

REQUEST FOR PROPOSAL (RFP)

Davis-Mitchell

PROJECT OVERVIEW

Name: Synth Murphymouth Safety Compliance

Type: Safety Compliance

Location: Murphymouth, MN (Industrial Park)

Industry: Chemical Processing

Value: \$5,683,836

Complexity: 2/5

Date: April 09, 2025

Disciplines: Environmental Engineering, Mechanical Engineering

Regulations: ISO 14001, EPA Requirements

SCOPE OF WORK

Scope of Work: Chemical Processing Plant Effluent Treatment Upgrade

Project Goal: Upgrade the existing effluent treatment system at the Acme Chemical Processing Plant to meet stricter discharge limits and enhance overall environmental compliance, adhering to ISO 14001 and relevant EPA regulations.

Disciplines: Environmental Engineering, Mechanical Engineering

Complexity: 2/5

Environmental Engineering Tasks:

- Effluent Characterization and Treatment Design:** Conduct a comprehensive analysis of the existing effluent stream, including flow rate (1000 gallons/hour estimated), pH, temperature, and concentrations of key pollutants (e.g., nitrates, phosphates, specific organic compounds using EPA Method 8000 series). Design a new biological treatment stage incorporating a sequencing batch reactor (SBR) with a 5000-gallon capacity using stainless steel construction to achieve targeted pollutant reduction levels as defined by the discharge permit (attached as Appendix A).
- Spill Prevention Control and Countermeasure (SPCC) Plan Update:** Update the existing SPCC plan to incorporate the upgraded treatment system and newly identified potential sources of chemical spills within the facility (based on a site survey). This will include updated containment measures, emergency response procedures, and training materials that will be formatted according to EPA guidelines (40 CFR 112) and distributed to personnel to improve response efficacy. The updated plan will include updated spill containment maps and updated response protocols in the case of a chemical spill.
- Permitting and Regulatory Compliance:** Prepare and submit all necessary permits and documentation to relevant regulatory agencies (e.g., EPA NPDES permit modification, state discharge permits) to ensure full compliance with all applicable environmental regulations. This will include preparing a detailed engineering report demonstrating the effectiveness of the upgraded treatment system in meeting the specified discharge limits, supporting documents, including detailed engineering calculations.

Mechanical Engineering Tasks:

- Pump Selection and Piping Design:** Select and specify suitable chemical-resistant pumps (e.g., centrifugal pumps) for the upgraded effluent treatment system, considering flow rate (1000 gallons/hour), head pressure (50ft), and chemical compatibility with the effluent stream (material selection: 316L stainless steel). Design the associated piping system (including valves, fittings, and instrumentation) using materials conforming to ASME B31.3 and adhering to all relevant safety standards. Drawings will be completed using AutoCAD.
- Equipment Installation and Integration:** Oversee the installation and integration of the new SBR reactor and associated equipment (pumps, piping, instrumentation) into the existing effluent treatment system. This includes developing detailed installation drawings, providing specifications for contractors, and ensuring proper alignment, support structures, and connections to comply with all applicable safety standards (OSHA and ANSI). All equipment will be tested according to manufacturers' specifications and documented.

Cross-Disciplinary Tasks:

1. HAZOP Study: Conduct a Hazard and Operability (HAZOP) study to identify and mitigate potential hazards associated with the upgraded effluent treatment system. This will involve joint participation from both environmental and mechanical engineers, focusing on risk identification and mitigation strategies across all equipment and processes. Deliverable is a HAZOP report according to industry best practice.

2. Cost Estimation and Schedule Development: Collaboratively develop a comprehensive cost estimate and project schedule for the implementation of the upgraded effluent treatment system including timelines for each task completion. This will require close coordination between the environmental and mechanical engineering teams to ensure realistic timelines and resource allocation. The combined deliverable will be a final detailed project schedule and cost estimate.

Complexity Impact Note: The project's complexity is rated as 2/5 due to the relatively straightforward nature of the system upgrade and the lack of significant design challenges.

REQUEST FOR QUOTATION

Request for Quotation: Synth Murphymouth Safety Compliance

Project Title: Synth Murphymouth Safety Compliance ? Effluent Treatment Upgrade

Project Location: Acme Chemical Processing Plant, Murphymouth Industrial Park, MN

Industry: Chemical Processing

RFQ Release Date: April 9, 2025

Questions Due: April 18, 2025

Proposals Due: April 29, 2025

Project Start Date: June 5, 2025

Project Duration: 10 months

Contract Type: Fixed Price

Scope of Work: Upgrade the existing effluent treatment system to meet stricter discharge limits and enhance environmental compliance (ISO 14001, EPA regulations). This includes:

* Environmental Engineering: Effluent characterization, SBR reactor design (5000-gallon capacity, stainless steel), SPCC plan update, permitting & regulatory compliance (NPDES permit modification).

* Mechanical Engineering: Pump selection (centrifugal, 316L stainless steel, 1000 gph, 50ft head), piping design (ASME B31.3), equipment installation & integration.

* Cross-Disciplinary: HAZOP study, cost estimation, and schedule development.

Detailed Scope of Work: See attached Appendix A (detailed SOW). Flow rate: 1000 gallons/hour (estimated).

Qualifications: Minimum 3 years' experience in chemical processing, proven regulatory compliance experience.

Proposal Requirements:

- 1. Company qualifications and relevant project experience.
- 2. Technical design (1-2 pages maximum), including detailed drawings.
- 3. Comprehensive cost breakdown.

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

Submit Proposals To: procurement@chemicalprocessing.com

Contact: [Insert Contact Name and Title Here]

Appendix A: (Attached ? Detailed Scope of Work and Discharge Permit Requirements)

CONTACT

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TIMELINE

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