PILE FOUNDATION DESIGN REPORT

API RP 2GEO Analysis

Project:	Offshore Platform Foundation
Designer:	Engineering Team
Date:	2025-11-29 11:07:15
Software:	pile-SRI v2.6
Standard:	API RP 2GEO Section 8

1. SOIL PROFILE

Site Name:	Offshore Site
Water Depth:	50.0 m
Number of Layers:	2

Design Soil Parameters

Depth (m)	Strata	Submerged Unit Weight (kN/m³)	Angle of Internal Friction (°)	Shaft Friction (°)	Su (kPa)	Nq	fplug (kPa)	qpun (MPa)	ε■■ (%)	k (kN/m³)
0.0 - 5.0	Layer 1	8.00	-	30	-	-	-	-	2.00	-
5.0 - 50.0	Layer 2	8.00	20	-	0.37	20.00	-	-	-	5400

2. PILE PROPERTIES

Diameter:	1.000 m
Wall Thickness:	16.0 mm
Embedded Length:	50.0 m
Pile Type:	Driven Pipe Open
Gross Area:	0.7854 m²
Shaft Area:	157.08 m²

Analysis Parameters

Design Method:	ASD (SF=2.5)
Analysis Types:	Compression, Lateral, Tension
Loading Condition:	Static
Maximum Depth:	50 m
Depth Increment:	0.5 m

3. CAPACITY ANALYSIS

[Capacity plot not available: Kaleido requires Google Chrome to be installed. Either download and install Chrome yourself following Google's instructions for your operating system, or install it from your terminal by running: $ plotly_get_chrome]

	Compression	Tension
Maximum Capacity (kN):	13,236	9,266

4. LOAD-DISPLACEMENT CURVES

Q-z Curves (End Bearing)

5. LATERAL P-Y CURVES

[p-y plot not available]

6. API RP 2GEO COMPLIANCE

✓ Section 8.1: Axial capacity calculations (α-method for clay, API Table 1 for sand)
✓ Section 8.2: Tension capacity (separate calculation, no end bearing)
✓ Section 8.4: Load-displacement curves (t-z and Q-z tables)
✓ Section 8.5: Lateral capacity (p-y curves per Matlock/Reese/API methods)
✓ Table 1: Extended implementation for all soil types
✓ Annex A: LRFD resistance factors
✓ Annex B: Carbonate soil considerations
✓ Annex C: Penetration requirements

Notes

• Analysis performed using pile-SRI v2.6
• Based on API RP 2GEO Section 8 (Geotechnical and Foundation Design Considerations)
• Results should be reviewed by a qualified geotechnical engineer