

**Position title:** Nuclear Engineer III/IV (Thermal Hydraulics)

**Location:** Madison, WI

**About Us:** As an emerging leader in nuclear engineering, our startup is developing revolutionary reactor technology to secure safe and abundant energy for future generations. We are seeking a highly skilled Nuclear Engineer III (Thermal Hydraulics) to join our dynamic team and contribute to the design and development of next-generation nuclear reactors.

**Job Summary:** The Nuclear Engineer III (Thermal Hydraulics) will contribute to the design, analysis, and optimization of molten salt nuclear reactor systems. The ideal candidate will have a strong background in molten salt systems, proficiency with industry-standard design software, and a proactive, self-starting attitude. This role requires innovative thinking, technical expertise, and a commitment to advancing safe and sustainable nuclear energy solutions.

**Key Responsibilities:**

- Conduct thermal-hydraulic design and analysis of the salt loops, storage tanks, heat exchangers and power conversion, including start-up, steady-state, and transient conditions.
- Develop specifications and support design of critical components heat exchangers, pumps, valves, measurement systems and fluid transfer systems
- Help design and run the integration of the reactor loops with heat rejection and power conversion systems as required.
- Develop and maintain thermal-hydraulic models using appropriate tools
- Support safety analyses for licensing-basis events and beyond-design-basis events including loss-of-flow, loss-of-heat-sink, reactivity transients, and freeze/thaw scenarios.
- Specify and support selection of instrumentation relevant to thermal-hydraulic performance monitoring
- Oversee and conduct thermal-hydraulic testing, including separate-effects tests, integral tests, and validation experiments for model benchmarking.
- Contribute to design requirements, safety classification, and functional specifications in compliance with nuclear standards
- Perform uncertainty quantification, sensitivity studies, and validation & verification (V&V) of thermal-hydraulic models.

- Support licensing efforts by preparing technical reports, responding to regulatory questions, and providing thermal-hydraulic justification for design decisions.
- Help to develop strategy for team growth: define roles, recruit, mentor, and build a high-performing thermal hydraulics group as the project matures.
- Maintain comprehensive documentation, including design basis reports, calculation packages, and configuration management, including QA documentation of testing.

### **Required Qualifications**

- Bachelor's degree in Nuclear Engineering, Mechanical Engineering, Chemical Engineering, or a closely related field. Master's degree or PhD strongly preferred.
- Minimum 10 years of direct experience in thermal-hydraulic analysis and design, with at least 5 years in safety-critical or highly regulated industries.
- Deep expertise in:
  - Thermal-hydraulic phenomena in liquid-cooled systems (single- and multi-phase flow, heat transfer, natural circulation, transient analysis).
  - System-level and CFD modeling tools relevant to nuclear or high-temperature applications.
  - Nuclear safety analysis methods and regulatory requirements for thermal-hydraulic performance.
  - Experimental design and interpretation of thermal-hydraulic test data.
  - Instrumentation challenges in extreme environments.
- Proven ability to lead technical efforts, develop and execute test programs and build teams
- Strong understanding of nuclear quality assurance
- Excellent analytical, problem-solving, and communication skills.
- U.S. citizenship or permanent residency required.

### **Preferred Qualifications**

- Direct experience with molten salt reactors (MSRs), fluoride salts, or other Gen IV advanced reactor concepts.
- Hands-on experience with molten salt properties
- Understanding of molten salt thermal and flow impacts on erosion, corrosion and plate-out.
- Proficiency in multi-physics simulation platforms
- Experience supporting NRC or international regulatory interactions for thermal-hydraulic topical reports.
- Knowledge of risk-informed performance-based approaches

- Professional Engineer (PE) license or equivalent certification.

**What We Offer:**

- Competitive salary
- Comprehensive benefits including medical, dental and vision
- Paid time off, sick leave and holidays
- Bereavement leave

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