



CASE STUDY: DELIVERY OF COMPACT, MODULAR ONSHORE PROCESS UNIT

Onshore Gas Sweetening Unit (GSU)

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CECO is proud to announce the successful completion of **Onshore Gas Sweetening Unit (GSU)**, a highly compact and technically demanding modular facility executed under stringent layout, transportation, and engineering constraints.

Designed for a **throughput capacity of 7.6MMSCFD (Million Standard Cubic Feet per Day)**, the unit was engineered to fit within an exceptionally tight plot area of **16m × 19m**, requiring meticulous coordination across **process, piping, structural, and layout disciplines**. Despite these constraints, the project was delivered in full compliance with operability, accessibility, and safety requirements.

Project Overview

- **Process Unit:** Gas Sweetening Unit (GSU)
- **Design Capacity:** 7.6 MMSCFD
- **Installation Type:** Onshore – Modular Execution
- **Plot Size:** 16m × 19m
- **Skid Configuration:**
 - a. Three modular skids
 - b. Multi-tier split to meet transportation and site limitations
- **Structural Steel:** ~215 MT
- **Piping Density:** ~21,500 Inch Diameter

Engineering & Execution Challenges

The project posed several unique technical challenges driven by space, weight, and constructability constraints:

1. High Piping Density in a Compact Footprint

Accommodating approximately **21,500 Inch Diameter of piping** within a restricted plot demanded optimized routing strategies, precise clash management, and advanced 3D model coordination.

2. Heavy Structural Steel Loading

With nearly **215 MT of structural steel** concentrated in a limited area, structural design required careful load distribution while ensuring stability, transportability, and ease of erection.

3. Multi-Tier Modularization Strategy

To meet strict transportation and site layout constraints, the unit was engineered as **three multi-tier skids**, requiring:

- Accurate interface management
- Seamless reassembly planning
- Rigorous tolerance control

4. Strict Operability, Accessibility, and Safety Requirements

Even with space limitations, the design ensured:

- Safe operator access and maintenance clearances
- Compliance with applicable codes and client standards
- Efficient equipment layout supporting long-term operability

CECO's Value Delivery

This project stands as a strong demonstration of **CECO's capability in delivering compact, modular onshore process units**, where engineering precision and intelligent layout planning transform severe constraints into successful execution.

Key success factors included:

- Integrated multi-discipline engineering coordination
- Smart layout optimization for modular construction
- Robust constructability and transportation planning
- Commitment to safety, quality, and client requirements

Conclusion

The successful delivery of the **Onshore Gas Sweetening Unit (GSU)** reinforces CECO's reputation as a trusted partner for complex, space-constrained, modular process solutions. By combining technical expertise with innovative engineering approaches, CECO continues to support its clients in achieving efficient and reliable project outcomes under challenging conditions.

