



Position Title: Process Development Engineer

Job Status: Term to March 31, 2021, Full-time (with opportunity for renewal based on funding)
Reports To: President & CEO

About CalAgua Innovations Corp.

CalAgua Innovations is tackling the energy sectors' most difficult environmental and resource challenges by bringing together world class scientists and innovative leaders to create ionic liquid solutions for extraction and remediation.

We are rethinking engineering processes, especially in the context of current operational and public policy challenges. These include: reduced cost and scale for competitiveness in global markets, optimized to work with existing industrial assets, improved environmental footprint, modularization and more.

For more information on CalAgua Innovations, visit www.calaguainnovations.com.

Position Summary

The Process Development Engineer is a critical hire to CalAgua's ongoing success. Working with our team of world-leading scientists, you will act as the primary developer of next-generation solutions for the energy industry's extraction, processing, and remediation challenges.

As CalAgua's lead technology developer, you will be responsible for advancing the development of multiple technologies, including solutions for eliminating Alberta's Oil Sands Tailings Ponds, and new hydrocarbon extraction mining solutions that use limited water and emit limited greenhouse gas emissions. As the first paid employee of an international founding team, your success will depend on being able to advance technology development through collegiality, cooperation, and a commitment to delivering something transformational.

Starting with our chemistry-based separation discoveries and a high-level vision of a process, you will design, build, operate and optimize continuous ionic liquid-based processes from concept to commercialization. This will involve conducting scientific and industry research (including modeling, lifecycle analysis, etc.); designing, building, running and optimizing prototypes; running lab bench and prototype tests and experiments; and honing your industry knowledge to create robust, reliable and cost-effective industrial processes.

You will be joining a passionate and committed group of founders. Taking the lead on design and scale-up, you will work side-by-side with our Chief Science Officer who leads our chemistry innovation and runs our laboratory; our Eminent Scientists who are pioneers in their fields of ionic liquid design and materials engineering for unconventional energy; and our President and CEO who focuses on business strategy, operations and administration. You will be supported by a diverse network of third-party partners, mentors, and consultants.

Duties and Responsibilities

The primary duties and responsibilities of the Process Development Engineer focus on **Engineering, Fabrication and Operations**, specifically to:

- Start with a clean sheet of paper or high-level process vision to design, build, operate, and optimize continuous processes at appropriate prototype scales (~100L), including minimum viable products and pilots.
- Define project scope and schedules for multiple scale up projects.
- Develop processes for maximum economic and environmental performance.
- Develop best practices, routines, and innovative solutions to improve production rates and quality of output.
- Manage project costs and time constraints.
- Identify and mitigate technical risks.
- Establish process documentation and operating procedures.
- Ensure health and safety protocols, operations and considerations are in place, understood and considered in process design, organization's practices, and ultimate commercial operation of processes.

You must also be willing and able to do the following:

- Organize existing lab data and direct (and sometimes conduct) required lab tests required to advance process development.
- Research and evaluate existing process technologies.

In addition, you will be integral in supporting the understanding of process **Business and Economics**, specifically to:

- Evaluate engineering designs and procedures, including technoeconomic, lifecycle and costing assessments to establish economic and environmental feasibility.
- Prepare budgets, project plans, and scale up roadmaps.
- Support the development of business cases and other information requirements for funding and investment acquisition.
- Evaluate technologies for partnership development.
- Support the identification of potential technical and operational partners.
- Attend meetings, answer technical questions.
- Write funding proposals in collaboration with the CalAgua team.

You will be successful through **Collaboration and Teamwork**, specially by:

- Being responsible for the advancement of process development.
- Setting and leading meetings, timelines and deliverables required to advance technologies.
- Working side-by-side with colleagues to identify required lab data to enable you to develop and optimize processes.

- Encouraging, challenging, supporting, giving direction, taking direction, and engaging colleagues.
- Curating and managing data.

Other

- This role will evolve as the company grows. Flexibility, collegiality, agility, and the interest to build a successful company will be key to success.

Minimum Requirements

- Completion of an undergraduate or applied degree in engineering (likely in Chemical, Process or Petroleum Engineering). Candidates with engineering technology diplomas will also be considered.
- P.Eng. or eligible for the registration with the Association of Professional Engineers and Geoscientists of Alberta would be considered an asset.
- 5-10+ years of industry engineering experience in technology scale up. A balance of enthusiasm and evidence of practical development experience (including hobby 'garage engineering') will be considered for candidates with less industry experience.
- Experienced in engineering and design, project management, engineering research and analysis, planning and implementation.
- Experience in industrial mixing, solids handling, extraction and/or separation processes would be considered an asset.
- Must have hands on experience in designing and building processes
- Ability and/or willingness to conduct lab experiments would be considered an asset.

Core Competencies

- Able and passionate 'garage style' engineer who can and likes building and running prototypes and plants.
- Demonstrated ability to take direction, give direction, collaborate, challenge, and inspire colleagues in an environment where influencing partners and other third parties will be key to achieving successful outcomes.
- Practical, resourceful, and creative, with the ability to develop processes that were previously thought impossible.
- Energetic, enthusiastic, and organized, with a results-driven and positive attitude.
- Ability to balance both long- and short-term objectives in a timely, consistent, and appropriate manner.
- Ability to communicate effectively in both technical and non-technical environments.
- Comfortable with the ever-evolving nature of a start-up company, where pivoting and evolving is normal.
- Ability to work independently, including working from home, virtually or in other locations.