

# Health & Water of the search o

Total Solution 2023

# The Agenda

#### Tank Health & Integrity

Assess the ability of Tank to stand with or without product.

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TankFitness ForService

To assure the tank is fit for further service

### 03

#### Tank Residual (←) Life





# Double Wall Tanks

Double Wall Tanks - DWST, are tanks having double wall protection to store the product.

The outer wall is an extra protective wall which is generally designed to give safety and strength to the tank integral properties.

All DWST are operated below 33 degree Celsius and at atmospheric Pressure.



![](_page_3_Picture_0.jpeg)

# REFERENCES **& GUIDLINES**

• **EFMA** 2008 Edition Issue 2014

Guidelines to determine the Inspection Period and Inspection methods for complete assessment of Tank.

Tank shall be inspected before first 20 years of service and then after 10 years of service.

Recommended to follow **RBI Approach** that is **API 580** Standards & Guidelines

• API 580 Risk Bases Inspection API 580 refers to follow API 653

• API 653 Tank Inspection, Repair, Alternation & Re- Construction As per standard, Inspection of Tank Wall, Tank Bottom, Tank Roof, Tank Structure and Tank Connecting Pipelines & Auxiliaries to be performed to assure the health & integrity of tank.

![](_page_3_Picture_9.jpeg)

ditions which may occur in an existing tan hen design and construction details are not given, and are not available in the as-built standard, details that will provide evel of integrity equal to the level prov

API members receive a 30% discount where applicat

+1) 303-397-7056 (Local and Internationa

Fax: (+1) 303-397-2740

#### Decommissioning & Opening

Starting from HAZID - HAZOP to Decommissioning & Isolation of Tank is done by our experts. Once the tank is isolated, manhole cutting is performed to proceed further

#### Cleaning, Approach , Inspection & Repair

Removal of Sludge, Surface preparation for Inspection, Erection of Scaffolding, Advanced & Robotic Inspections are performed to assess the health of Tank.

![](_page_4_Picture_4.jpeg)

#### Closing & Re-Commissioning

After proper Inspection and required maintenance & repair is done. Tank Manholes are rewelded and proceed for re-commission of tank. Our experts look after the tank until the general condition and with product.

## Decommissioning of Tank

Process Starts from:

- HAZID/HAZOP Study
- Product Removing Process
- Purging Process
- Decommissioning Process
- Isolation Process
- Man-Hole Cutting
- Man-Entry

![](_page_5_Figure_9.jpeg)

![](_page_5_Picture_10.jpeg)

![](_page_5_Picture_11.jpeg)

- Entry in Tank
- Sludge Removal by Pump

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- Sludge Removal Manual wipe
- Final Cleaning of Tank
- Surface preparation for Inspection Activities

![](_page_6_Picture_5.jpeg)

![](_page_6_Picture_6.jpeg)

#### Advanced & Robotic Inspections

We use latest advanced NDT Techniques and **Robotics for fast inspection coverage. We do the** fastest inspection and save the production time. **Total Average Inspection Completion Period: 45 - 60 Days** 

- Advanced Inspections like, **Phased Array & Corrosion** Mapping Using Robotic Crawler
- Scanning of all welds, T Joints using Phased Array
- B-Scan and corrosion mapping of **Tank Wall Plate**
- MFL for Tank bottom Floor Inspection
- Eddy Current Array for Welds Inspection (Replacing DPT & MPI)
- All above inspection are advanced and available with minimum post & pre inspection requirements
- All inspection data is recorded and can be referred in future references
- Minimum Requirement of Scaffolding
- Minimum Human Error

![](_page_7_Picture_20.jpeg)

# Approach & Scaffolding

Approach is being provided at those area where Robots cant reach. Scaffolding is arranged for special Inspections Scaffoldings are erected by specialised riggers and scaffolding engineers.

Safety is our policy and priority, hence a HSE Engineers stay during project and make sure that all work goes as per safety norms.

Erection of scaffolding are restricted to only inspection location and repair locations if requires.

However, 80% Inspection coverage is been performed using Robotics.

![](_page_8_Picture_6.jpeg)

# Re-Welding & Re-Commissioning

#### <u>Re-commissioning of Tank is being performed by our commissioning expert.</u> <u>A proper process is obtained for recommissioning.</u>

- Re- Welding of manhole
- Post Weld Heat Treatment of Manhole weld
- Post Inspection of Manhole weld
- Air Purging
- Nitrogen Purging
- Tank Chill Down
- Rewind Product Purging
- Maintaining the temperature
- Handing over to Client
- Tank Health & Integrity **Certification is done on behalf** of Inspection observation and data claculation

![](_page_9_Picture_16.jpeg)

![](_page_10_Picture_0.jpeg)

![](_page_10_Picture_1.jpeg)

![](_page_10_Picture_3.jpeg)

**Director (Business Development & Marketing) Gulachi** Engineers Pvt Ltd, India

Contact No.: +91-9899975387 (India), +968 90905506 (Oman\_

Email: bdm@gualchi.com, info@gulachi.com