REQUEST FOR PROPOSAL (RFP)

Gray LLC

PROJECT OVERVIEW

Name: Synth Timothy Capacity Enhancement
Type: Capacity Enhancement
Location: South Timothy, AZ (Refinery Zone)
Industry: Chemical Processing
Value: $4,823,287
Complexity: 2/5
Date: April 09, 2025
Disciplines: Mechanical Engineering, Process Engineering
Regulations: ISO 14001, EPA Requirements

SCOPE OF WORK

Scope of Work: Refinery Zone Chemical Processing Capacity Enhancement

Project Goal: Increase the processing capacity of the existing chemical processing unit within the refinery zone by 15%, while maintaining operational safety and environmental compliance.

1. Mechanical Engineering:

*** Task 1: Pump Upgrade: Replace the existing centrifugal pumps (Model XYZ, capacity 500 m³/hr) in the primary separation stage with higher-capacity pumps (Model ABC, capacity 600 m³/hr) capable of handling the increased flow rate. This includes detailed design, procurement specifications, and installation instructions compliant with ASME B31.1 and API 610 standards. The new pumps will be selected for 10% over-capacity for future expansion.**

*** Task 2: Heat Exchanger Modification: Modify existing shell and tube heat exchangers (Dimensions: 2m x 3m x 1m, Material: 316L Stainless Steel) to increase heat transfer efficiency by 10% to accommodate the increased throughput. This involves detailed thermal hydraulic analysis, modification of tube bundles, and update of existing P&IDs, ensuring compliance with TEMA standards. The modifications should minimize downtime and adhere to refinery safety protocols.**

*** Task 3: Valve Replacement: Replace existing control valves (Size: DN150, Material: Carbon Steel) with higher-capacity, automated valves (Size: DN200, Material: 316L Stainless Steel) on the main process lines. The replacement will include the design, procurement, and installation of the new valves, incorporating a new PLC-based control system with safety instrumented systems (SIS) adhering to IEC 61508 standards.**

2. Process Engineering:

*** Task 1: Process Optimization: Conduct a detailed process simulation using Aspen Plus or similar software to optimize the existing chemical processing unit for increased capacity. This includes adjusting operating parameters, identifying potential bottlenecks, and proposing modifications to the process flow diagram (PFD) and piping and instrumentation diagram (P&ID) to achieve a 15% capacity increase while maintaining product quality and yield.**

*** Task 2: Wastewater Treatment Evaluation: Evaluate the existing wastewater treatment system's capacity to handle the increased process effluent volume from the capacity enhancement. Determine if upgrades are required to ensure continued compliance with EPA discharge permits, including recommendations for treatment process modifications or expansion, and generation of updated Environmental Impact Assessment documentation.**

*** Task 3: Safety and Hazard Analysis: Perform a thorough HAZOP (Hazard and Operability) study to identify and mitigate potential safety risks associated with the capacity enhancement project. This includes documenting potential hazards, developing risk mitigation strategies, and updating the existing safety procedures and emergency response plans.**

Cross-Disciplinary Tasks:

*** Task 1: Integrated Design Review: Conduct joint reviews of the mechanical and process design modifications to ensure seamless integration and compatibility between the mechanical equipment and the process modifications. This includes verifying that the updated equipment specifications are suitable for the revised process conditions, and resolving any interface issues.**

*** Task 2: Procurement and Installation Coordination: Collaborate to coordinate the procurement and timely installation of the upgraded equipment and modifications to minimize project downtime and ensure seamless integration. This includes developing a detailed procurement plan, scheduling equipment delivery, and managing the installation process, minimizing potential conflicts between teams.**

Complexity Impact: The project's complexity is appropriate for a Level 2 classification, reflecting the manageable scope of the modifications and upgrades.

REQUEST FOR QUOTATION

Request for Quotation (RFQ): Synth Timothy Capacity Enhancement

Project: Synth Timothy Capacity Enhancement ? Refinery Zone, South Timothy, AZ

Issued: April 9, 2025 Due: May 2, 2025

1. Project Overview: This RFQ seeks proposals for a capacity enhancement project at our South Timothy, AZ refinery zone, increasing chemical processing capacity by 15%. The project involves mechanical and process engineering modifications, detailed in Section 2. Complexity: Level 2 (out of 5). Contract type: Fixed Price. Project start date: May 3, 2025; duration: 4 months.

2. Scope of Work:

2.1 Mechanical Engineering:

*** Pump Upgrade: Replace existing centrifugal pumps (Model XYZ, 500 m³/hr) with higher-capacity pumps (Model ABC, 600 m³/hr, 10% over-capacity) in the primary separation stage. ASME B31.1 and API 610 compliance required.**

* Heat Exchanger Modification: Modify existing shell and tube heat exchangers (2m x 3m x 1m, 316L SS) to increase heat transfer efficiency by 10%. TEMA standards required.

* Valve Replacement: Replace existing control valves (DN150, Carbon Steel) with automated valves (DN200, 316L SS) on main process lines. Include new PLC-based control system with SIS adhering to IEC 61508.

2.2 Process Engineering:

* Process Optimization: Optimize existing chemical processing unit using Aspen Plus (or equivalent) for 15% capacity increase, maintaining product quality and yield. Update PFD and P&ID.

* Wastewater Treatment Evaluation: Evaluate existing wastewater treatment system capacity for increased effluent volume. Ensure EPA compliance; include recommendations and updated EIA documentation.

* Safety & Hazard Analysis: Conduct HAZOP study; document hazards, mitigation strategies, and updated safety procedures/emergency response plans.

2.3 Cross-Disciplinary Tasks:

* Integrated Design Review: Joint review of mechanical and process designs to ensure seamless integration.

* Procurement & Installation Coordination: Coordinate procurement and installation to minimize downtime.

3. Qualifications: Minimum 3 years experience in chemical processing; proven regulatory compliance (EPA, OSHA etc.).

4. Proposal Requirements:

* Technical designs (1-2 pages).

* Detailed cost breakdown.

5. Evaluation Criteria: Technical merit (50%), Cost (30%), Experience (20%).

6. Timeline:

*** RFQ Release: April 9, 2025**

*** Questions Due: April 22, 2025**

*** Proposals Due: May 2, 2025**

7. Contact: Submit proposals to procurement@chemicalprocessing.com

CONTACT

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TIMELINE

Include key dates such as submission deadlines, inquiry deadlines, and project start dates.