

BHARAT

TANKS AND VESSELS LLP

Company Presentation



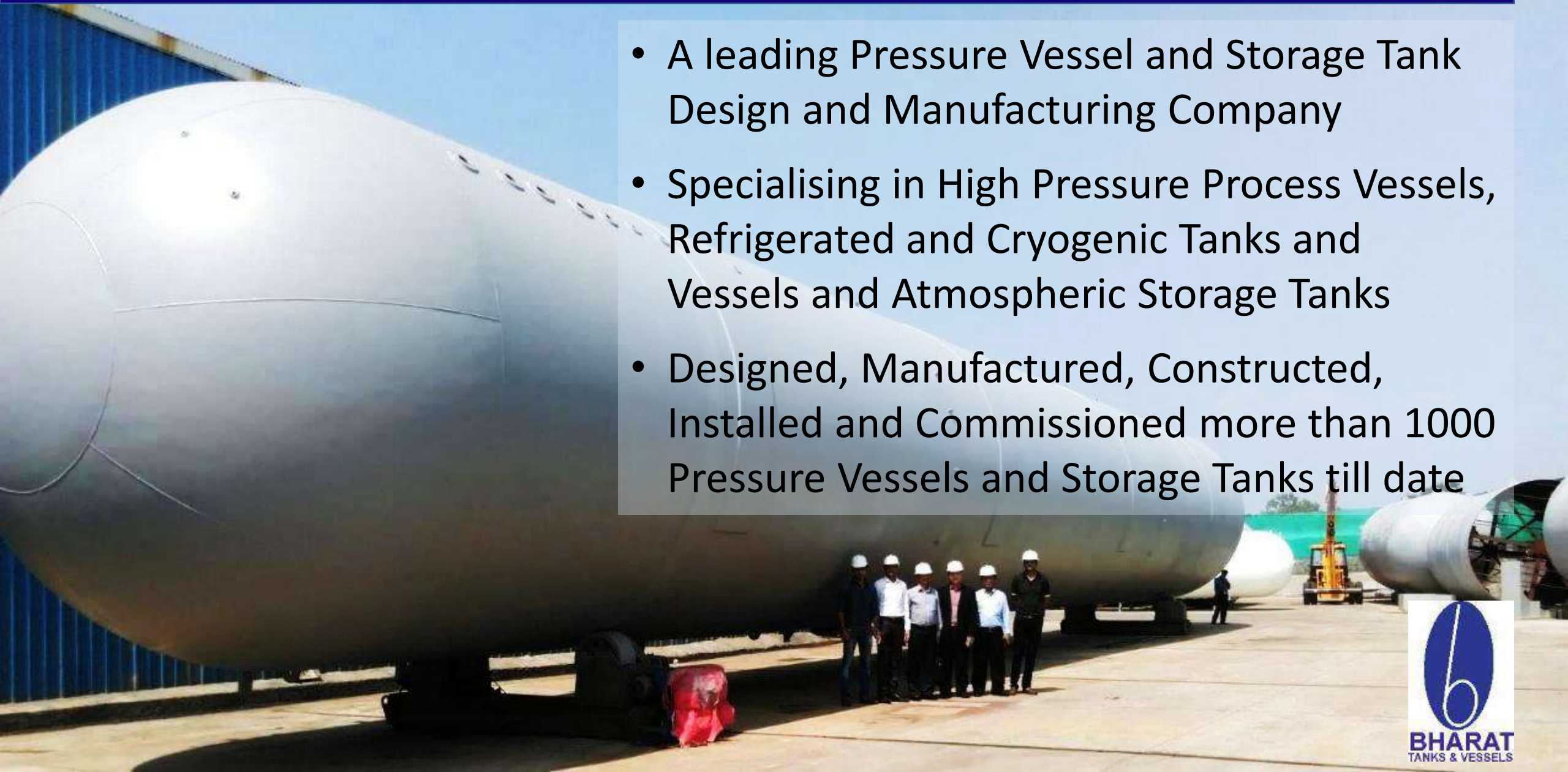
Bharat Tanks and Vessels LLP – A Brief Introduction

- Founded in 1996
- A leading Solution Provider, Investing and EPC Company with Specializing in Hydrocarbon, LPG / Propane / Ammonia, CO2 and Fuel Facilities.
- Executed more than 20 projects worldwide with Turnkey execution from Feasibility Study to Commissioning.



Bharat Tanks and Vessels LLP – A Brief Introduction

- A leading Pressure Vessel and Storage Tank Design and Manufacturing Company
- Specialising in High Pressure Process Vessels, Refrigerated and Cryogenic Tanks and Vessels and Atmospheric Storage Tanks
- Designed, Manufactured, Constructed, Installed and Commissioned more than 1000 Pressure Vessels and Storage Tanks till date



Bharat Tanks and Vessels LLP – Capabilities

- Fully equipped Factory with state-of-the art fabrication equipments, inspection and testing facilities with an installed capacity of 15,000 MTPA and 110,000 Sq. mtr. Area





Bharat Tanks and Vessels LLP – Key Competence

Key
Expertise
and Process
know-how

Fuel and Gas
Tank Farm Site
Construction
and Project
Management

Detailed
Design
Competence
with Software
based Analysis

In-house ASME
Approved High
Pressure Vessel
Manufacturing

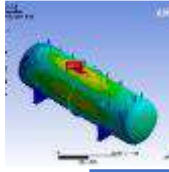


Bharat Tanks and Vessels LLP – Key Competence



DESIGN CODES

- ASME Sec. VIII Div. 1
- ASME Sec. VIII Div. 2
- PD 5500
- API 650, 620, 625
- EN 13445
- AD 2000 Merkblätter
- CODAP Div. 1 & 2
- AS 1217
- IS 2825



EQUIPMENT TYPES

- High Pressure Gas and Liquid Storage Vessels
- Surge Vessels
- Cryogenic Pressure Vessels
- Distillation Columns
- Filters
- Air Heat Exchangers



MATERIALS

- Low Temp. Carbon Steels ASME SA 537 Class 1 & 2 & EN 10028
- High Temp. Carbon Steels SA 516 Gr. 60, 65, 70
- Low Temp. Carbon-Manganese-Silicon Steels SA738 Gr. A, B, C
- Nickel Alloy Steels X7Ni9
- Stainless Steels 304, 304L, 316, 316L



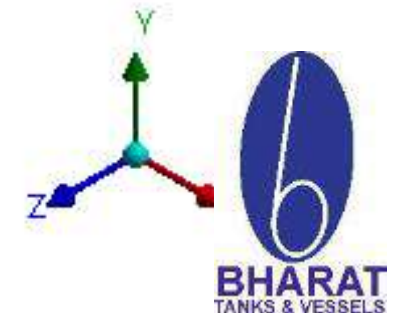
WELDING PROCESSES

- Shielded Metal Arc Welding (SMAW)
- Submerged Arc Welding (SAW)
- Gas Tungsten Arc Welding (GTAW)
- Gas Metal Arc Welding (GMAW)
- Flux Cored Arc Welding (FCAW)

Bharat Tanks and Vessels LLP – Key Competence

B: design pressure
Mound pressure on shell
Time: 1. s
Unit: MPa

0.0507507 Max
0.0451118
0.0394728
0.0338338
0.0281949
0.0225559
0.0169169
0.0112779
0.00563897
0 Min



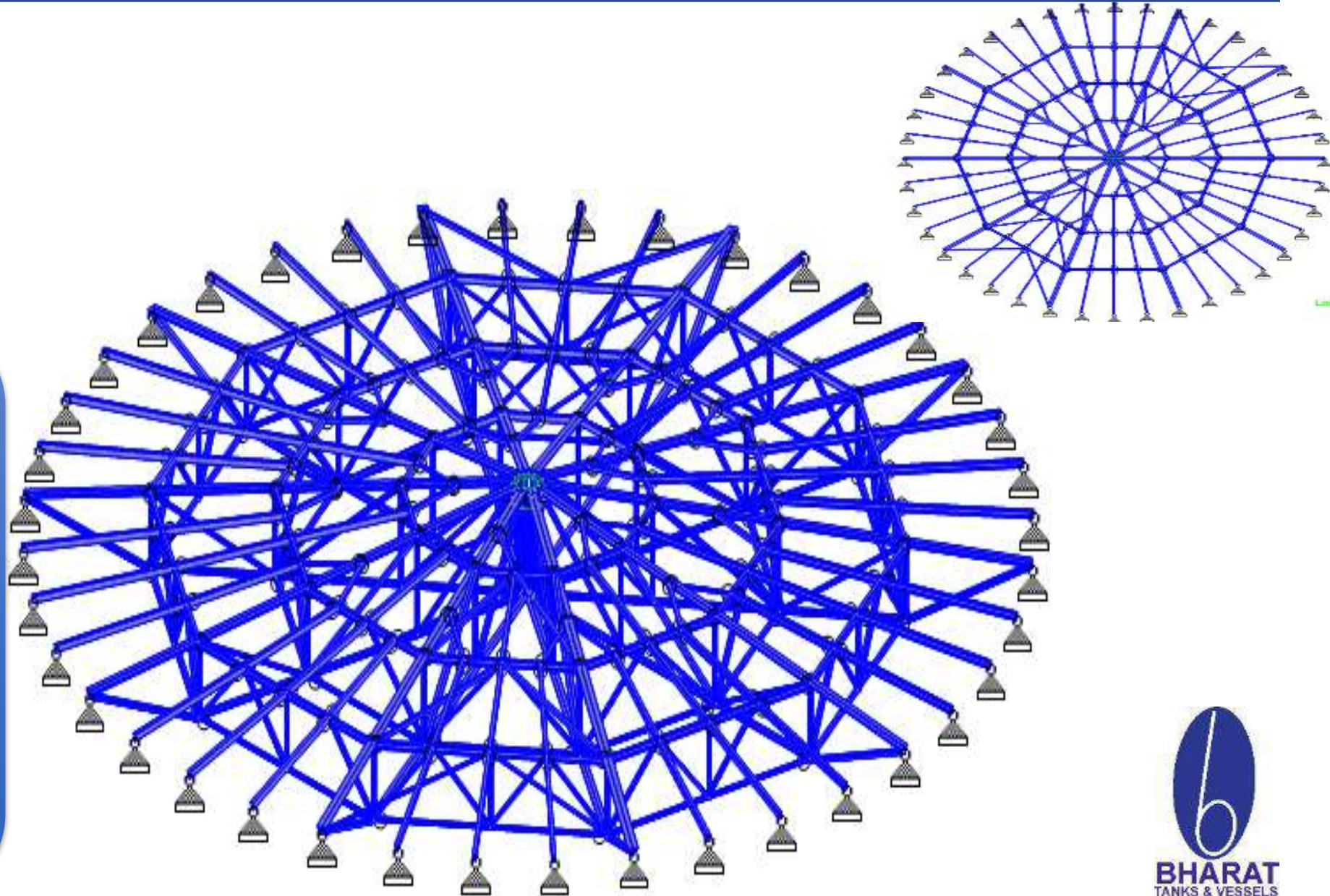
Use of Licensed Design
& Simulation Software
for Pressure Vessels
and Gas Storage Tank
Farm:

- PV Elite
- ANSYS
- ASPEN HYSYS
- 3D Modeling

Bharat Tanks and Vessels LLP – Key Competence

Use of Licensed Design
& Simulation Software
for Fuel Tank Farm:

- PV Elite
- ANSYS
- STAAD.Pro
- ASPEN HYSYS
- 3D Modeling



Bharat Tanks and Vessels LLP – Certification



The American Society of Mechanical Engineers

CERTIFICATE OF AUTHORIZATION

The named company is authorized by The American Society of Mechanical Engineers (ASME) for the scope of activity shown below in accordance with the applicable rules of the ASME Boiler and Pressure Vessel Code. The use of the ASME Single Certification Mark and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the application. Any construction stamped with the ASME Single Certification Mark shall have been built strictly in accordance with the provisions of the ASME Boiler and Pressure Vessel Code.

COMPANY:

BHARAT TANKS AND VESSELS LLP
Gat. No. 647, Pimpri Budrukh
Taluka Khed
District Pune
Maharashtra 410505
India

SCOPE:

Manufacture of pressure vessels at the above location and field sites controlled by the above location (This authorization does not cover impregnated graphite)

AUTHORIZED: August 15, 2024
EXPIRES: July 30, 2027
CERTIFICATE NUMBER: 41533

Gary L. Scribner
Board Chair,
Conformity Assessment



Matthew Vanguey
Senior Director,
Engineering Operations

ASME Certified since the
Year 2012

Certified to Design,
Manufacturing of
Pressure Vessels as per
ASME Sec. VIII Div. 1 &
Div. 2
“U”, “U2” & “R”



The American Society of Mechanical Engineers

CERTIFICATE OF AUTHORIZATION

The named company is authorized by The American Society of Mechanical Engineers (ASME) for the scope of activity shown below in accordance with the applicable rules of the ASME Boiler and Pressure Vessel Code. The use of the ASME Single Certification Mark and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the application. Any construction stamped with the ASME Single Certification Mark shall have been built strictly in accordance with the provisions of the ASME Boiler and Pressure Vessel Code.

COMPANY:

BHARAT TANKS AND VESSELS LLP
Gat. No. 647, Pimpri Budrukh
Taluka Khed
District Pune
Maharashtra 410505
India

SCOPE:

Manufacture of Class 1 and Class 2 pressure vessels at the above location and field sites controlled by the above location

AUTHORIZED: August 15, 2024
EXPIRES: July 30, 2027
CERTIFICATE NUMBER: 51851

Gary L. Scribner
Board Chair,
Conformity Assessment



Matthew Vanguey
Senior Director,
Engineering Operations

Bharat Tanks and Vessels LLP – Certification



THE NATIONAL BOARD
OF
BOILER & PRESSURE VESSEL INSPECTORS

Certificate of Authorization



This is to certify that

BHARAT TANKS AND VESSELS LLP
Gat No. 647, Pimpri Budruk
Taluka Khed
District Pune, Maharashtra 410505
India

is authorized to use the R Symbol in accordance with the provisions of the National Board Inspection Code and NB-415, Accreditation of "R" Repair Organizations.

All activities within the scope of this Authorization shall be controlled by the above location.

The scope of this Authorization is limited to:

Metallic
Repairs and Alterations
At
Shop and Field Locations

Certification Number: 12004

Issue Date: November 13, 2024

Expiration Date: July 30, 2027

Executive Director

DNV·GL

EU CERTIFICATE OF CONFORMITY

Certificate No.:
12167-2018-CE-IND-ACCREDIA

Issue date:
25 September, 2018

This certificate consists of 3 pages

This is to certify that the products manufactured by

Bharat Tanks and Vessels

Gat No. 647, Pimpri Budruk, Tal - Khed, Dist - Pune 410505, India

have been assessed with respect to the conformity assessment procedure described in

ANNEX III MODULE G OF DIRECTIVE 2014/68/EU ON PRESSURE EQUIPMENT

and found to comply with the requirements in Annex I – Essential Safety Requirements of the Directive.

The certificate is valid for the following products:

Type of Pressure Equipment
Product Name
Product Identification

Pressure Vessel
Liquid CO2 Vertical Storage Tank
BT-CO2-721



Bharat Tanks and Vessels LLP – Certification

Certified to European
ISO 3834-2 which
provides a
comprehensive
framework with
necessary controls and
best practices that
must be followed
throughout the welding
process. From design
and material selection
to execution and
inspection, certification
consistent quality of
welded products.



CERTIFICATE OF CONFORMITY

Certificate No.: C642963 Rev. 0.0

Initial certification date: 2024-05-14

Validity: 2024-05-14 – 2029-05-14

This is to certify that the welding operations and associated activities which influence the integrity of welds of:

Bharat Tanks and Vessels LLP
Factory : Gat No. 647, Pimpri Budruk, Khed, Pune - 410505, Maharashtra, India

has been found to conform to the quality requirements for fusion welding of metallic materials in the standard:
ISO 3834-2:2021

This certificate is valid for the following scope:
Manufacturing of Pressure Vessels, Piping and Related Fabrication Activities

For a description of the welding activities see appendix on this Certificate.

Photo and date: Barindrecht, 2024-05-15





For the issuing office:
DNV Business Assurance S.V., The Netherlands


Management Representative

Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.

DMS/PA/ISO3834-05A1rev.1



Certificate No.: C642963 Rev. 0.0

Place and date: Barindrecht, 2024-05-15

Appendix to Certificate

Scope of activities

1 – Type of product(s):
Pressure Vessels, Piping and related Fabrication activities

2 – Product standard(s) or alternative standard(s) (see EN ISO 3834-5):

ASME Sec IX, ASME Sec VIII Div 1, ASME Sec VIII Div 2, EN 13445, ASME B31.3, AD2000, PD5500

3 – Parent material group(s) (according CEN ISO/TR 15608)

1.1, 1.2, 1.3, 11.1

4 – Welding and allied processes (according ISO 4063)

111, 121, 132, 141

CERTIFIED LOCATIONS

Additional locations included in the certification are as follows:

Site Name	Address	Site scope
Bharat Tanks and Vessels LLP	Office: B-21/22, Mayanagari Building, Dapodi, Pune – 411012, Maharashtra, India	Procurement and Marketing

Certificate history:

Revision	Description	Issue Date
0.0	Initial Certificate	2024-05-14

End of Certificate

Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.

Accredited Unit: DNV Business Assurance S.V., Zeeboezing 1, 2094 LB Barindrecht, The Netherlands, TEL: +31 10 2922 660 www.dnv.com


BHARAT TANKS & VESSELS
Page 2 of 2

Bharat Tanks and Vessels LLP – Certification

AGSI CERTIFICATION PRIVATE LIMITED

CERTIFICATE OF REGISTRATION

This is to certify that the Quality Management System of:

BHARAT TANKS AND VESSELS LLP

OFFICE: B - 21/22, MAYANAGARI BUILDING, DAPODI, PUNE - 411012,
MAHARASHTRA, INDIA.
FACTORY: GAT NO. 647, PIMPRI BUDRUKH, TAL. KHED, DIST.: PUNE - 410505,
MAHARASHTRA, INDIA

has been assessed and
approved to the requirements
of standard :

ISO 9001 : 2015

The Quality Management System applies to :

DESIGN, MANUFACTURE AND SUPPLY OF LPG AND
OTHER GAS TANKS, ASSOCIATED EQUIPMENTS AND OTHER PRESSURE VESSELS
AND DETAILED ENGINEERING PROCUREMENT, CONSTRUCTION, INSTALLATION
AND COMMISSIONING OF OIL AND GAS, PETROCHEMICAL PROJECTS INVOLVING
STORAGE AND TRANSPORTATION OF LPG, OIL, GAS AND OTHER CHEMICALS

Certificate No.: QM00524000000136

Valid from: 30-10-2024

Valid upto: 29-10-2027*

Client File No.: AGSI/Q/3762

Dt. Of Originally Certified: 30-10-2021



For AGSI Certification Pvt. Ltd.

(Signature)
(Mona Desai)
Director

11.09.2024

Registered Office : 208, Kartik Complex, Opposite Laxmi Industrial Estate,
New Link Road, Andheri (West), Mumbai - 400053, India.
Email: agsicert@gmail.com, Website : www.agsicertification.in

The document remains the property of AGSI-CPL. This approval is subject to the organization maintaining its system
to the requirements of the standard as monitored by AGSI-CPL.

*Subject to yearly re-approval by AGSI-CPL on surveillance assessments. Due date for re-approval: 30.10.2025

*To verify the validity status of this certificate refer to the online global database : <https://www.iafcertsearch.org>

CERTIFICATE



This is to Certify that the Management System of

BHARAT TANKS AND VESSELS LLP

Office Address : B 21/22, Mayanagari Building, Dapodi, Pune - 411012,
Maharashtra, India

Factory Address : Gat No. 647, Pimpri Budrukh, Tal.-Khed, Pune - 410505,
Maharashtra, India

has been found to conform to the Environmental Management System standard:

ISO 14001:2015

This certificate is valid for the following scope of operations:

Design, Manufacture and Supply of LPG and other Gas Tanks, Associated
Equipments and Pressure Vessels, Detailed Engineering, Procurement,
Construction, Installation and Commissioning of Oil and Gas,
Petrochemical Projects involving Storage and Transportation
of LPG, Oil, Gas and related Chemicals.

:: Certificate No :: IN56381B

Date of initial registration	Date of this Certificate	Surv. audit on or before / Certificate expiry	Recertification Due
29 January 2024	29 January 2024	28 January 2025	28 January 2027

This Certificate remains valid subject to satisfactory surveillance audits.



(Signature)

Director

For verification and updated information concerning the present certificate visit to http://staunchlyservices.com/search_certified_client.php
This Certificate is the property of Staunchly Management & System Services Limited and shall be returned immediately when demanded

STAUNCHLY MANAGEMENT AND SYSTEM SERVICES LIMITED

Labrynth Business Centre, 43 Middle Hill Gate,
Stockport Great Manchester, England-SK1 3DG

Web : www.staunchlyservices.com

E-mail : info@staunchlyservices.com

Phone : +44-7404623897

Company Registered in England with Company Number 11489893



SMS/FM/001/REV03

CERTIFICATE



This is to Certify that the Management System of

BHARAT TANKS AND VESSELS LLP

Office Address : B 21/22, Mayanagari Building, Dapodi, Pune - 411012,
Maharashtra, India

Factory Address : Gat No. 647, Pimpri Budrukh, Tal.-Khed, Pune - 410505,
Maharashtra, India

has been found to conform to the Occupational Health & Safety Management System standard:

ISO 45001:2018

This certificate is valid for the following scope of operations:

Design, Manufacture and Supply of LPG and other Gas Tanks, Associated
Equipments and Pressure Vessels, Detailed Engineering, Procurement,
Construction, Installation and Commissioning of Oil and Gas,
Petrochemical Projects involving Storage and Transportation
of LPG, Oil, Gas and related Chemicals.

:: Certificate No :: IN56381C-1

Date of initial registration	Date of this Certificate	Surv. audit on or before / Certificate expiry	Recertification Due
29 January 2024	29 January 2024	28 January 2025	28 January 2027

This Certificate remains valid subject to satisfactory surveillance audits.



(Signature)

Director

For verification and updated information concerning the present certificate visit to <http://staunchlyservices.com/search>
This Certificate is the property of Staunchly Management & System Services Limited and shall be returned immediately

STAUNCHLY MANAGEMENT AND SYSTEM SERVICES LIMITED

Labrynth Business Centre, 43 Middle Hill Gate,
Stockport Great Manchester, England-SK1 3DG

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Phone : +44-7404623897

Company Registered in England with Company Number 11489893



SMS/FM/001/REV03



In-house Infrastructure: List of Key Machineries

- Plate Rolling / Bending M/c – **123 mm Thk** x 3m Width
- Plate Rolling / Bending M/c – 70 mm Thk x 3m Width
- Plate Rolling / Bending M/c – 37 mm Thk x 3m Width
- Submerged Arc Welding M/c (1200 Amps.) – 30 Nos.
- Welding Rectifiers: 600 Amps. – 98 Nos.
- Hydraulic Dishend End Press – **1500 MT**
- Hydraulic Dishend End Press – 500 MT
- Hydraulic Dishend End Press – 100 MT
- Vessel Rotators (SAW) 200 MT – 22 Nos.
- Welding TIG & MIG units: 400 Amps. – 42 Nos.

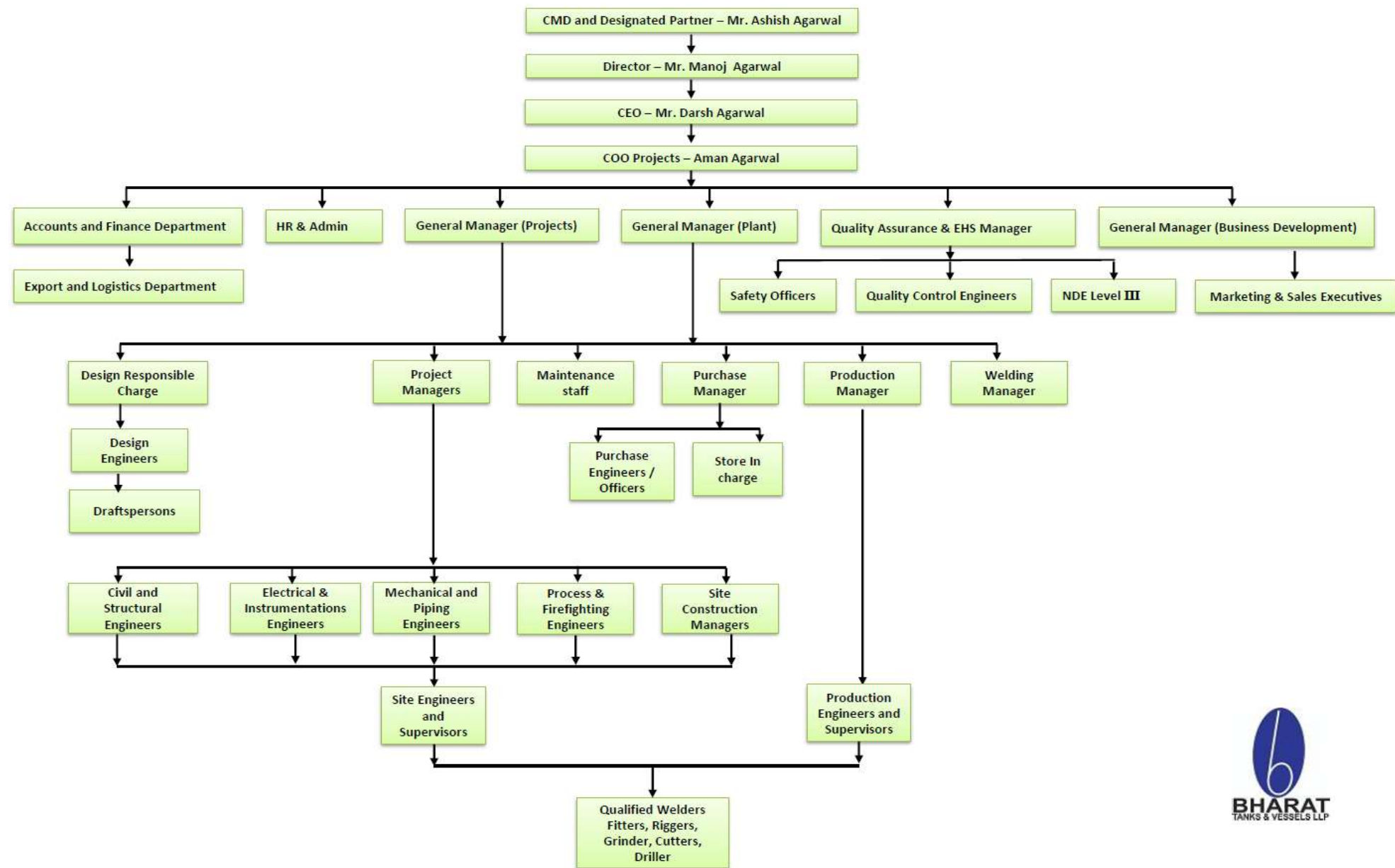


In-house Infrastructure: List of Key Site Construction Equipments

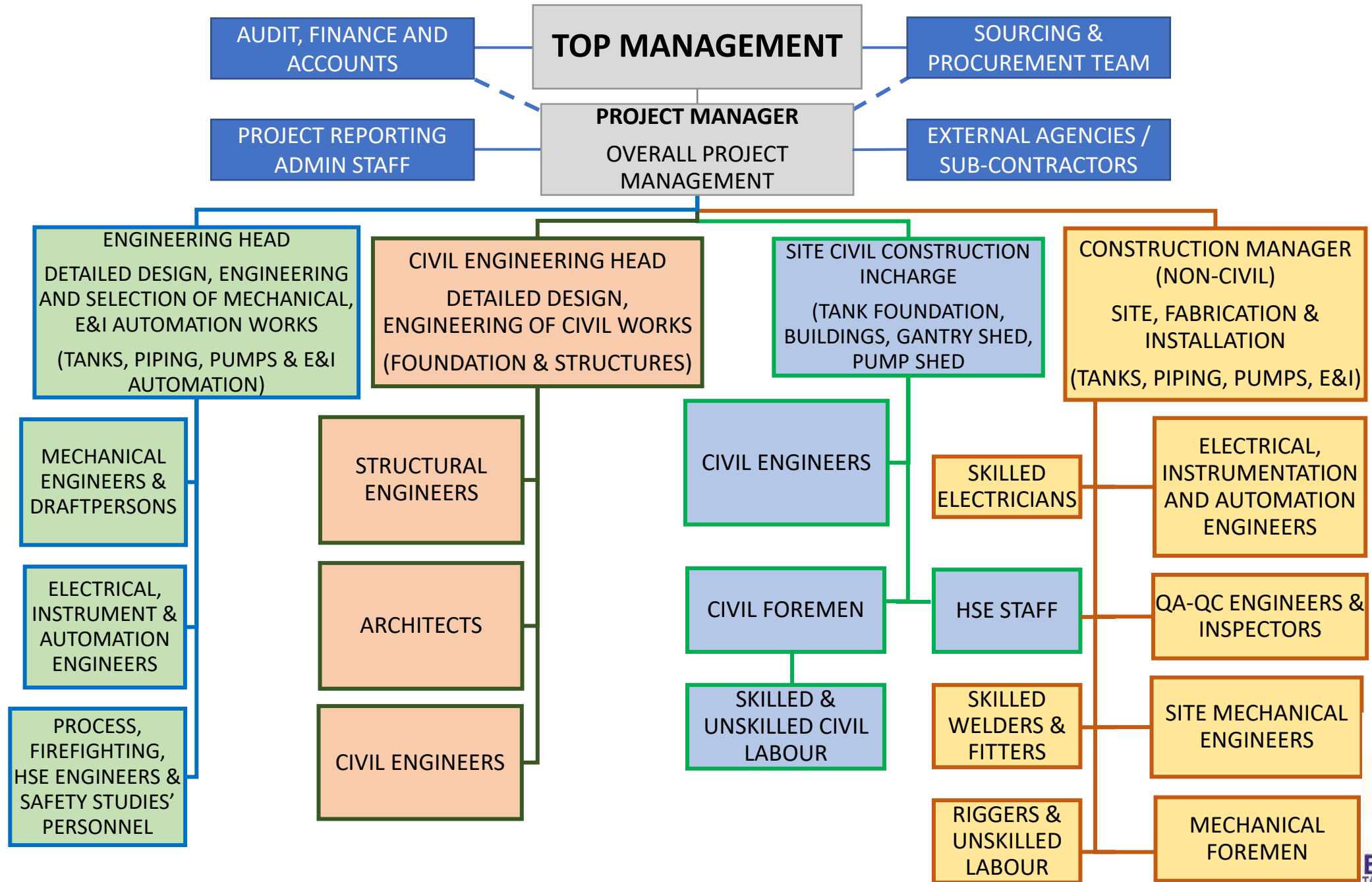
- Crawler Cranes: 150 Tonnes – 1 No.
- Crawler Cranes: 100 Tonnes – 2 Nos.
- Excavator (CAT) – 1 No.
- Overhead Crane: 15 MT X 15mtr span – 10 Nos.
- Hydraulic Tank Lifting Jacks: 12 MT – 96 Nos.
- Mobile Crane: 15 MT & 25 MT – 9 Nos.
- Civil Excavation Backhoes – 2 Nos.
- Civil Compactor Vibratory Roller – 1 No.
- And many others



Organisation Chart



TYPICAL PROJECT ORGANISATION CHART



Recently Completed Project of Similar Nature – Mounded LPG / Propane / Butane Storage Facility in Nigeria

- *Project Description:*
EPCC of 5 X 2200 (**11,000 cu.m**)
Propane / Butane / LPG Mounded
Storage and Bulk Transfer Facility
- *Plant Storage Capacity:*
5,000 MT @85% Filling Level
- *Throughput Capacity:*
3,600 MTPD Loading in Bulk Tank
Trucks (Sunrise to Sunset)
- *Salient Features of Facility:*
 - ✓ **Propane** rated Facility with provisions of **LPG blending**
 - ✓ Fully Automated **PLC-SCADA** controlled Facility
 - ✓ Hi-tech **Inventory and Tank Farm Management System** with latest communication protocols
 - ✓ **Automated Fire / Gas leak detection** with firefighting system
- *Brief Scope of BTV:*
 - ✓ **Detailed Engineering** of all component of the Facility including Automation
 - ✓ Complete Procurement
 - ✓ Site Fabrication and Installation
 - ✓ Pre-commissioning, Commissioning, Start-up, Training and Handover

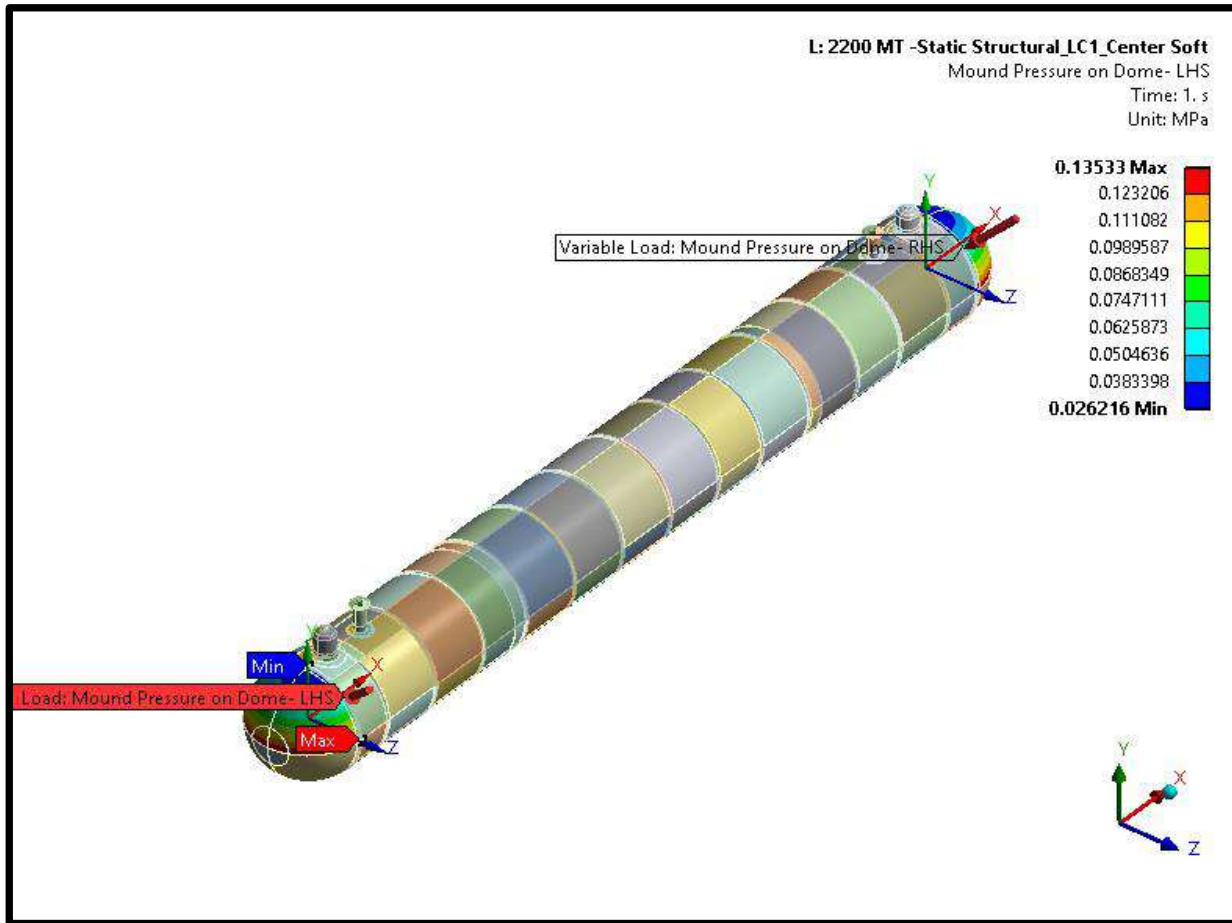


Noteworthy Projects involving Mounded Storage Vessels

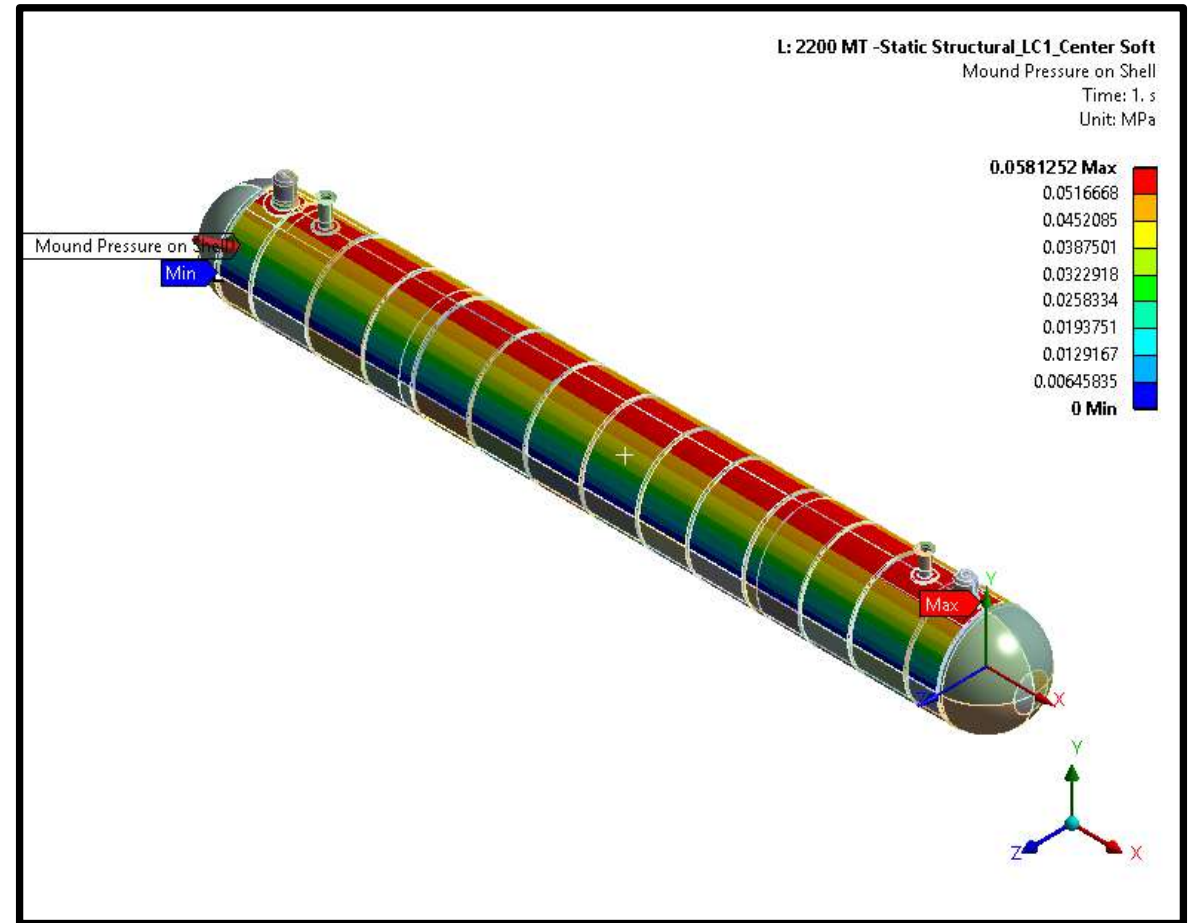
- *Equipment Type:*
2200 m³ Mounded
Bullet (Site Fabricated)
- *Service:* Propane
- *Overall Dimensions:*
7,000 mm Dia.
60,000 mm Lg.
38 mm Shell Thk.
- *Code of Construction:*
ASME Sec. VIII Div. 2
- *Design Pressure:*
INT. 21.0 Kg/cm² (g) /
EXT. 3 Kg/cm² (g)
Incl. Full Vacuum
- *Design Temperature:*
-42 to 55 Deg. C
- *Quantity:*
5 Nos.



Mounded Bullet – Design (Finite Element Analysis in ANSYS)

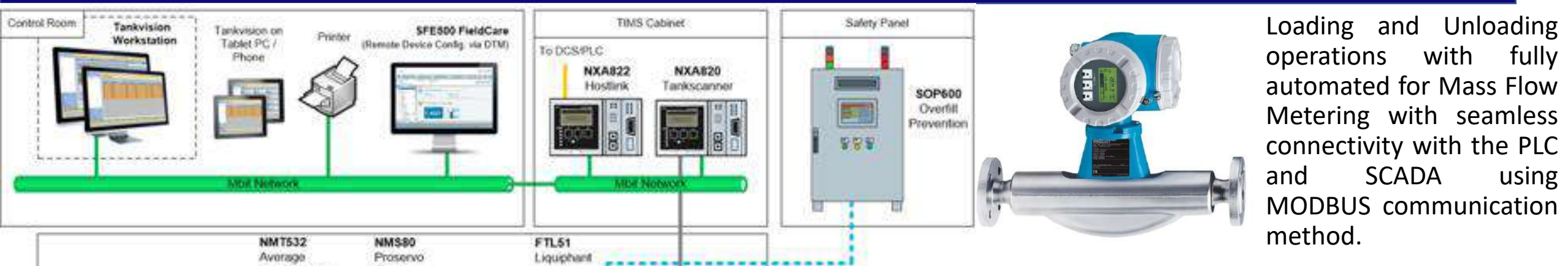


**LOADING CONDITIONS
FOR LOAD CASE 1 –
PRESSURE OF MOUND
ON DOME**

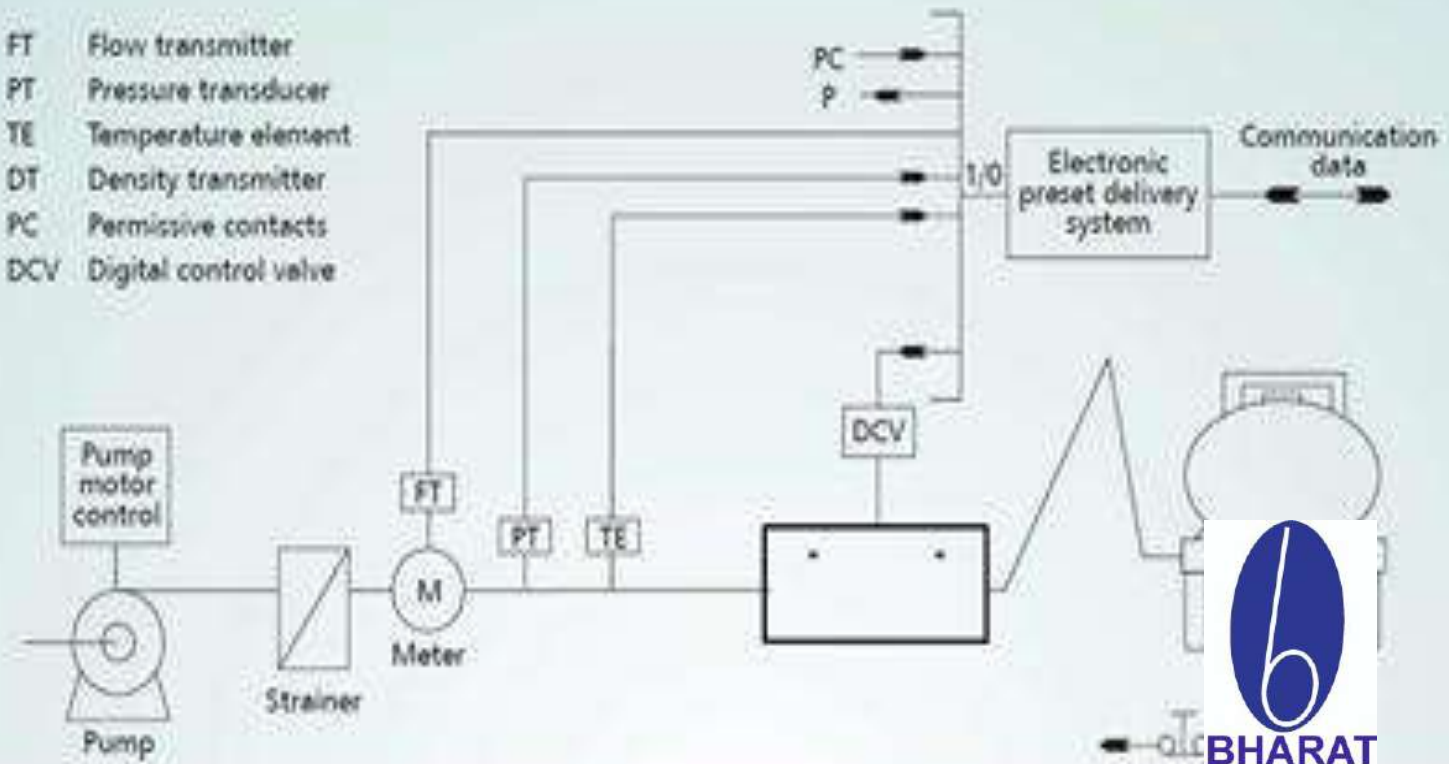
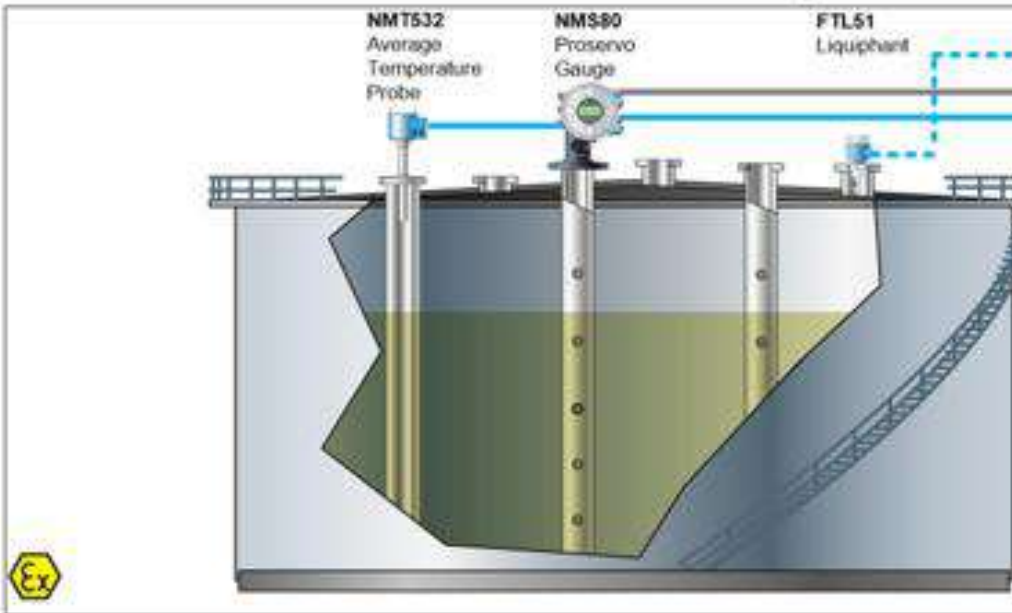


**LOADING CONDITIONS
FOR LOAD CASE 1 –
PRESSURE OF MOUND
ON SHELL**

Process and Instrumentation Design of Safety Integrated Terminal Automation System with Selection, Installation and Commissioning of OEM Instruments



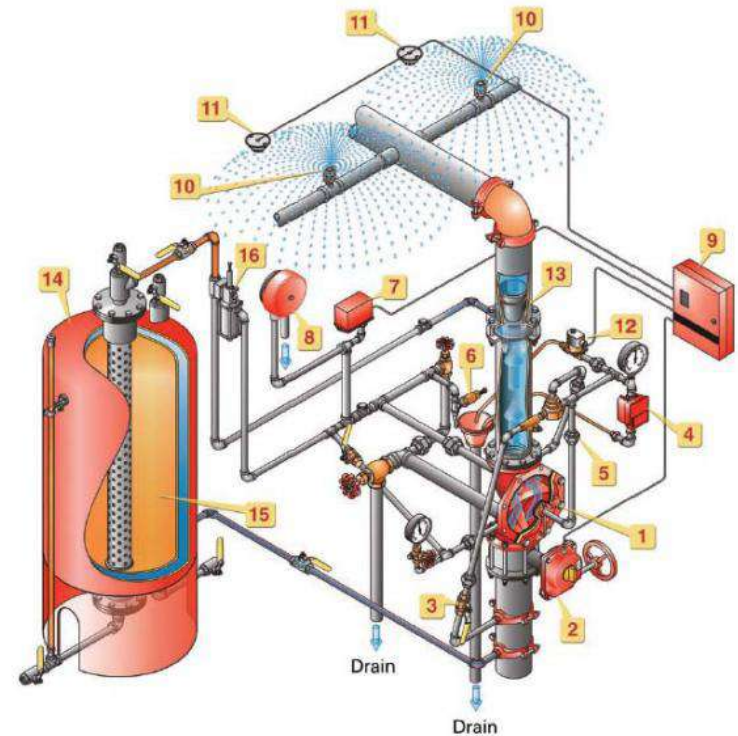
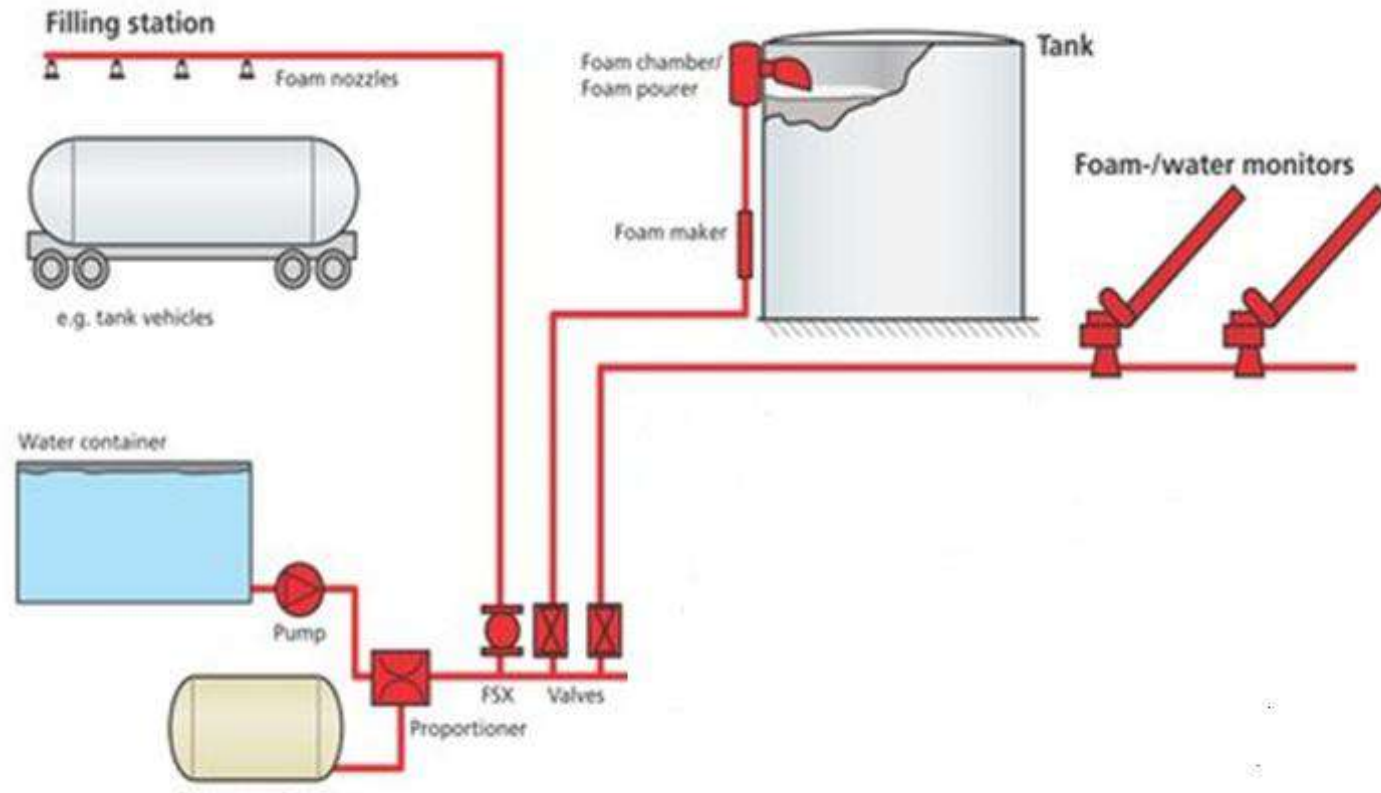
Loading and Unloading operations with fully automated for Mass Flow Metering with seamless connectivity with the PLC and SCADA using MODBUS communication method.



FULLY AUTOMATED TANK FARM MANAGEMENT SYSTEM



Design, Installation and Commissioning of Firefighting Facilities as per NFPA / OISD



The firefighting installation will be in compliance with the salient requirements of NFPA and designed, installed and commissioned in accordance with NFPA 11, NFPA 13 and NFPA 15.

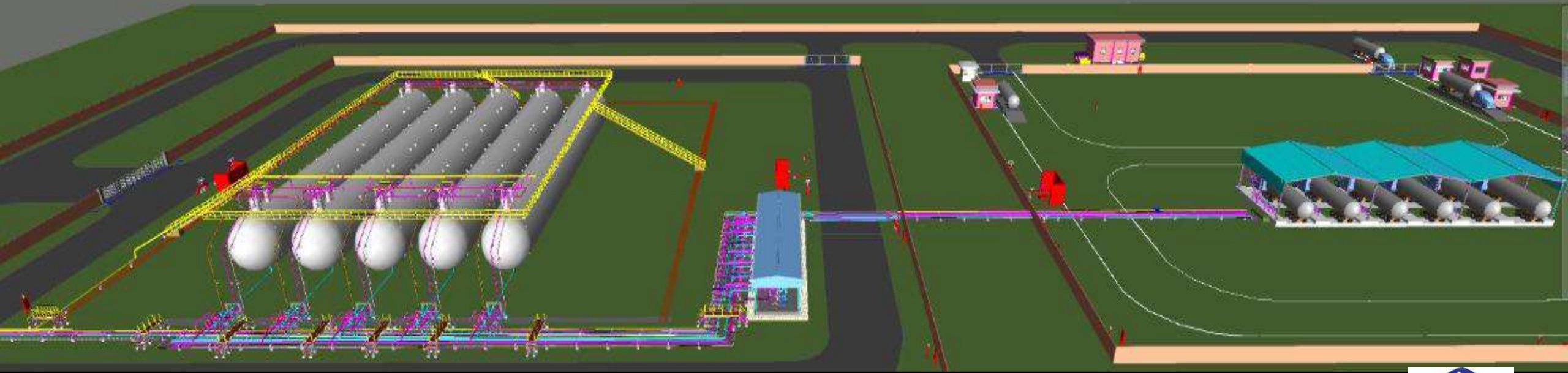
The facility shall consist of Firefighting pumps (Diesel engine driven), Jockey pump, DELUGE SYSTEM with AUTO ACTUATION, Medium pressure water and foam (for fuel) sprinkler system and fire detection system for Storage tanks, Pump house, Tanker loading gantry, etc.

A Fire water storage tank as per API 650 of adequate storage for fighting fire for 2 to 4 hours.

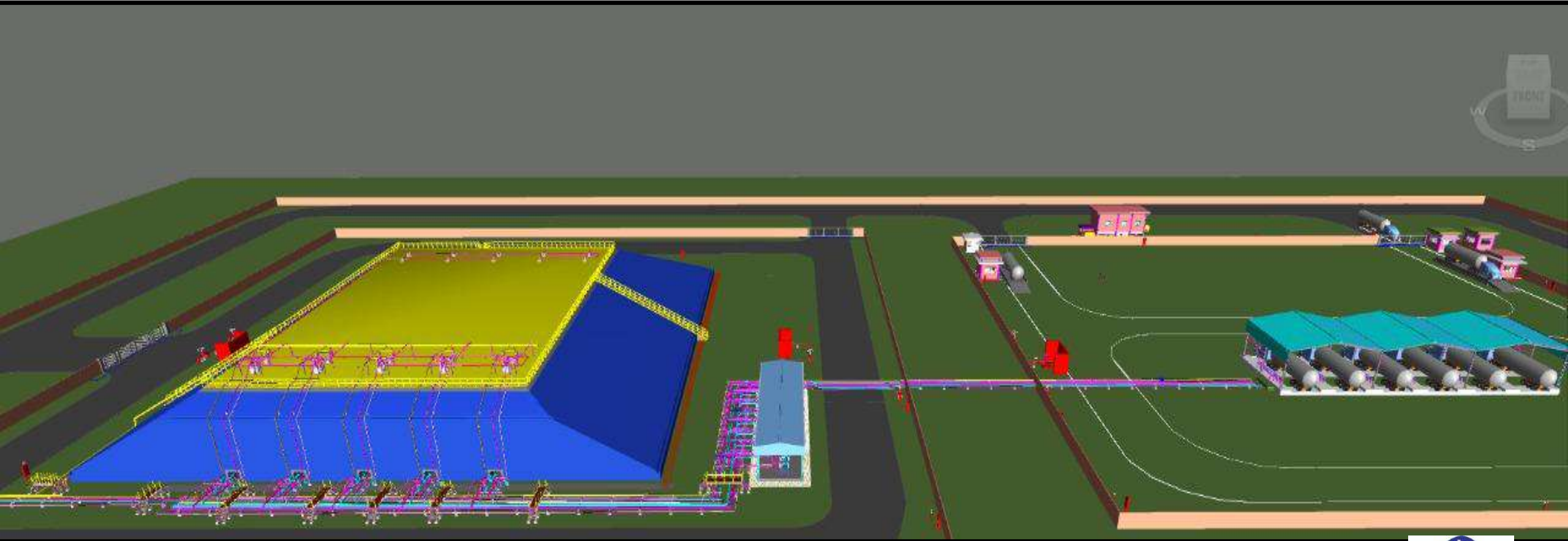


BHARAT
TANKS & VESSELS

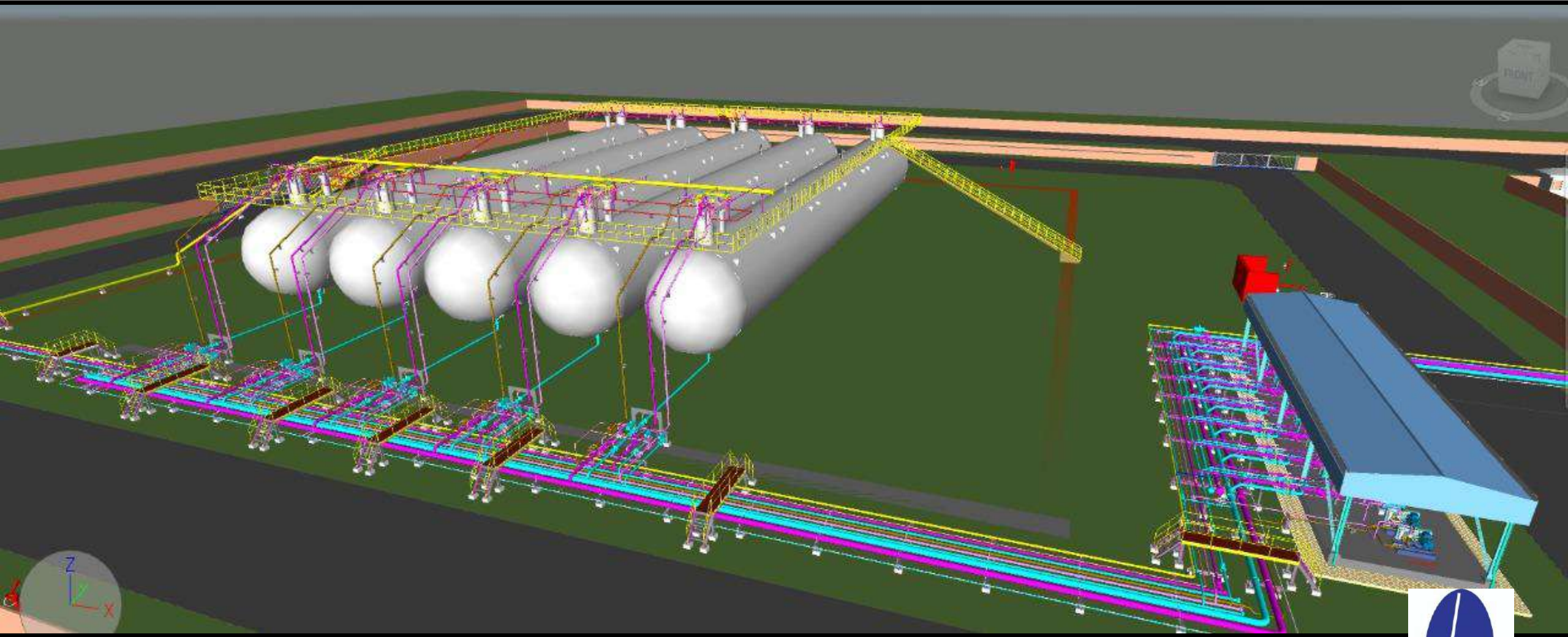
LPG / Propane / Ammonia Mounded Tank Farm 3D Modelling



LPG / Propane / Ammonia Mounded Tank Farm 3D Modelling



LPG / Propane / Ammonia Mounded Tank Farm 3D Modelling



LPG / Propane / Ammonia Mounded Bullet Construction Activities



LPG / Propane / Ammonia Mounded Bullet Construction Activities



**MOUND CIVIL
CONSTRUCTION**

**PROCESS
PUMP SHED
ERECTION**

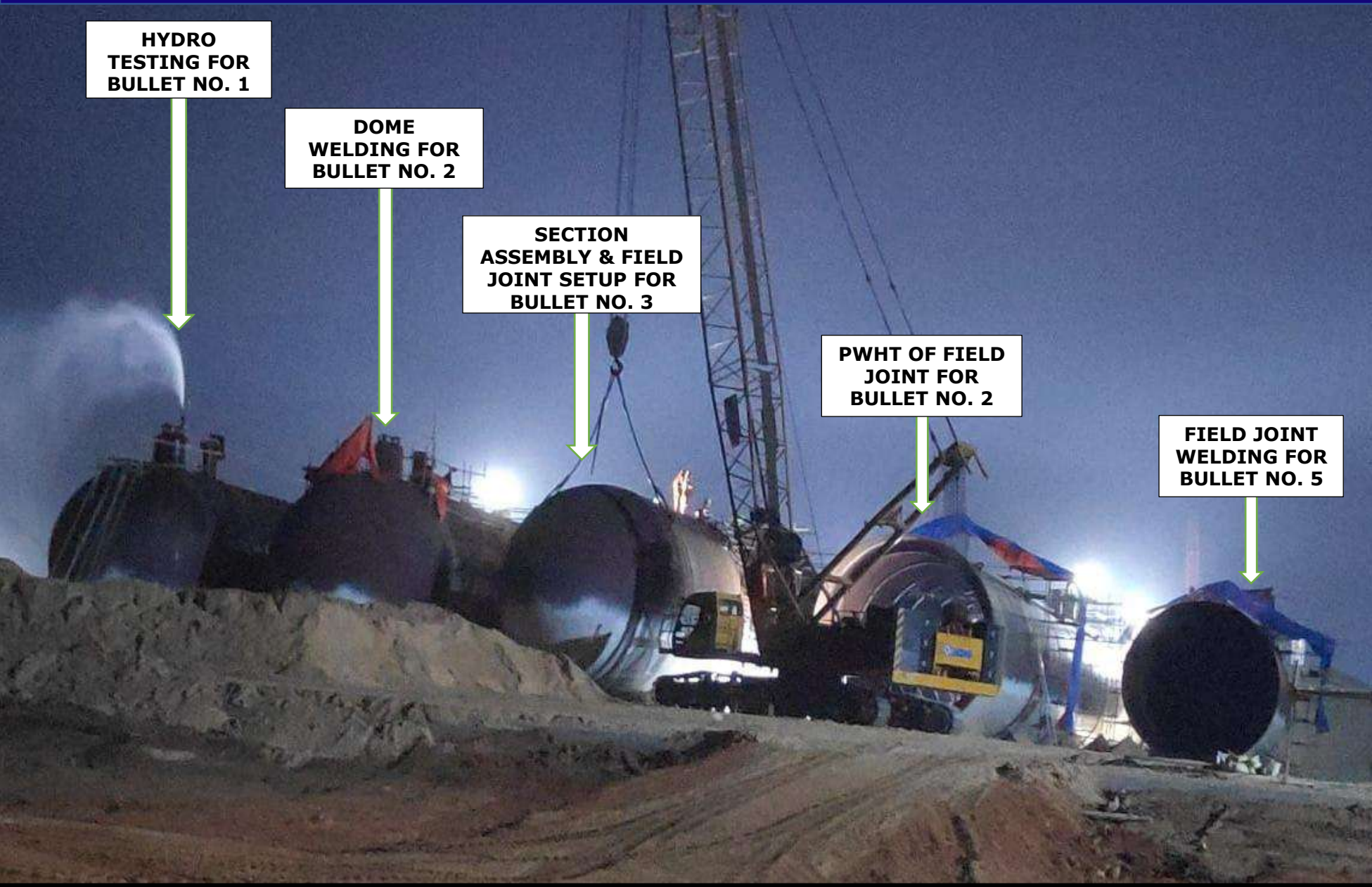
**GANTRY
SHED
ERECTION**

**PWHT –
STRESS
RELIEVING
OF SECTIONS**

**SHELL PREPARATION
LONG SEAM SETUP**

**BULLET PLATE
ROLLING**

LPG / Propane / Ammonia Mounded Bullet Construction Activities



**MOUND
FABRICATION
ACTIVITIES FOR
ALL 5 BULLETS
BEING CARRIED
OUT
SIMULTANEOUSLY**



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TANKS & VESSELS

LPG / Propane / Ammonia Mounded Bullet Construction Activities

**PHASE ARRAY (PAUT)
& TIME OF FLIGHT
DIFFRACTION (TOFD)
ULTRASONIC TESTING
OF FIELD JOINTS**



2020-4-37

LPG / Propane / Ammonia Mounded Bullet Construction Activities

HYDROTESTING OF BULLETS



POCO
SHOT ON POCO F1

LPG / Propane / Ammonia Mounded Bullet Construction Activities



LPG / Propane / Ammonia Mounded Bullet Construction Activities



POCO
SHOT ON POCO F1

**CATHODIC
PROTECTION – ANODE
AND REFERENCE CELL
CABLE TERMINATION**



Mounded Tank Farm Installation and Commissioning Activities



**PROCESS PUMP
HOUSE**

**6-LOADING BAY
GANTRY**



Mounded Tank Farm Electrical and Instrumentation Installation



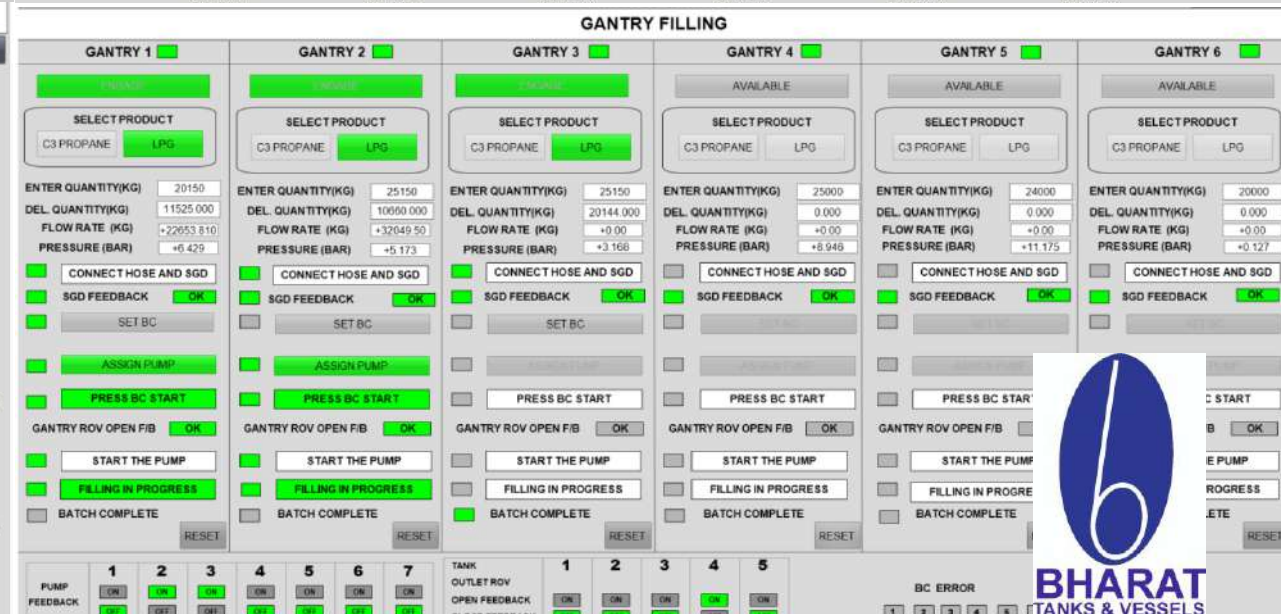
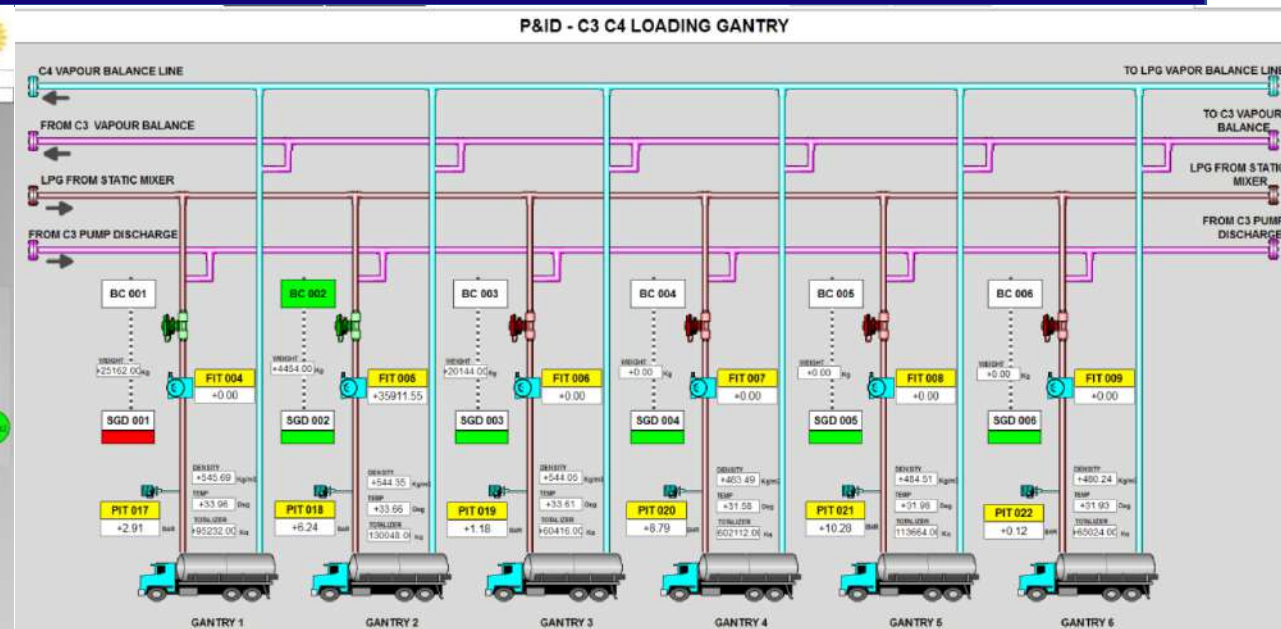
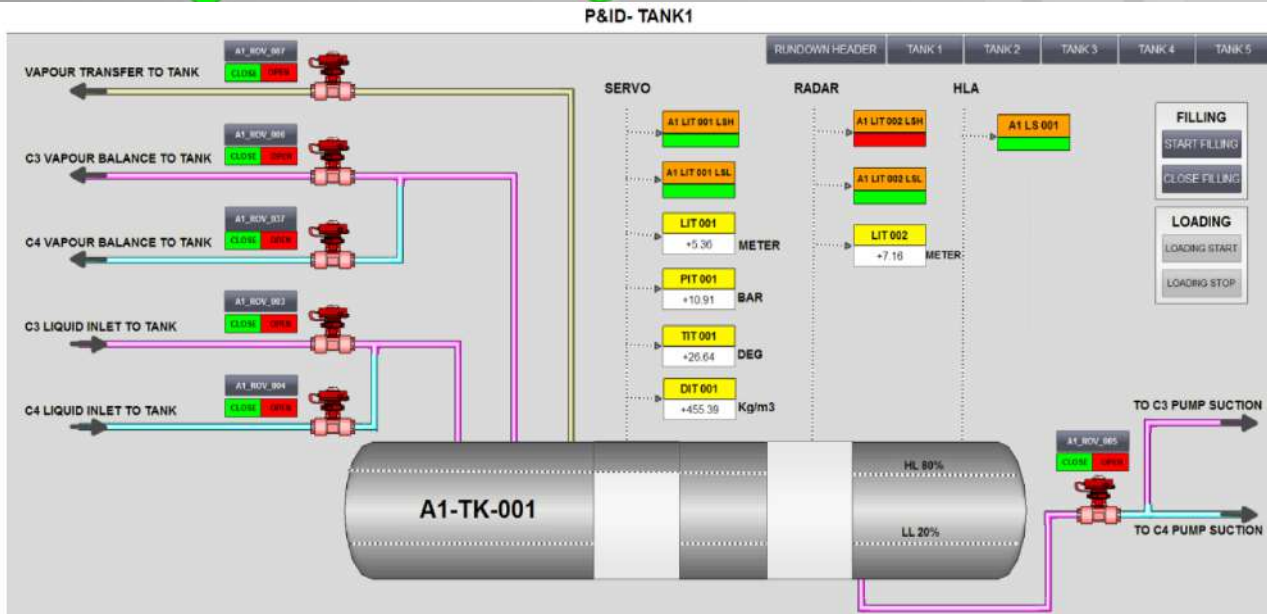
ELECTRICAL SWITCHGEAR MCC PANEL

AUTOMATION AND CONTROL PLC PANEL

**SERVER, ENGINEERING &
OPERATOR CONSOLE &
WORKSTATIONS**



BHARAT
TANKS AND VESSELS



EPC Project with Civil Construction – Mounded LPG Storage Facility in West Africa

- *Project Description:*
EPCC of 2 Storage Terminals 2 X 840 & 2 X 420 (**2,520 cu.m**) LPG Mounded Storage and Bulk Transfer Facility
- *Plant Storage Capacity:*
1,200 MT @85% Filling Level



- *Salient Features of Facility:*
 - ✓ Fully Automated **PLC-SCADA** controlled Facility
 - ✓ Hi-tech **Inventory and Tank Farm Management System** with latest communication protocols
 - ✓ **Automated Fire / Gas leak detection** with firefighting system
 - ✓ Automated Bottling Carousels
- *Brief Scope of BTV:*
 - ✓ **Detailed Engineering** of all component of the Facility including Automation
 - ✓ Civil Construction, Site Fabrication of Bullets & Piping, Installation, Start-up Commissioning, Training and Handove

EPC Project – Mounded LPG Storage Facility in West Africa

Bullets Manufactured in Sections and Assembled at Site



EPC of Mounded LPG Storage Project with Civil Construction in West Africa

Fully Automated Cylinder Bottling Carousel of European Make



Noteworthy Projects involving Mounded Storage Vessels

- *Equipment Type:*
5 X 1700 cu.m LPG
Mounded Bullets (Site
Fabricated)
- *Overall Dimensions:*
8200 mm Dia.
35048 mm Lg.
32 mm Shell Thk.
- *Code of Construction:*
PD 5500
- *Design Pressure:*
INT. 15.0 Kg/cm² (g) /
EXT. 1.6Kg/cm² (g)
Incl. Full Vacuum
- *Design Temperature:*
-27 to 55 Deg. C
- *Quantity:*
5 Nos.



Noteworthy Projects involving Mounded Storage Vessels



Mounded Bullet Tank Farm



**MOUNDED TANK FARM
WITH FOUR-SIDE
RETAINING WALL**



BHARAT
TANKS & VESSELS

LPG / Propane Mounded Bullet Tank Farm

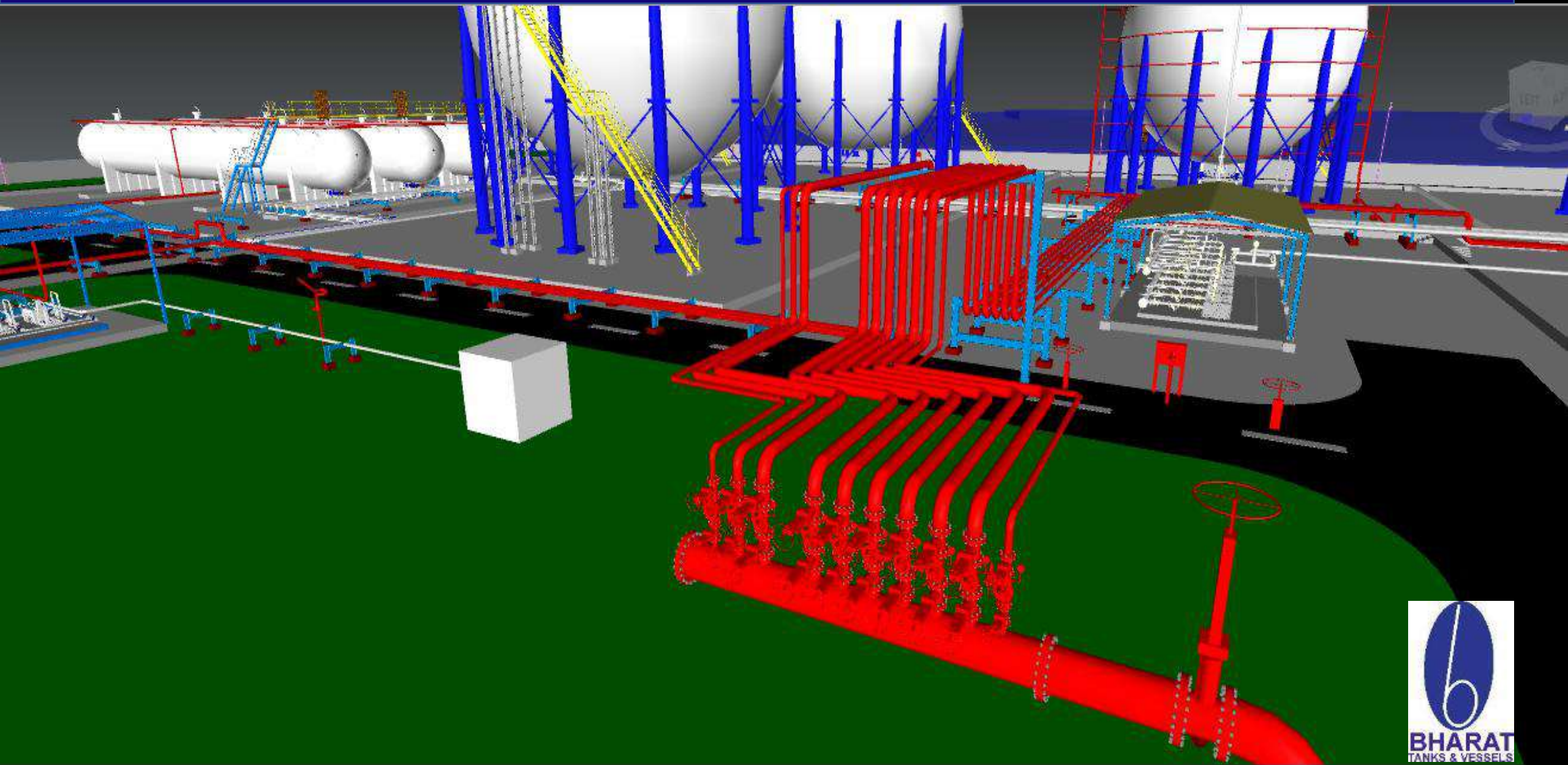
**MOUNDED TANK FARM
– PRODUCT PIPING,
PUMP HOUSE AND
TRUCK LOADING AT
GANTRY**



Completed Project – Spherical LPG Storage Facility

- *Project Description:*
EPCC LPG Spherical Storage and Bulk Transfer Facility.
- *Equipment Type:*
3 X 3882 cu.m Propane
- *Service:*
LPG / Propane
- *Plant Storage Capacity:*
5,870 MT @90% Filling Level
- *Overall Dimensions:*
19.5m Dia., 48 mm Thk
- *Code of Construction:*
ASME Sec. VIII Div. 2 Class 2
- *Design Data:*
Design Pressure: INT. 17.5 Kg/cm² (g)
Design Temperature: -20 to 55 Deg. C
- *Salient Features of Facility:*
 - ✓ Fully Automated **PLC-SCADA** controlled Facility
 - ✓ Hi-tech **Inventory and Tank Farm Management System** with latest communication protocols
- *Brief Scope of BTV:*
 - ✓ **Detailed Engineering** of all component of the Facility including Automation
 - ✓ Complete Procurement
 - ✓ Site Fabrication and Installation
 - ✓ Pre-commissioning, Commissioning, Start-up, Training and Handover

Spherical LPG Farm 3D Modelling



Sphere Construction Activities

SPHERE CIVIL FOUNDATION



Sphere Construction Activities



**ERECTION OF SPHERE
COLUMNS AND
EQUATORIAL PETALS**



Sphere Construction Activities



**ERECTION OF
DERRICK FOR SPHERE
INSTALLATION**

Sphere Construction Activities

ERECTION OF SPHERE BOTTOM POLAR PETALS



Sphere Construction Activities

ERECTION OF SPHERE TOP POLAR PETALS



Sphere Construction Activities

**RADIOGRAPHY FILMS
PLACEMENT FOR
SPHERE RT**



Sphere Construction Activities



**PREPARATION FOR
PWHT (STRESS
RELIEVING) OF
SPHERE**

Sphere Construction Activities

HYDROTESTING OF SPHERE



Noteworthy Projects involving Fuel Storage Tank Farm Facilities

- Service: Crude Oil
- Capacity: 60,000 cu.m
- Construction Code: API 650
- Roof Type: Double Deck External Floating Roof
- No. of Tanks: 4
- Diameter: 66m
- Height: 19.5m
- Scope of Work:
 - ✓ Detailed Design
 - ✓ Procurement
 - ✓ Prefabrication
 - ✓ Site Erection, Testing and Commissioning



Fuel Storage Tank Construction Activities as per API 650

FUEL STORAGE TANK CONSTRUCTION USING JACKING METHOD



Fuel Storage Tank Construction Activities as per API 650



**FUEL STORAGE TANK
COMPLETION OF
WELDING AND
RADIOGRAPHY AS
PER API 650**

Fuel Storage Tank Construction Activities as per API 650

EXTERNAL FLOATING ROOF ERECTION AND FABRICATION



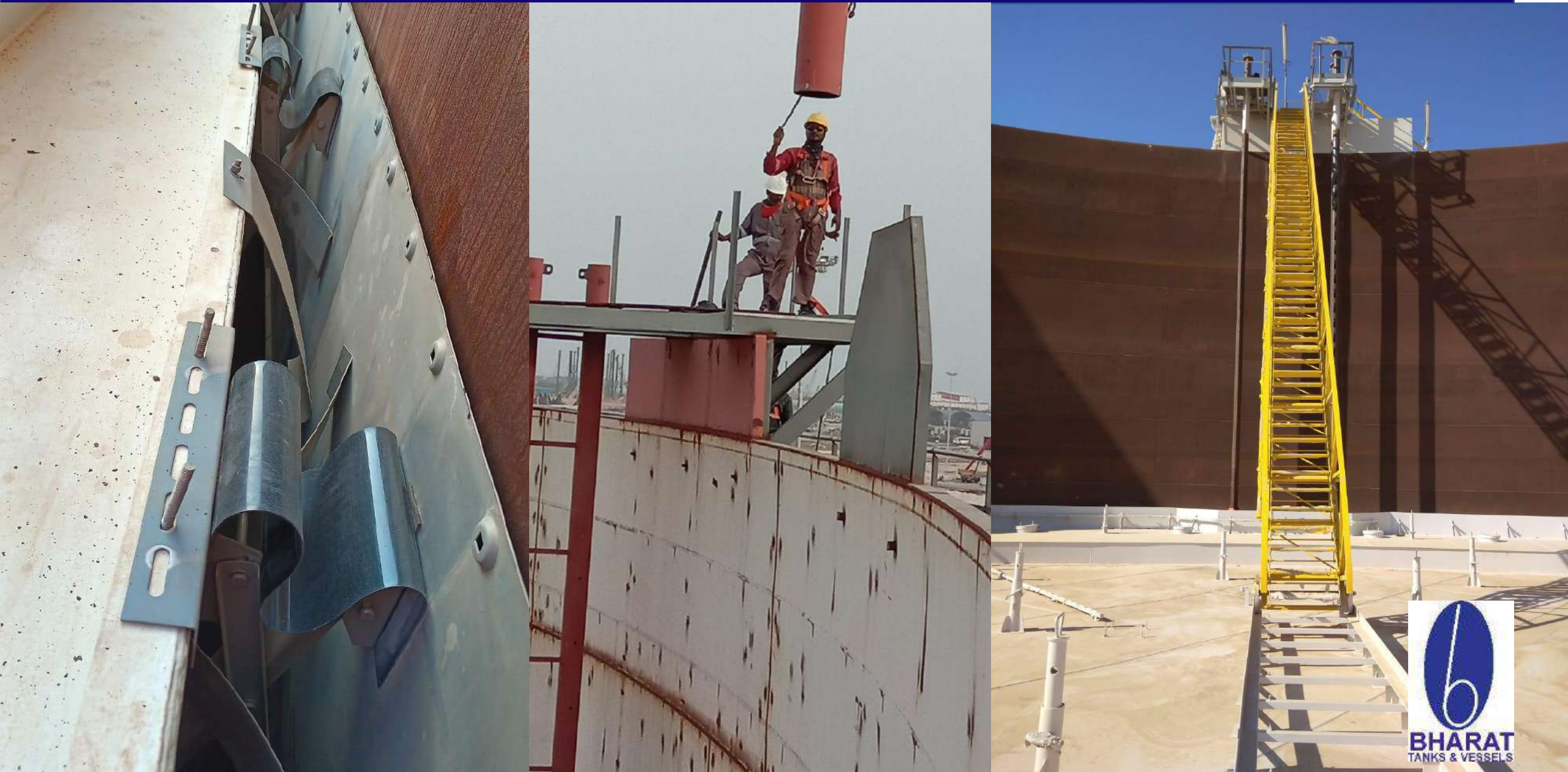
Fuel Storage Tank Construction Activities as per API 650



Fuel Storage Tank Construction Activities as per API 650



Fuel Storage Tank Construction Activities as per API 650



Fuel Storage Tank Construction Activities as per API 650

**FUEL STORAGE TANK
COMPLETION OF VISUAL
INSPECTION AND FINAL
FINISHING BEFORE
HYDROTESTING (WATER
FILL-UP TEST)**



Fuel Storage Tank Construction Activities as per API 650

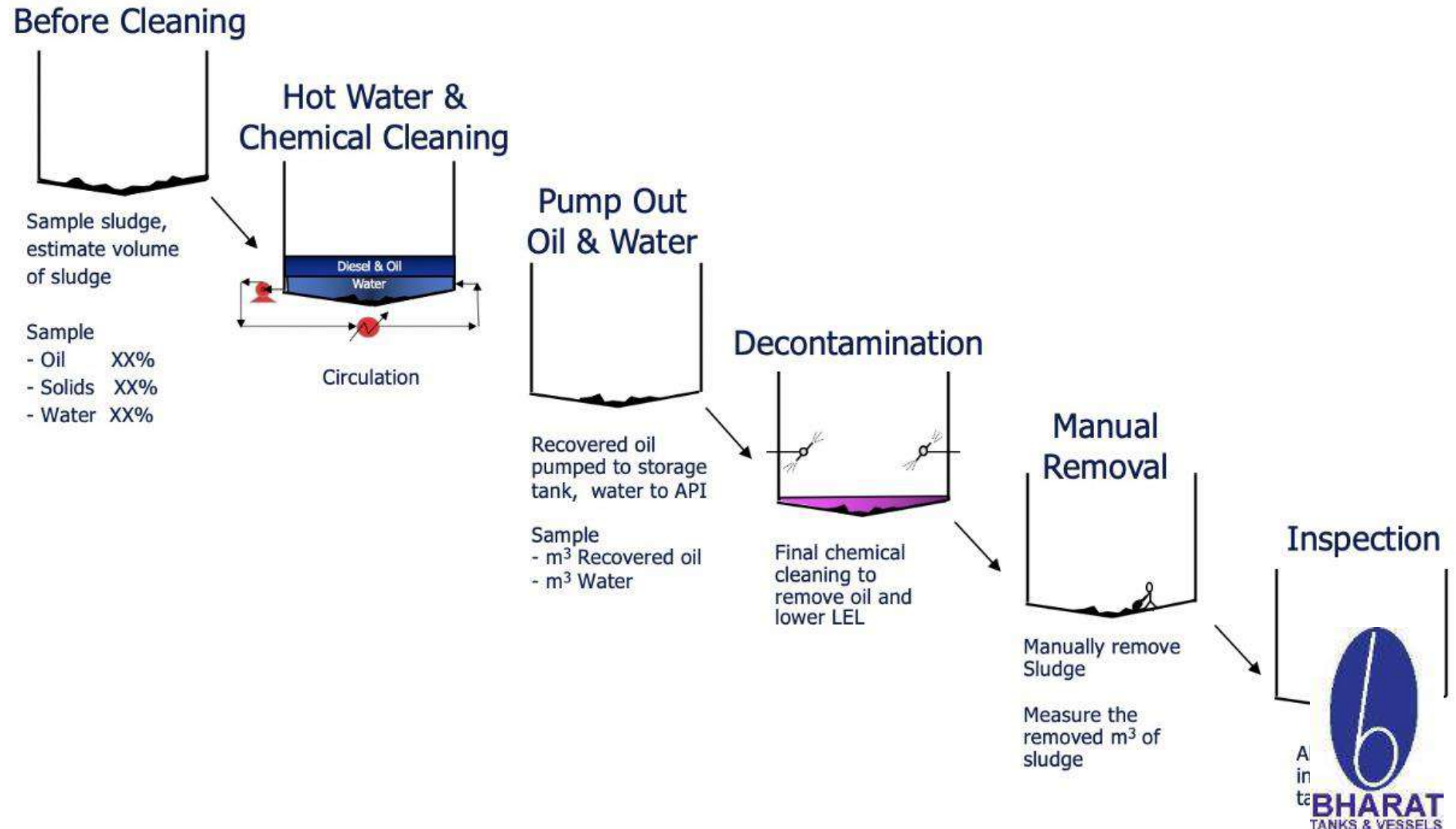


**FUEL STORAGE TANK
COMPLETION OF PAINTING**

Noteworthy Projects involving Crude Tank Cleaning

- Service: Crude Oil
- Capacity: 54,000 cu.m
- Roof Type: Double Deck External Floating Roof
- No. of Tanks: 2
- Diameter: 60m
- Height: 19.5m
- Scope of Work:
 - ✓ Tank Cleaning

Tank Cleaning can be Completed Safely and Cost-Efficiently

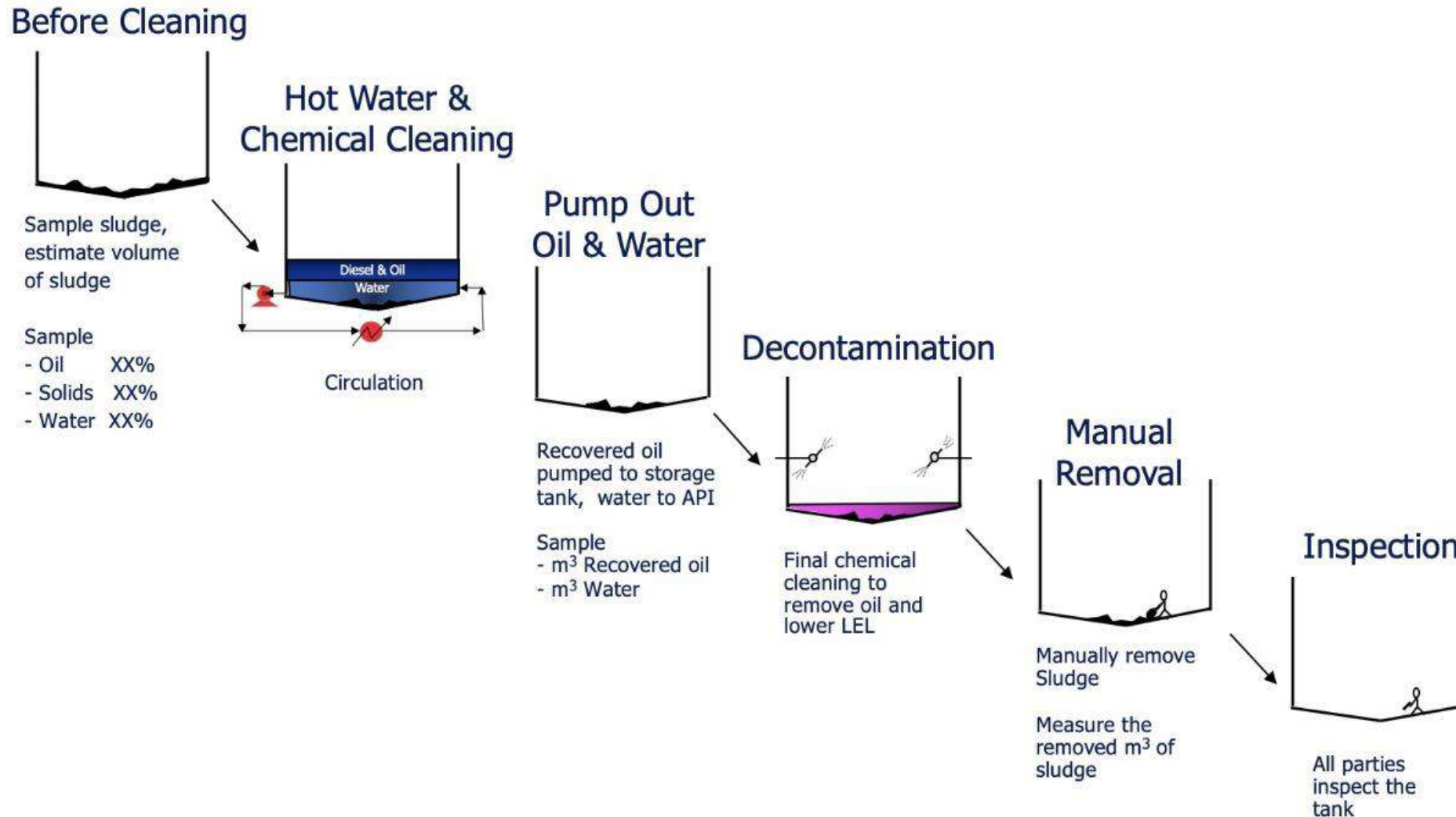


Noteworthy Projects involving Crude Tank Cleaning



Noteworthy Projects involving Crude Tank Cleaning

Tank Cleaning can be Completed Safely and Cost-Efficiently



Noteworthy Projects involving Crude Tank Cleaning



80,000 KL Fuel Storage Tank Farm Facility

- Storage Capacity:
80,000 KL
- Product: Diesel, Petrol,
Aviation Fuel
- No. of Tanks: 5
- Scope of Work:
 - ✓ Detailed Design
 - ✓ Tank Farm
Construction
 - ✓ Tanker Loading /
Unloading Gantry
 - ✓ Pipeline Jetty to Tank
Farm
 - ✓ Fire Fighting System
 - ✓ Inventory
Management System



Completed Project – Refrigerated LPG / Propane / Butane Storage Facility in Africa

- *Project Description:*
Construction of Propane / Butane / LPG Refrigerated Storage
- *Storage Capacity:*
1 X 30,410 cu.m Butane and
1 X 30,410 cu.m Propane
- *Service:*
Propane and Butane
- *Plant Storage Capacity:*
30,000 MT
- *Overall Dimensions:*
44m Inner Tank Dia.,
46m Outer Tank Dia
20m Inner Tank Height
22m Outer Tank Height



Ongoing Project – ASU Storage Facility in India

Cryogenic Double-walled Tanks for Liquid Oxygen and Liquid Nitrogen

- *Project Description:*
Construction of Liquid Oxygen and Liquid Nitrogen Cryogenic Double-walled Storage Tanks
- *Storage Capacity & Overall Dimensions:*
1 X 1,000 cu.m LOX:
Outer Tank: 13m Dia. X 14m Height – Carbon Steel
Inner Tank: 10.6m Dia. X 13.4m Height – SS304

and

1 X 5,00 cu.m LIN:
Outer Tank: 11.2m Dia. X 13.6m Height – Carbon Steel
Inner Tank: 7.8m Dia. X 12.7m Height – SS304
- *Construction Code:*
API 620



Ongoing Project – ASU Storage Completed Facility in India

Cryogenic Double-walled Tanks for Liquid Oxygen and Liquid Nitrogen



Fatigue Cyclic Loaded Gaseous Pressure Vessels

- *Equipment Type:*
43,800 Cycles Buffer Vessel
- *Service:*
Oxygen and Nitrogen
- *Overall Dimensions:*
3,400 mm Dia. X 25,233 mm Lg.
54 mm Shell Thk.
- *Code of Construction:*
ASME Sec. VIII Div. 1 (Code Stamped)
- *Volumetric Capacity:*
200 cu.m
- *Design Pressure:*
40.293 barg
- *Design Temperature:*
-29 to +135 Deg. C
- *Quantity:*
4 Nos.



A large white cylindrical industrial vessel, likely a storage tank or reactor, is being transported on a yellow multi-axle trailer. The vessel is secured with yellow straps and has a warning label that reads: "POISONOUS GASES RELEASED IN CASE OF FIRE. DO NOT BREATHE VAPORS OR Fumes. VENTILATE AREA BY NATURAL MEANS. SHUT DOWN ALL FIRES IMMEDIATELY." The transport is being performed by a red truck with "MAHATRA TRANSPORT CO." written on its side. The scene is set in an open, dusty area under a clear blue sky, with power lines visible in the background.



Noteworthy Projects Involving Cyclic Loaded Pressure Vessels

- *Equipment Type:*
Cyclic Loaded Pressure Vessel with a 70-Tons Internals
- *Service:*
Compressed Air
- *Overall Dimensions:*
3,120 mm Dia. X 30,000 mm Lg.
36 mm Shell Thk.
- *Code of Construction:*
"U" CODED ASME Sec. VIII Div. 1
- *Volumetric Capacity:*
205 cu.m
- *Design Pressure:*
30.34 barg
- *Design Temperature:*
-9.44 to +121.11 Deg. C
- *Quantity:*
10 Nos.



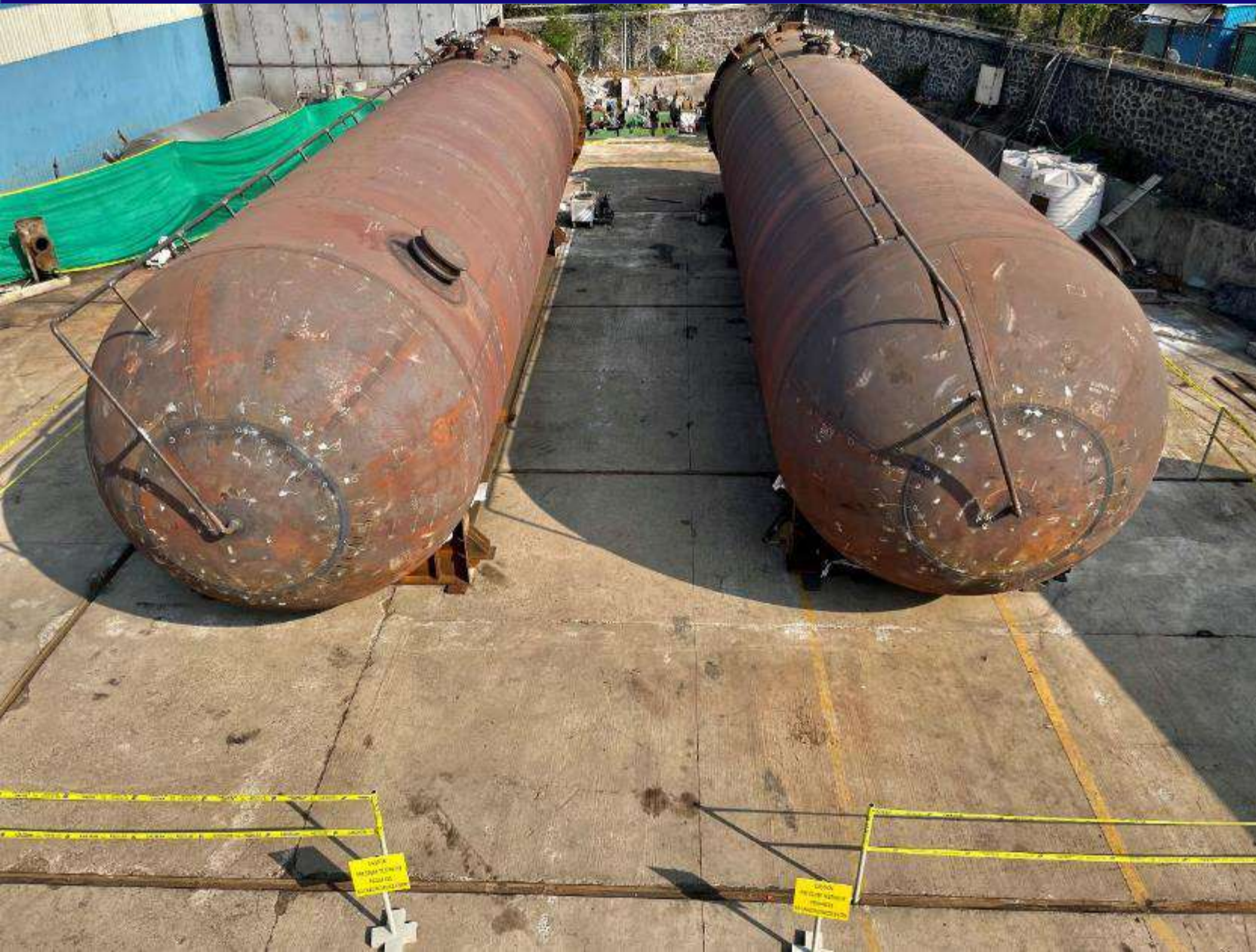
High Thickness Vertical Gas Tanks



- *Equipment Type:*
300 m³ Oxygen Storage
Vertical Vessel with Skirt
2 Nos.
- *Service:*
Gaseous Oxygen
- *Overall Dimensions:*
4,500 mm Dia.,
22,460 mm Lg.,
63 mm Shell Thk.
- *Code of Construction:*
ASME Sec. VIII Div. 1
- *Design Pressure:*
33 barg
- *Design Temperature:*
-19 to +55 Deg. C



High Thickness Vertical Gas Tanks



Design & Manufactured High Pressure Hydrogen Storage Vessel



- *Equipment Type:* 40 m³ Hydrogen Gas Storage Vessel - 2 Nos.
- *Service:* Gaseous Hydrogen
- *Overall Dimensions:* 2,070 mm Dia., 12,600 mm Lg., **56 mm Shell Thk.**
- *Code of Construction:* IS 2825 + SMPV(U)
- *Design Pressure:* **84 barg**
- *Design Temperature:* 0 to +55 Deg. C

Noteworthy Design & Manufactured Ammonia Storage Vessels



- *Equipment Type:*
200 KL Anhydrous Ammonia Storage Tank
- *Service:* Anhydrous Ammonia
- *Code of Construction:*
ASME Sec VIII Div. 1
- *Overall Dimensions:*
3600mm ID, 36mm Shell Thk.,
21,019mm Overall Length
- *Design Pressure:*
Int. 24.0 Kg/cm² (g) +
Static Head + Full Vacuum
- *Design Temperature:*
-33 to 55 Deg. C
- *Quantity:*
2 Nos.

Noteworthy Design & Manufactured Pressure Vessels

- *Equipment Type:*
500 m3 LPG Storage Tank
- *Service:*
LPG
- *Overall Dimensions:*
4,300 mm Dia.
35,756 mm Lg.
18 mm Shell Thk.
- *Code of Construction:*
PD 5500
- *Design Pressure:*
15 barg
- *Design Temperature:*
-20 to 55 Deg. C
- *Quantity:*
3 Nos.



Design & Manufactured Barge Mounted Pressure Vessels

- *Equipment Type:*
182 m³ Barge Mounted Pressurized LPG Vessel
- *Service:*
Pressurized LPG
- *Overall Dimensions:*
3,464 mm Dia. X 19,991 mm Lg.
18 mm Shell Thk.
- *Code of Construction:*
ASME Sec. VIII Div. 2
RINA Class Rules
IGC Code
- *Design Pressure:*
15 barg
- *Design Temperature:*
-29 to 55 Deg. C
- *Quantity:*
4 Nos.



Noteworthy Design & Manufactured Pressure Vessels

- *Equipment Type:*
525 m³ Mounded
Bullet
- *Service:* Ammonia
- *Overall Dimensions:*
4,420 mm Dia.
35,719 mm Lg.
22mm Shell Thk.
- *Code of Construction:*
PD 5500
- *Design Pressure:*
Int. 18.5 Kg/cm² (g) /
Ext. 1.6 Kg/cm² (g)
Incl. full vacuum
- *Design Temperature:*
-33 to 50 Deg. C
- *Quantity:*
2 Nos.



Noteworthy Design & Manufactured Pressure Vessels

- *Equipment Type:*
500 m³ Propane Storage Tank
- *Service:*
Propane
- *Overall Dimensions:*
4,300 mm Dia.
35,883 mm Lg.
20mm Shell Thk.
- *Code of Construction:*
PD 5500
- *Design Pressure:*
20 barg
- *Design Temperature:*
-46 to 55 Deg. C
- *Quantity:*
1 Nos.



Noteworthy Design & Manufactured Pressure Vessels

- *Equipment Type:*
500 m3 LPG Mounded Bullet
- *Service:*
LPG
- *Overall Dimensions:*
4,300 mm Dia.
35,756 mm Lg.
18 mm Shell Thk.
- *Code of Construction:*
PD 5500
- *Design Pressure:*
INT. 15.0 Kg/cm² (g) /
EXT. 1.6Kg/cm² (g)
INCLUDING FULL VACUUM
- *Design Temperature:*
-27 to 55 Deg. C
- *Quantity:*
1 Nos.



Noteworthy Projects Involving Filter Pressure Vessels

- *Equipment Type:*
De-Mineralising Filter Vessel
with Internal Strainer along the
Length of the Vessel
- *Service:*
Sour Service Sea Water
- *Overall Dimensions:*
4,200 mm Dia.
12,451 mm Lg.
20 mm Shell Thk.
- *Code of Construction:*
ASME Sec. VIII Div. 1
- *Design Pressure:*
9 barg
- *Design Temperature:*
-20 to 55 Deg. C
- *Quantity:*
12 Nos.



Noteworthy Design & Manufactured Pressure Vessels

- *Equipment Type:*
107 m³ LPG Storage Tank
- *Service:*
LPG
- *Overall Dimensions:*
3,720 mm Dia.
11,252 mm Lg.
18 mm Shell Thk.
- *Code of Construction:*
PD 5500
- *Design Pressure:*
17.5 barg
- *Design Temperature:*
-20 to 55 Deg. C
- *Quantity:*
10 Nos.



Noteworthy Design & Manufactured Surge Pressure Vessels

- *Equipment Type:*
50 m³ Surge Vessel
- *Service:*
Compressed Air
- *Overall Dimensions:*
2,300 mm Dia.
12,000 mm Lg.
24 mm Shell Thk.
- *Code of Construction:*
ASME Sec. VIII Div. 1
- *Design Pressure:*
24.2 barg
- *Design Temperature:*
0 to +55 Deg. C
- *Quantity:*
1 No.



Noteworthy Design & Manufactured Pressure Vessels

- *Equipment Type:*
200 m³ Pressure Vessel
- *Service:*
Gaseous Oxygen
- *Overall Dimensions:*
3,150 mm Dia.
27,492 mm Lg.
28 mm Shell Thk.
- *Code of Construction:*
PD 5500 + SMPV(U) RULE 1981
- *Design Pressure:*
33 barg
- *Design Temperature:*
-20 to 55 Deg. C
- *Quantity:*
1 No.



Noteworthy Design & Manufactured Pressure Vessels

- *Equipment Type:*
200 m³ Pressure Vessel
- *Service:*
Gaseous Nitrogen
- *Overall Dimensions:*
3,150 mm Dia.
27,492 mm Lg.
28mm Shell Thk.
- *Code of Construction:*
PD 5500 + SMPV(U)
RULE 1981
- *Design Pressure:*
33 barg
- *Design Temperature:*
-20 to 55 Deg. C
- *Quantity:*
1 No.



Sphere Construction Activities

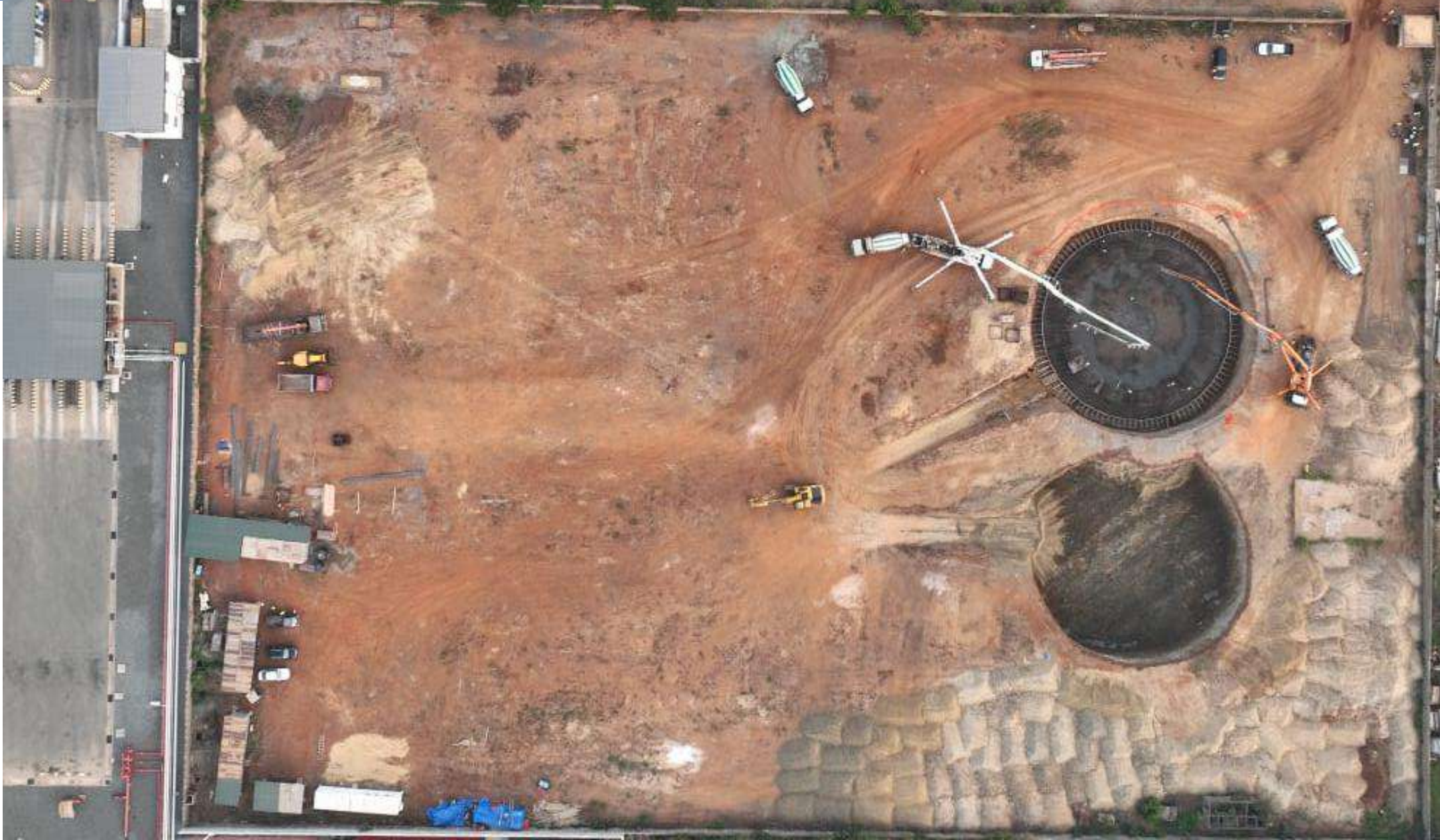


Sphere Construction Activities

**SPHERE CIVIL
FOUNDATION –
POURING OF RAFT
MASS CONCRETE**



Sphere Construction Activities



BHARAT
TANKS & VESSELS

Recently Completed Project of Similar Nature – EPCC of API 620 Import Terminal and Storage Tanks



**INSTALLING INTERNAL
TANK PIPING**

Recently Completed Project of Similar Nature – EPCC of LNG Import Terminal and Storage Tanks

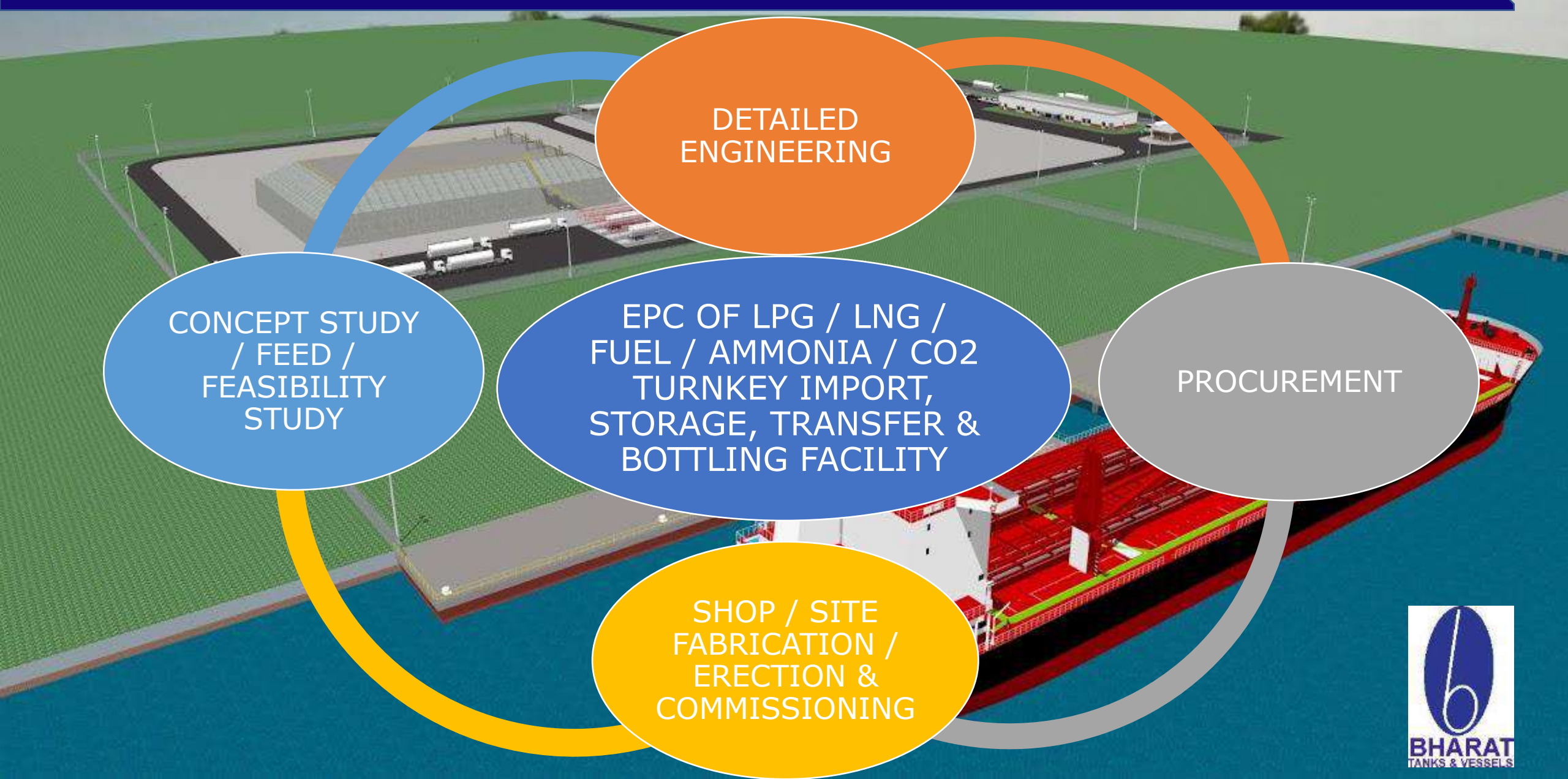


**INSTALLING INTERNAL
TANK PIPING**

Pressure Piping Pump / Compressor Skid for Propane Loading and Unloading



The single point Engineering, Procurement and Construction solution for Oil and Gas Storage, Transfer, Import, Bottling & Pipeline Facilities

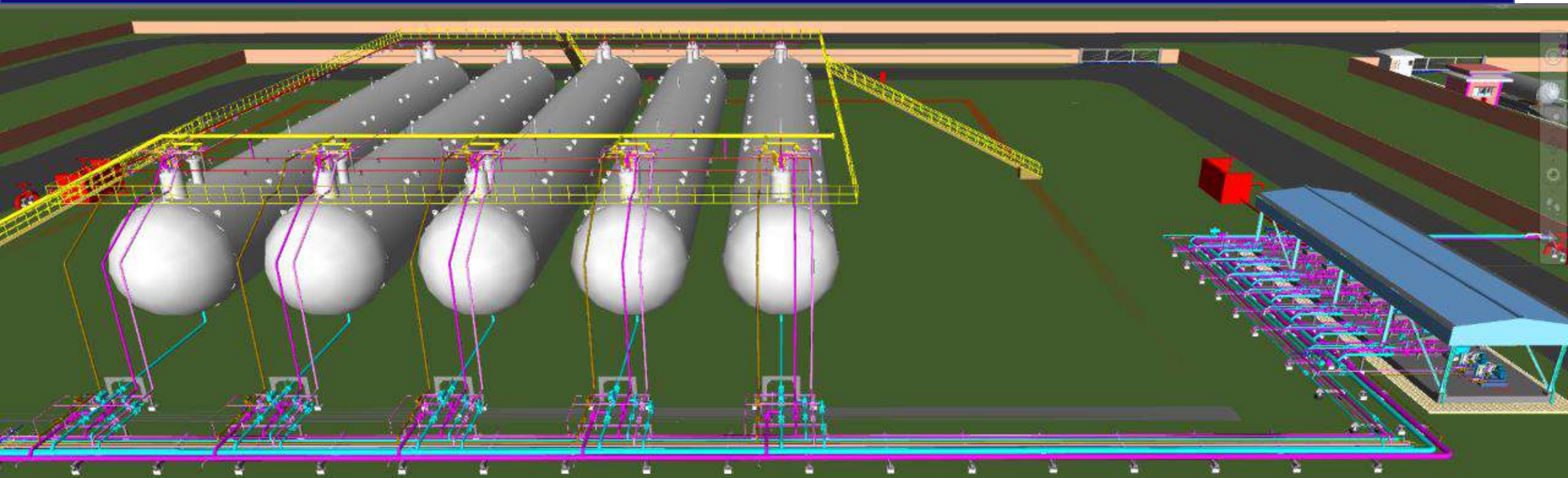








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