ Deformation		<input type="checkbox"/> Mechanical Damage	<input type="checkbox"/> Mechanical Damage
<input type="checkbox"/> See Comments		<input type="checkbox"/> See Comments	<input type="checkbox"/> Bulged/ Distorted/ Deformation
			<input type="checkbox"/> See Comments

Internal Protection	Vessel Internals	Heating Coil (A)	Heating Coil (B)
<input checked="" type="checkbox"/> Not Applicable	<input checked="" type="checkbox"/> Adequate Cleaning	<input type="checkbox"/> Not Applicable	<input checked="" type="checkbox"/> Not Applicable
<input type="checkbox"/> Coating <input type="checkbox"/> Lining	<input type="checkbox"/> Vortex Breaker(s)/Deflection Plate(s) Damage	<input checked="" type="checkbox"/> Good Condition	<input type="checkbox"/> Good Condition
<input type="checkbox"/> Good Condition		<input type="checkbox"/> Corrosion	<input type="checkbox"/> Corrosion
<input type="checkbox"/> Blister(s)	<input checked="" type="checkbox"/> Weir(s)	<input type="checkbox"/> Pitting: <small>(max depth)</small>	<input type="checkbox"/> Pitting: <small>(max depth)</small>
<input type="checkbox"/> Dis-bonded		<input type="checkbox"/> Cracked	<input type="checkbox"/> Cracked
<input type="checkbox"/> Chipped	<input type="checkbox"/> Spray Nozzles Damaged/Missing	<input type="checkbox"/> Scaled	<input type="checkbox"/> Scaled
<input type="checkbox"/> Holidays/Cracked		<input type="checkbox"/> Worn	<input type="checkbox"/> Worn
<input type="checkbox"/> Mechanical Damage	<input type="checkbox"/> Down-comer Corrosion	<input type="checkbox"/> Loose	<input type="checkbox"/> Loose
<input type="checkbox"/> Missing		<input type="checkbox"/> Poor Installation	<input type="checkbox"/> Poor Installation
<input type="checkbox"/> See Comments	<input type="checkbox"/> See Comments	<input type="checkbox"/> See Comments	<input type="checkbox"/> See Comments
	<input type="checkbox"/> See Comments		

Demister Screen	Refractory	Manway	Trays
<input checked="" type="checkbox"/> Not Applicable	<input checked="" type="checkbox"/> Not Applicable	<input type="checkbox"/> Not Applicable	<input checked="" type="checkbox"/> Not Applicable
<input type="checkbox"/> Good Condition	<input type="checkbox"/> Good Condition	<input checked="" type="checkbox"/> Good Condition	<input type="checkbox"/> Good Condition
<input type="checkbox"/> Dislodged	<input type="checkbox"/> Cracked (minor)	<input type="checkbox"/> Coating Damage	<input type="checkbox"/> Collapsed
<input type="checkbox"/> Broken	<input type="checkbox"/> Spalling	<input type="checkbox"/> Internal Corrosion	<input type="checkbox"/> Distorted
<input type="checkbox"/> Missing	<input type="checkbox"/> Missing	<input type="checkbox"/> Mechanical Damage	<input type="checkbox"/> Loose
<input type="checkbox"/> Tie-downs Missing	<input type="checkbox"/> Damaged	<input type="checkbox"/> Seal Face Corrosion	<input type="checkbox"/> Missing
<input type="checkbox"/> Fouling	<input type="checkbox"/> Cracked (severe)	<input type="checkbox"/> Pitting: <small>(max depth)</small>	<input type="checkbox"/> Wear
<input type="checkbox"/> Corrosion	<input type="checkbox"/> See Comments	<input type="checkbox"/> See Comments	<input type="checkbox"/> Corrosion
<input type="checkbox"/> See Comments			<input type="checkbox"/> Poor
			<input type="checkbox"/> Valve Caps Missing
			<input type="checkbox"/> See Comments

Tube Sheet	Firetube(s)	Tube Bundle	Tubes
<input checked="" type="checkbox"/> Not Applicable	<input checked="" type="checkbox"/> Not Applicable	<input checked="" type="checkbox"/> Not Applicable	<input checked="" type="checkbox"/> Not Applicable
<input type="checkbox"/> Good Condition	<input type="checkbox"/> Good Condition	<input type="checkbox"/> Good Condition	<input type="checkbox"/> Good Condition
<input type="checkbox"/> Corrosion	<input type="checkbox"/> Corrosion	<input type="checkbox"/> Corrosion	<input type="checkbox"/> External Corrosion
<input type="checkbox"/> Pitting: <small>(max depth)</small>	<input type="checkbox"/> Pitting: <small>(max depth)</small>	<input type="checkbox"/> Pitting: <small>(max depth)</small>	<input type="checkbox"/> Internal Corrosion
<input type="checkbox"/> Wear/Erosion	<input type="checkbox"/> Wear/Erosion	<input type="checkbox"/> Wear/Erosion	<input type="checkbox"/> Pitting: <small>(max depth)</small>
<input type="checkbox"/> Cracked	<input type="checkbox"/> Cracked	<input type="checkbox"/> Cracked	<input type="checkbox"/> Wear/Erosion
<input type="checkbox"/> Damaged	<input type="checkbox"/> Scaled	<input type="checkbox"/> Damaged	<input type="checkbox"/> Cracked
<input type="checkbox"/> See Comments	<input type="checkbox"/> Coated	<input type="checkbox"/> Plugged	<input type="checkbox"/> Thinning
	<input type="checkbox"/> Heat Impinged	<input type="checkbox"/> Scaled	<input type="checkbox"/> Heat Impinged
	<input type="checkbox"/> Burner Misalignment	<input type="checkbox"/> See Comments	<input type="checkbox"/> Bulged/Distorted
	<input type="checkbox"/> Damaged Supports		<input type="checkbox"/> Leaking
	<input type="checkbox"/> Damaged Guides/ Tracks		<input type="checkbox"/> See Comments
	<input type="checkbox"/> See Comments		

**Observations:**

**Vessel in Good Condition**

**Based on API 510 Visual Internal Inspection this vessel is fit for service**

Vessel Cleaned By High Pressure Steam And Chemical Wash, Multiple Attempts Were Made To Make Clean Enough For Inspection  
The Coil Was Not Removed For Inspection  
The De-Sand Plates Were Removed For Inspection

**Summary of Deficiencies:**

- Up to 0.040" corrosion was found at the 0600 position throughout the lower shell end to end of the vessel
- Heavy asphalt/oil buildup throughout internal
- Isolated pitting areas around the weir at the 0100 position of the shell
- Inlet saddle is missing hardware (replace during this outage)

**Detailed Observations:**

The shell was found to have up to 0.040" corrosion depth throughout the 0600 position, average corrosion was 0.020". The corrosion was primarily concentrated under solidified sand deposits stuck to the shell internal surface. The sand deposits remained on the shell under the de-sand plates that were removed for inspection. Isolated areas of pitting up 0.030" in depth were found on the upper shell at the 0100 position near the center weir plate; four isolated areas were identified. No damage to the heads is visible. The weld caps in the 'water wet' zone of the lower shell have similar corrosion damage as the lower shell. The other welds in the vessel are in good condition and are of good quality.

The nozzle internals from the de-sand bar have visible internal corrosion similar to the lower shell, 0.020" is estimated to be the deepest visible area. The nozzles have no visible damage or deflection. The spray bar is in good condition, all spray nozzles are secure, all fasteners are secure. The inlet diverter saddles are in good condition with no wear or damage visible, full access to the back side is not available. The outlet nozzle is in good condition. The 1" sample nozzles are in good condition. The manway throats are in good condition. The sealing faces are free of nicks and gouges.

The center weir plate has mechanical damage/dent in the center of the top, this should not affect performance. The de-sand plates are in good condition, no damage or wear is visible.

The 3" heating coil was not removed and was inspected in-situ. There is no visible corrosion, pitting, damage or deformation of the tubes. UT scans show no internal wall loss.

**Recommendations:**

- Remove the coil for full inspection at the next outage; changes to the piping may be required for removal.
- Monitor corrosion at next inspection.

**Pictures:**



Photo 1: Nameplate



Photo 2: External

**Pictures:**



Photo 3: Internal



Photo 4: Internal (2)



Photo 5: North Head



Photo 6: South Head



Photo 7: Heavy Buildup on Shell



Photo 8: Corrosion on 0600 Position

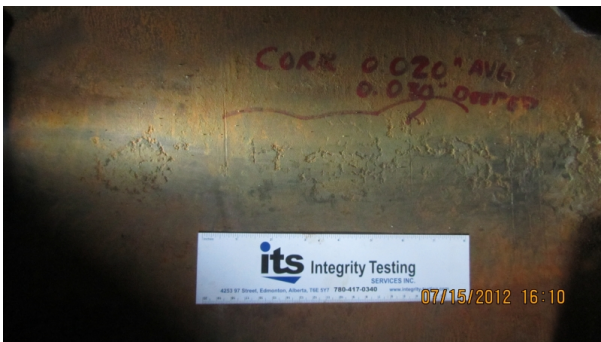


Photo 9: Corrosion on 0600 Position (2)



Photo 10: Corrosion on 0600 Position of Welds



Photo 11: Corrosion on De-Sand Nozzle Internal



Photo 12: Corrosion Areas on Upper Shell

**Pictures:**



Photo 13: Corrosion on Upper Shell



Photo 14: De-Sand Nozzle



Photo 15: Bottom Side of Coil



Photo 16: Mechanical Damage to Weir



Photo 17: Inlet Diverter Sale



Photo 18: Saddle Missing Hardware

**Additional Comments:**


None

Internal Inspection Performed By:

Print Name: Mike Johnston

Signature: 

Certification No.: API 510: 37244  
IPV: 000556

Report Reviewed:   
Initial