SUMMARY REPORT

FRP VESSEL

OWNER:
ABC

FACILITY LOCATION:
USA

EQUIPMENT NAME:
Stripper Column

EQUIPMENT NUMBER:

PROCESS UNIT OR AREA:
Waste Treatment Unit

MANUFACTURER:
XYZ

DRAWING NUMBER:

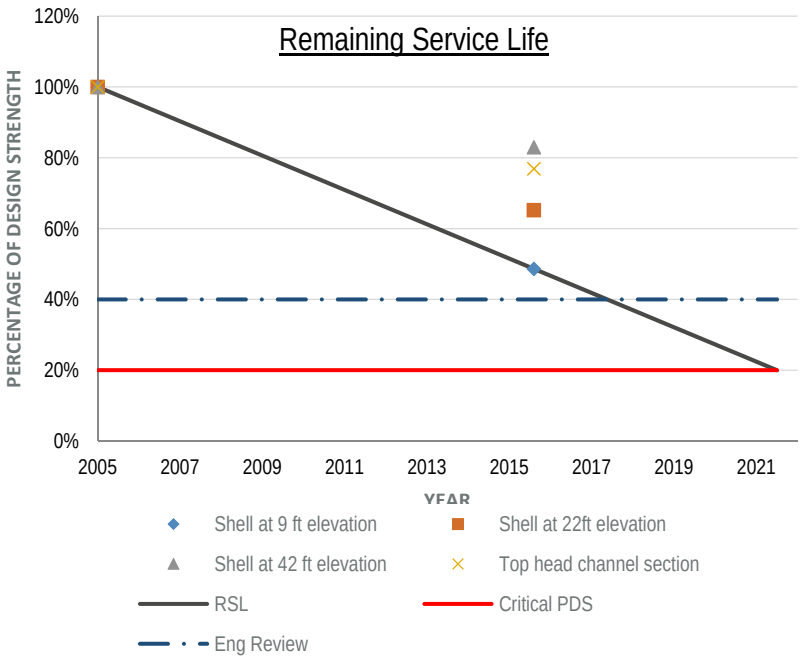
GENERAL CORROSION BARRIER:
FRP

STRUCTURAL:
HAND LAYUP

OVERVIEW

Year of First UTComp Evaluation 2015
Next UTComp Inspection 2018
Predicted Year at Critical PDS 2022
Remaining Service Life 7
General Corrosion Barrier Condition ..... Damage detected
PDS Values ..... Critical: 20% Min Section: 49%

CONCLUSIONS



LICENSED TO:
DATA COLLECTED BY:

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- The FRP vessel is suitable for continued service to the next recommended UTComp inspection.
- Defect or damage to the support structure was detected.
- Defects or damage to the exterior of the tank was detected.
- Defects or damage to external components of the tank was detected.
- Defects or damage to pipe and nozzle connections of the tank were detected.
- Percentage of Design Strength is greater than the Critical PDS.

RECOMMENDATIONS

UTComp System evaluation is recommended after all significant process excursions and environmental events. UTComp recommends that a competent FRP Engineer be engaged for all recommended engineering activities including replacement, review, evaluation, repair design and repair inspection.

Action	Basis	Timing
Next UTComp evaluation	UTComp Calculations	2018
Repair corroded anchor bolts.	External Inspection	2015
Evaluate the damage to the insulation of the tank.	External Inspection	2015
Evaluate the damage to the external surface of the tank (around Nozzle A and its repad)	External Inspection	2015
Verify that all pressure relieving devices are suitable for service.	External Inspection	2015
Replace all cracked FRP Flanges (Nozzle M and Body Flange 2)	External Inspection	2015
Install supports for pipes at connections to the tank (Nozzle A piping)	External Inspection	2015

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DATA COLLECTED BY:

UTComp

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FRP VESSEL

SUMMARY

UTComp® data was collected from 4 sections of Stripper Column (Equipment Number:) on 01/01/2014. This is the 1st time that UTComp® Evaluation has been completed for this equipment. The Stripper Column was operating at the time of the inspection.

External inspection was completed following UTComp guidelines.

Conclusions and recommendations have been included from other inspections completed at the same time as UTComp evaluation. Other inspection reports are appended.

No information has been provided regarding visible internal condition of the vessel. The equipment has a FRP corrosion barrier. UTComp readings have detected some damage or blistering to the corrosion barrier.

Shell at 22ft elevation - The ultrasonic readings indicate that FRP might have been submerged at the time of inspection. If that is the case, these results will understate the actual PDS.

No need for reinforcement updates or repair was detected.

UTCOMP® SYSTEM ANALYSIS DETAILS

VESSEL SECTIONS

Table 1 shows the results obtained for the sections evaluated in this inspection.

Table 1

Section	Average Thickness (mm)	Section Average PDS	Corrosion Barrier Findings
Shell at 9 ft elevation	25	49%	Damage detected
Shell at 22ft elevation	32	65%	No damage detected
Shell at 42 ft elevation	25	83%	No damage detected
Top head channel section	31	77%	No damage detected

SUITABILITY FOR SERVICE

The Inspector has provided information that is requested to determine Suitability for Service(1). The information provided is shown in Table 2.

Table 2

Information Requested	Yes	No	Unknown	Details and Values
Vessel Service has not changed since last inspection.	X			
Standards used for Vessel Design	X			PPG Industries Standards
Vessel Contents provided	X			
Operating Internal Pressure Known and Provided				Internal Pressure is taken as dominant
Installation Year or Age Known	X			Constructed in 2005

The Asset design follows known Standards.
For the vessel contents provided, maximum time interval between inspections is set to 3 years.
The substance stored in the vessel is known to damage E-type glass.

DISCUSSION

For Shell at 9 ft elevation the data was collected from: starting at north working clockwise around the vessel shell

For Shell at 22ft elevation the data was collected from: starting at north working clockwise around the shell, just below the exterior support ring

For Shell at 42 ft elevation the data was collected from: starting at north working clockwise around the shell

For Top head channel section the data was collected from: starting at north working clockwise around the top head channel

Shell at 9 ft elevation shows significant degradation through the FRP thickness.

Remaining Service Life has been calculated based on the assumption that the new FRP was at 100% of the expected value. If the new FRP had a PDS less than 100%, the Remaining Service Life would be extended.

CERTIFICATION

The person who collected the data has certified that the data was obtained and provided in accordance with UTComp procedures, training and licensing.

Data analysis and reporting has been completed by UTComp Inc in accordance with UTComp procedures and training. Analysis and reporting are valid only for data received. Warrantee or representation is limited to areas or sections of an asset from which data or inspection information has been provided.

For further information about the UTComp System or the results reported above contact the licensee. UTComp may be contacted directly at:

Telephone: +1 519.620.0772
Email: inquiries@utcomp.ca
Web: www.utcomp.ca

DATA ANALYST:	REVIEWED BY:
Analyst 1	Geoff Clarkson, P.Eng.

REFERENCES

1. Clarkson, Geoff, "Suitability for Service Using the UTComp System R4", UTComp Monograph, 2014