Certificate No : 2026–PTR–EC-STD-032
Date : November 13th , 2026

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CERTIFICATE OF ACCOMPLISHMENT

This is to certify that

HEZRON HANS SRAUN

ID NUMBER : EC-STD-032

has completed 32 hours & finished the Final Project of our E-course

STORAGE TANK DESIGN AS PER API 650

MANUAL CALCULATION

Trainer : TITO FEBRIANTO, S.T - Senior Mechanical Static Engineer

Held by **PETROS OIL GAS TRAINING** covering the subjects as listed on the back page

Certificate Validation

Heru Prasadja,ST
DIrector

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STORAGE TANK DESIGN AS PER API 650

MANUAL CALCULATION

1. WELDED TANKS INTRODUCTION

- API 650 scope
- Standard Reference and Tools
- Scope of Design

2. MATERIAL SELECTION

- Standard References for Material
- Plates
- Sheets
- Structural Shapes
- Piping, Forgings, Flanges
- Bolting
- Welding Electrodes
- Impact Test Requirements

3. WELDING AND LOAD DESIGN

- Vertical Shell plate joint (figure 5.1)
- Horizontal Shell plate joint (Figure 5.2)
- Roof joint (Figure 5.3a)
- Bottom plate joint (Figure 5.3a,b,c)
- Load consideration
- Allowable stress
- Study case

4. SHELL PLATE DESIGN (1 FOOT METHOD)

- References
- Minimum shell thickness
- Allowable stress
- Calculation thickness by 1Foot Method
- Study Case 1Foot Method

5. BOTTOM PLATE DESIGN

- Minimum information data
- General information
- Annular plate thickness calculation
- Annular plate width calculation
- Study Case

6. WIND GIRDER DESIGN

- References
- Stiffening ring type
- Top wind girder
- Intermediate wind girder
- Study case

7. ROOF DESIGN

- Type of Roof
- Roof Comparison
- Roof consideration

8. SHELL OPENING AND MANWAY DESIGN

- References
- Opening type
- Cover plate and bolting flange
- Manway neck
- Manhole diameter and bolt circle diameter
- Reinforcement
- Bolt and Gasket
- Study case

9. NOZZLES AND FITTINGS DESIGN

- References
- Opening type
- Reinforcement
- Bolt and Gasket
- Shell nozzle
- Flush type cleanout fitting
- Flush type shell connection
- Study case

10. SHELL DESIGN (VARIABLE DESIGN POINT METHOD)

- References
- Calculation thickness by Variable Design Point Method
- First Course (t1) Calculation
- Second Course (t2) Calculation
- Upper Course (tx) Calculation
- Study Case

11. STORAGE TANK WITH SMALL INTERNAL PRESSURE

- References
- Scope of Design
- Permissible Details of Compression Rings
- Maximum Design Pressure
- Test Pressure Procedure
- Design of Roof Plates
- Study Case

FINAL PROJECT