

EQUIPMENT INTERNAL INSPECTION REPORT

Customer:	TAQA North	ITS Job No.:	2506
District:	North Area	Date:	06-Nov-2013
Facility:	Chinchaga Gas Plant	LSD:	C-032-H/094-H-08
Equip. Description:	Propane Bullet	Serial No.:	393508
Equip./OIP No.:	603VP005	PRN:	A0601541
Equip. Type: <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 type="checkbox"/> North <input checked="" type="checkbox"/> West	<input type="checkbox"/> Bottom <input checked="" type="checkbox"/> South <input type="checkbox"/> East	<input type="checkbox"/> Top <input type="checkbox"/> Bottom	<input checked="" type="checkbox"/> Not Applicable
<input type="checkbox"/> Flat <input type="checkbox"/> FLG <input type="checkbox"/> ELL <input type="checkbox"/> ECC <input checked="" type="checkbox"/> HEMI	<input type="checkbox"/> Flat <input type="checkbox"/> FLG <input type="checkbox"/> ELL <input type="checkbox"/> ECC <input checked="" type="checkbox"/> HEMI	<input checked="" type="checkbox"/> Good Condition	<input type="checkbox"/> Good Condition
<input checked="" type="checkbox"/> Good Condition	<input checked="" type="checkbox"/> Good Condition	<input checked="" type="checkbox"/> Internal Corrosion	<input type="checkbox"/> Internal Corrosion
<input type="checkbox"/> Internal Corrosion	<input type="checkbox"/> Internal Corrosion	<input checked="" type="checkbox"/> Pitting: 1.02 mm <small>(max depth)</small>	<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"/> Wear/Erosion	<input type="checkbox"/> Wear/Erosion
<input type="checkbox"/> Wear/Erosion	<input type="checkbox"/> Wear/Erosion	<input type="checkbox"/> Cracked	<input type="checkbox"/> Cracked
<input type="checkbox"/> Cracked	<input type="checkbox"/> Cracked	<input type="checkbox"/> Blistered	<input type="checkbox"/> Blistered
<input type="checkbox"/> Blistered	<input type="checkbox"/> Blistered	<input type="checkbox"/> Scale	<input type="checkbox"/> Scale
<input type="checkbox"/> Scale	<input type="checkbox"/> Scale	<input type="checkbox"/> Coated	<input type="checkbox"/> Coated
<input type="checkbox"/> Coated	<input type="checkbox"/> Coated	<input type="checkbox"/> Mechanical Damage	<input type="checkbox"/> Mechanical Damage
<input type="checkbox"/> Mechanical Damage	<input type="checkbox"/> Mechanical Damage	<input type="checkbox"/> Bulged/ Distorted/ Deformation	<input type="checkbox"/> Bulged/ Distorted/ Deformation
<input type="checkbox"/> Bulged/ Distorted/ Deformation	<input type="checkbox"/> Bulged/ Distorted/ Deformation	<input checked="" type="checkbox"/> See Comments	<input type="checkbox"/> See Comments
<input checked="" type="checkbox"/> See Comments	<input checked="" type="checkbox"/> See Comments		

Channel Head	Internal Welds	Internal Nozzles	Drum
<input checked="" type="checkbox"/> Not Applicable	<input checked="" type="checkbox"/> Good Condition	<input checked="" type="checkbox"/> Good Condition	<input type="checkbox"/> Mud <input type="checkbox"/> Steam
<input type="checkbox"/> Good Condition	<input type="checkbox"/> Poor Quality	<input 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 checked="" 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 checked="" 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 checked="" 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 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 type="checkbox"/> Pitting: (max depth)	<input type="checkbox"/> Pitting: (max depth)
<input type="checkbox"/> Dis-bonded	<input type="checkbox"/> Weir(s)/ Baffle(s)/ Divider(s) Damage	<input type="checkbox"/> Cracked	<input type="checkbox"/> Cracked
<input type="checkbox"/> Chipped		<input type="checkbox"/> Scaled	<input type="checkbox"/> Scaled
<input type="checkbox"/> Holidays/Cracked	<input type="checkbox"/> Spray Nozzles Damaged/ Missing	<input type="checkbox"/> Worn	<input type="checkbox"/> Worn
<input type="checkbox"/> Mechanical Damage		<input type="checkbox"/> Loose	<input type="checkbox"/> Loose
<input type="checkbox"/> Missing	<input type="checkbox"/> Down-comer Corrosion	<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		

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: (max depth)	<input type="checkbox"/> Wear
<input type="checkbox"/> Corrosion	<input type="checkbox"/> See Comments	<input checked="" 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: (max depth)	<input type="checkbox"/> Pitting: (max depth)	<input type="checkbox"/> Pitting: (max depth)	<input type="checkbox"/> Internal Corrosion
<input type="checkbox"/> Wear/Erosion	<input type="checkbox"/> Wear/Erosion	<input type="checkbox"/> Wear/Erosion	<input type="checkbox"/> Pitting: (max depth)
<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**

- The Tee welds are numbered West to East T1 - T12, and the Circumferential welds are numbered the same C1 - C7. The cans are numbered West to East from can 1 - can 6.
- All nozzle welds, circumferential and longitudinal welds have no signs of corrosion, erosion, preferential attack, no issues.
- N1, N2, N3, N4 are on the West Head. N5, N6, N7 are on shell floor in Can 1. M1 and N8 are in Can 1 on top of the shell at 12 O'clock position. N9 is in Can 6 at 12 O'clock position; this is where the multi-port PSV is mounted. N10 is on the East Head.
- Manway and manway sealing areas have no corrosion, erosion or mechanical damage, no issues. New bolts installed for the manway on the flange of the vessel part of manway.
- Both heads have mill scale still present and have a slight product residue.
- The shell walls have the same slight product residue as the heads and a heavier sludgy residue also noted approximately 3.18mm thick. No corrosion found behind this residue, no concerns. The vessel was swept and residue cleaned up and nozzles were vacuumed out.
- On the East end of the vessel there is corrosion noted on the shell floor. The corrosion is out 228.6mm from the C7 weld and is 177.8mm parallel with C7 weld. The deepest area noted in this corrosion on the shell side is 1.02mm. This was rechecked and depth is the same.
- The volume gauge mechanism on the west head is functional.
- The float mechanisms were pulled out and laid upon the catwalk, no confirmation if they were functional.
- The weld repair groove on the west head is approximately 254mm long x 19.05mm wide x 4.45mm deep. Wet Fluorescent Magnetic Particle Examination was done after the groove was made to make sure no linear indications were found prior to welding. Pro Pipe from Grande Prairie did the weld repair. Then WTMT was performed after the weld cooled down and then again 24hrs later. No linear indications were found.
- See MT-1829-01-EDP for the WFMPI results and locations (this is the original report from 2012).
- Also see MT-2506-01-EDP for weld repair and MT-2506-02-EDP for 24hr Post weld repair.

Recommendations:

- Label PSV (with serial number 15541) 603SVVP005 and reattach nameplate.

Pictures:



Photo 1: Nameplate



Photo 2: Overall View

Pictures:



Photo 3: West Head Weld Repair

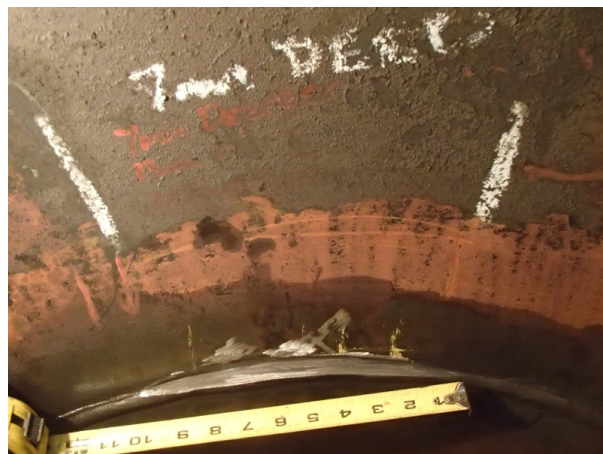


Photo 4: Length of Groove Approximately 254mm Long



Photo 5: Groove Width Approximately 19.05mm x 4.45mm

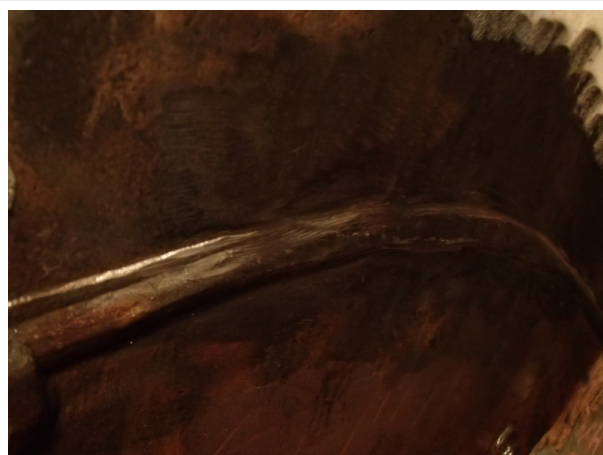


Photo 6: Weld Repair Overview

Additional Comments:

- None

Internal Inspection Performed By:

Print Name:

Erwin D. Pederson

Certification No.:

API 510: 33075
ABSA IPV PESL:
000406
PEI Class 2: 154

Signature:

Erwin Pederson

Report Reviewed:

[Signature]
Initial