

REQUEST FOR PROPOSAL (RFP)

Hale-Freeman

PROJECT OVERVIEW

Name: React Ricky Safety Compliance

Type: Safety Compliance

Location: Port Ricky, NV (Industrial Park)

Industry: Chemical Processing

Value: \$5,554,361

Complexity: 3/5

Date: April 09, 2025

Disciplines: Process Engineering, Mechanical Engineering

Regulations: ISO 14001

SCOPE OF WORK

Scope of Work: Chemical Processing Plant - Reactor Upgrade

Project Goal: Upgrade existing batch reactor system to increase throughput by 25% while maintaining safety and environmental compliance (ISO 14001 where applicable).

Discipline: Process Engineering

1. Process Simulation and Optimization: Develop a steady-state and dynamic process simulation model of the upgraded reactor system using Aspen Plus or similar software, incorporating the increased throughput target. The model should include mass and energy balances, reaction kinetics, and equipment sizing for a 5m³ reactor vessel made of 316L stainless steel, delivering a validated model and a detailed process flow diagram (PFD) with operating parameters.

2. HAZOP Study: Conduct a Hazard and Operability study (HAZOP) on the modified process, focusing on the increased throughput and associated risks. Identify potential hazards and recommend mitigating control measures, producing a comprehensive HAZOP report with recommended safety instrumented systems (SIS) and emergency shutdown (ESD) system modifications.

3. Wastewater Treatment Optimization: Evaluate the existing wastewater treatment system's capacity to handle increased effluent from the upgraded reactor, considering ISO 14001 guidelines for minimizing environmental impact. Develop recommendations for modifications or additions to the treatment system, including calculations demonstrating compliance with local discharge permits, culminating in a detailed report with cost estimates.

Discipline: Mechanical Engineering

1. Reactor Vessel Modifications: Design and specify modifications to the existing 5m³ reactor vessel to accommodate the increased throughput, including internal modifications such as improved mixing impellers (specify material: 316L SS, diameter: 1m). This involves detailed 3D CAD models and fabrication drawings, adhering to ASME Section VIII, Division 1.

2. Piping and Instrumentation Design: Design and detail the modifications to the piping and instrumentation diagram (P&ID) to support the increased throughput and incorporate new safety features identified during the HAZOP study. This will include pipe sizing (using appropriate pressure drop calculations), material selection (e.g., 316L stainless steel for critical lines), and valve specifications, with the deliverables being updated P&IDs and isometric drawings.

3. Structural Analysis of Support Systems: Conduct a structural analysis of the existing reactor support structure to confirm its ability to withstand the increased load resulting from the upgraded system. Prepare detailed calculations and structural drawings, if modifications are needed, ensuring compliance with relevant structural codes (e.g., AISC).

Cross-Disciplinary Tasks:

1. Integration of Process and Mechanical Designs: The process engineers and mechanical engineers will collaborate to ensure that the process design (reactor sizing, flow rates, etc.) is compatible with the mechanical design (reactor vessel modifications, piping layout, etc.). This will involve regular joint design reviews and iterations to optimize the overall system performance and safety.

2. Cost Estimation and Schedule Development: Both disciplines will contribute to the development of a detailed cost estimate for the project, including material costs, labor costs, and contingency. They will also collaboratively develop a realistic project schedule that accounts for all tasks and dependencies.

Complexity Impact Note: The project's complexity is rated 3/5 due to the need for process simulation, HAZOP study, and significant modifications to existing equipment requiring detailed engineering calculations and design.

REQUEST FOR QUOTATION

Request for Quotation (RFQ): React Ricky Safety Compliance

Project: Upgrade of Batch Reactor System at Port Ricky, NV Industrial Park

Client: Chemical Processing Plant (Procurement@chemicalprocessing.com)

Issued: April 09, 2025 Due: May 13, 2025

Project Goal: Increase batch reactor throughput by 25% while maintaining safety and environmental compliance (ISO 14001).

Scope of Work: This project involves the design, engineering, and modification of an existing 5m³ 316L stainless steel batch reactor system within a chemical processing plant. Work includes:

- * Process Engineering: Process simulation (Aspen Plus), HAZOP study, wastewater treatment optimization.
- * Mechanical Engineering: Reactor vessel modifications, piping & instrumentation design (P&ID), structural analysis of support systems.
- * Cross-Disciplinary: Integrated design reviews, cost estimation, schedule development. Detailed scope outlined in the attached Appendix.

Deliverables: Validated process simulation model, detailed PFD, HAZOP report, wastewater treatment report, 3D CAD models, fabrication drawings, updated P&IDs and isometric drawings, structural calculations and drawings, cost estimate, project schedule.

Qualifications: Minimum 3 years of experience in chemical processing plant engineering with a proven track record of regulatory compliance (including ISO 14001).

Proposal Requirements: A detailed technical proposal (1-2 pages maximum) outlining your approach and methodology, including a comprehensive cost breakdown.

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

Timeline:

* **RFQ Release: April 09, 2025**

* **Questions Due: May 08, 2025**

* **Proposals Due: May 13, 2025**

* **Project Start: May 19, 2025**

* **Project Duration: 12 months**

Contract Type: Time & Materials

Appendix: (Detailed Scope of Work ? see separate document)

Contact: procurement@chemicalprocessing.com

CONTACT

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TIMELINE

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