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AALO ATOMICS

2025 Guadalupe Street, Suite 260
Austin, TX 78705-5642

July 1st, 2024

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Regulatory Engagement Plan for Idaho Nuclear Project

Dear Mr. Roche,

I am pleased to present the Regulatory Engagement Plan (REP) for the Idaho Nuclear Project. The proposed plant will comprise of seven Aalo-1 microreactors, operating under a Class 103 Combined Operating License (COL).

The REP enclosed herewith serves to inform you of our proposed interactions with the Nuclear Regulatory Commission (NRC) concerning the licensing of the proposed power plant. This plan delineates the anticipated schedule for future interactions and document submissions to NRC. Any deviations from these outlined interactions and submittals will be promptly communicated to NRC in advance.

Should you have any inquiries or require further clarification regarding this submission, please do not hesitate to reach out to me at amir@aalo.com or (443) 912 3726.

Best regards,

Amir Afzali
Vice President of Regulatory Affairs

Enclosure: Regulatory Engagement Plan for Idaho Nuclear Project

cc: Stephen Philpott, NRC
Paul Mouring, NRC
Yasir Arafat, AA
Asmaa Farag, AA
Matt Loszak, AA
Richard Williams, AA

Enclosure: Regulatory Engagement Plan for Idaho Nuclear Project

Regulatory Engagement Plan

Document Number:	AA-LIC-REP-0002	**Revision:**	0
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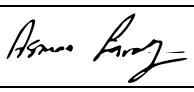
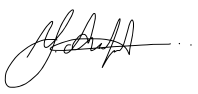
Approval

Title	Name	Signature	Date
Originator, Vice President of Regulatory Affairs	Amir Afzali		06/28/2024
Reviewer, Nuclear Licensing Lead	Asmaa Farag		06/28/2024
Approver, Chief Technology Officer	Yasir Arafat		06/28/2024

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Revision History

Revision No.	Effective Date	Affected Sections	Description of Changes
0	06/28/2024	All	Initial release

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1 Introduction

This Regulatory Engagement Plan (REP) is submitted by Aalo Holdings, Inc., doing business as Aalo Atomics, to enable the Idaho Nuclear Project team to engage effectively with Nuclear Regulatory Commission (NRC) staff during its pre- and post-licensing application activities for the proposed power plant.

The proposed power plant is anticipated to be operational by 2029 under a 10 CFR Part 52 Combined Operating License (COL) and will have the following attributes:

- Its nuclear safety case will be developed based on NUREG 1.233, "Guidance for a Technology-Inclusive, Risk-Informed, and Performance-Based Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light Water Reactors."
- Its site safety case will be based on submitting an Environmental Assessment (EA) report for the proposed plant, which follows the design parameters of the Aalo Atomics 10-module power plant, as it is anticipated that the project will not result in any significant adverse effects on the quality of the human environment.
- The application for the plant will be prepared using the directives outlined in RG 1.253, "Guidance for a Technology-Inclusive Content-of-Application Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light-Water Reactors."

This REP pertains to an application that will be submitted to NRC requesting combined licenses (COLs) for a plant whose heat generation unit will be comprised of seven independent Aalo-1 reactors with the option of increasing the heat generation unit to 14 Aalo-1 reactors. Therefore, considering Aalo Atomics' module offering, the licensing basis will be based on two independent ten-module reactor units, with each module comprising ten Aalo-1 microreactors.

The COL application (COLA) is planned to be submitted in June 2026, with the target approval date being June 2028. Further details can be found in Section 7 of this REP.

This REP's structure includes a brief description of the project, the broad motives behind the project, the project team members, a delineation of the project licensing strategy objectives, the engagement approach, and a description of the targeted licensing path, including some of most important aspects of the initial licensing basis. This REP was created to support the project team's objective of building constructive, productive relationships with NRC staff through rigorous and continuous communication addressing regulatory requirements while avoiding

unnecessary burden on NRC or the project. This will allow the project to navigate regulatory processes efficiently, enhance transparency, and achieve excellence in Idaho Nuclear Project's safety and operational performance.

2 Contact Information

The information below is to be used to facilitate communication between the Idaho Nuclear Project team and NRC staff.

Aalo Atomics
2025 Guadalupe Street, Suite 260
Austin, TX 78705-5642
www.aalo.com

Mr. Amir Afzali
Vice President of Regulatory Affairs
Amir@aalo.com
T (443) 912-3726

Ms. Asmaa Farag
Nuclear Licensing Lead
Asmaa@aalo.com
T (505) 507-8041

3 Idaho Nuclear Project

The Idaho Nuclear Project involves deployment of a fission-based power plant. Initially, the plant will consist of one energy-generating unit comprising seven independent Aalo-1 nuclear microreactors (i.e., reactors and steam generators) operated through shared structures like the control room and secondary side electricity generating systems (e.g., turbine generator). The plant will be expandable to two energy generating units, each comprising seven independent Aalo-1 nuclear microreactors. Furthermore, the nuclear and environmental safety standards for each unit of the power plant will be based on Aalo Atomics' flagship product, a 100-MWe energy generating unit consisting of 10 independent Aalo-1 reactors, each capable of producing 10 MWe, that are operated with and connected to shared operational systems (e.g., control room) and electricity generating systems (e.g., turbine generator).

The proposed power plant will support a partner utility's goal of providing affordable, reliable, and resilient electricity to meet its current and future energy and sustainability needs. This plant is to be operational by 2029, approximately five years from the date of this REP, to support the partner utility's business needs. This section presents a brief description of the main project partners, namely the utility partner and Aalo Atomics, as well as their business objectives.

3.1 Utility Partner

The utility partner's mission has been to deliver low-cost electricity to its customers based on a mix of its own generation and purchased power. Although this resource mix has served its needs well, changes in the energy landscape are presenting the utility partner with a challenge to continue meeting its obligations, including ensuring meeting its obligations to clean energy generation. This challenge is due to unprecedented fluctuations in the energy market costs and availability due to several factors, including coal plant retirements, surrounding states' energy policy changes, and overall customer growth.

In serving its customers and community while maintaining its overall business objectives, the partner utility continually explores additional energy resources to best meet its current and future energy needs to deal with local and national demand pressures, including the following key demands:

- Growth Demand—Support of current and future economic conditions derived from scenario analyses and business modeling

- Customer Expectations Demand—Residential and industrial customers' requirements for affordable, safe, resilient, and reliable energy while fulfilling environmental responsibilities
- Environmental Responsibility Policy and Regulation Demand—National, regional, and local climate-related policies and regulations

The utility partner's exploration includes evaluating energy generating systems such as nuclear technology-based power plants to deliver affordable, reliable, and dispatchable (on demand 24/7) energy and serve as a primary, as well as a complementary, power supply during periods of high energy demand.

Recognizing that it can take decades to deploy and optimize a conventional large reactor design, the utility partner is assessing the option of deploying smaller, advanced nuclear energy generation for expediently (in less than 6 years) meeting the three key demands highlighted above. The decision to explore deploying Aalo-1 reactors is based on the following features of the Aalo-1 design:

1. Uses inherent and passive safety features, thus reducing the complexity of engineered safety systems, lowering both capital and operation and maintenance (O&M) costs, facilitating licensing, and maximizing operational flexibility
2. Leverages the existing domestic-dominant supply chain, allowing expedited commercial-scale deployment using available, proven, and mature technologies (materials, components, fabrication equipment, etc.)
3. Is simple, small, standard, and optimized for mass manufacturing in a controlled manufacturing setting, thus reducing project risks
4. Builds on a well characterized fuel form (see Section 7 for additional information) and does not depend on High-Assay Low-Enriched Uranium, ensuring prompt fuel delivery to meet project timelines

3.2 Aalo Atomics

Aalo Atomics is a venture capital-backed advanced nuclear company whose vision is to pioneer the development, manufacturing, construction, installation, and operation of cost-efficient nuclear power plants that deliver uninterrupted, carbon-free energy, empowering a future characterized by sustainable human advancement and exploration free from detrimental environmental effects. The company's overarching mission is to drive energy costs down to

below 3 cents per kilowatt-hour, accomplished through the large-scale production and implementation of its innovative sodium-cooled thermal-spectrum reactor technology.

Aalo Atomics' Aalo-1 reactor is a non-pressurized, pool-type reactor using the simple and robust safety profile of sodium-cooled reactors that aligns closely with NRC's expectation that advanced reactors will provide enhanced margins of safety and use simplified, inherent, passive, or other innovative means to accomplish their safety and security functions.[1] For example, the following are a few key features of the design:

- The choice of sodium as both primary and secondary coolant—This choice is based on (1) sodium's excellent thermal properties, allowing effective heat transfer and enabling the reactor to operate at higher temperatures with sufficient margin from its boiling point, and (2) its high chemical compatibility with austenitic stainless steel.
- Use of Uranium Zirconium Hydride (U-Zr-H) as fuel material—This fuel is recognized for its inherent safety due to a strong negative feedback coefficient of reactivity. This enhances the reactor's stability under operational fluctuations.
- Incorporation of redundant reactivity control system—The Aalo-1 core will have a redundant reactivity control system that will consider the following three operational and safety-related functions: (1) to provide a stable operating state, (2) to provide stable transitions from different operating modes (e.g., transition from at-power full operation to shutdown mode during normal operation and vice versa), and (3) to provide passive and rapid reactor shutdown capability during anticipated operational occurrences, design basis events, and beyond design basis events.
- Passive decay heat removal function—The decay heat is designed to be naturally conducted and converted to the outer vessels, where the convection of ambient air provides long-term cooling of the system.
- Redundant fission product retention barriers—The reactor design includes multiple barriers to passively prevent the release of radioactive materials into the environment during anticipated operational occurrences, design basis events, and beyond design basis events.

In addition to its safety characteristics noted above, Aalo-1 is designed to achieve high techno-economic performance. The small source term, non-pressurized reactor vessel and noncorrosive coolant allow for fewer plant systems than a conventional plant requires. The high

[1] Policy Statement on the Regulation of Advanced Reactors, 73 Federal Register 60612 (November 2008), https://www.nrc.gov/reading-rm/doc-collections/commission/policy/73fr60612.pdf.

core power density, the use of Low Enriched Uranium Plus (LEU+) fuel, and high fuel burnup enable a compact core and high fuel efficiency.

The design simplicity together with the strategy to fuel on site are fully leveraged for optimal manufacturability in a factory setting with minimal regulatory requirements during fabrication and transportation. These in turn facilitate rapid deployment and systemic cost reductions by riding down the learning curve through repetitive manufacturing and limited transportation constraints.

The Aalo Atomics core nuclear technology and experience stem from the System for Nuclear Auxiliary Power SNAP10A program and Idaho National Laboratory's MARVEL reactor. SNAP10A was the only fission reactor sent into orbit by the United States due to its ability to deliver the highest power by the smallest payload. Conversely, MARVEL is a terrestrial design of the SNAP10A and will be the first advanced reactor to go online in the U.S. in 50 years. It is currently under construction at the Idaho National Laboratory. Aalo Atomics is designing a scaled-up version of the SNAP10A and MARVEL nuclear technology, focused on delivering the most economical advanced nuclear microreactor solution while adhering to the high safety and regulatory standards expected by NRC for public and environmental protection. Through its flagship project, the Aalo-1 reactor, the company is laying the groundwork for its innovative mass-production and deployment model.

Aalo Atomics is customizing its power plant design and configuration. The flagship of its product is a 100-MWe energy generating unit which includes 10 independent Aalo-1 reactors, each capable of producing 10 MWe, operated and connected to a set of shared operational (e.g., control room) and electricity generating systems (e.g., turbine generator). Additionally, the company plans to offer smaller power plant designs in five-module (50 MWe) and one-module (10 MWe) formats. This scalable, multi-module feature of Aalo Atomics' plant configuration positions it as an ideal choice to meet the diverse requirements of both current and future clients because it caters to a range of needs, from larger to medium-sized utilities, to specific deployment scenarios, such as those in isolated locations or in support of Department of Defense requirements.

It is important to emphasize that this REP pertains to a plant comprising seven Aalo-1 reactors, with its nuclear and environmental safety considerations aligning with the standards set for the Aalo Atomics ten-module configuration.

In summary, Aalo Atomics' technical strategy focuses on innovative reactor design and operational efficiency while achieving compelling economics. It prioritizes compliance with the highest safety standards and aims to lead the next generation of nuclear power technology.

4 Purpose of, and Basis for, Idaho Nuclear Project Licensing Strategy

The main objective of the licensing strategy is to minimize capital and O&M costs while:

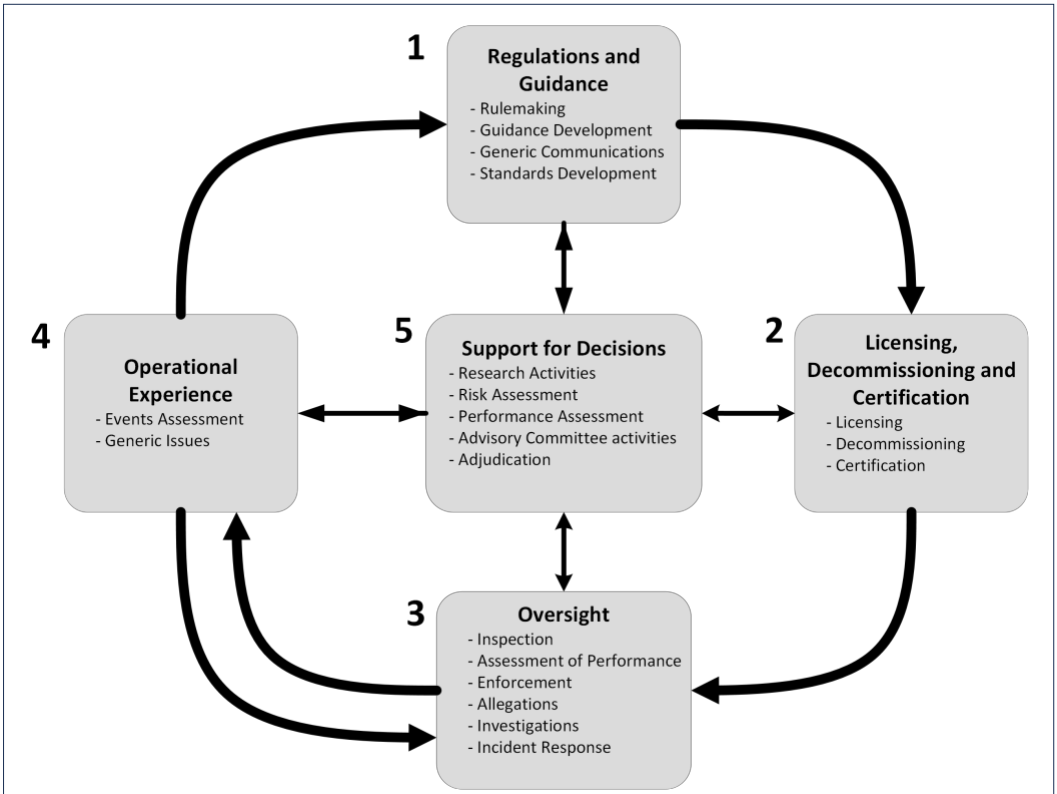
- Meeting the intent of all applicable regulatory requirements
- Minimizing the need for exemptions from 10 CFR Part 50 and Part 52 requirements while positioning the plant to have a licensing basis that can be easily modified to meet a future fully risk-informed and performance-based (RIPB) regulatory framework
- Maximizing flexibility and predictability during the design, construction, and operation of the power plant

Meeting this broad objective is essential for establishing a predictable and flexible regulatory environment during the plant's life cycle that will successfully meet the power plant project's objectives outlined in Section 3. Some of the same elements of the strategy will also enable expedited commercial-scale deployment of the design at other sites, which further enhances the benefits to the Idaho Nuclear Project by increasing the market size for the supply chain, resulting in additional cost reductions.

The Idaho Nuclear Project team recognizes that the commercial viability of the plant, like other plants, and especially those based on microreactor technology, depends on several factors, which include the following regulatory requirements-influenced Key Commercial Viability Factors (KCVFs):

1. Low Initial Capital Costs—The initial capital costs for the plant's licensing, manufacturing, and construction can enable compelling economics compared to other energy sources and lower project financing needs.
2. Low Operational Costs—This includes the O&M costs associated with running and maintaining reactors, such as fuel, staffing, maintenance, and modification costs (capital and O&M) due to voluntary or regulatory required upgrades.

These KCVFs, in turn, are impacted by how the plant's licensing basis—the initial one and subsequent updates—ensures full compliance with the regulatory requirements during the plant life cycle while minimizing unnecessary burden. A plant's life cycle regulatory requirements, in turn, are governed by the five constituents of the overall NRC regulatory framework, depicted in Figure 1.



1. *Developing regulations and guidance for applicants and licensees.*
2. *Licensing or certifying applicants to use nuclear materials, operate nuclear facilities, and decommission facilities.*
3. *Inspecting and assessing licensee operations and facilities to ensure licensees comply with NRC requirements, responding to incidents, investigating allegations of wrongdoing, and taking appropriate followup or enforcement actions when necessary.*
4. *Evaluating operational experience of licensed facilities and activities.*
5. *Conducting research, holding hearings, and obtaining independent reviews to support regulatory decisions.*

Figure 1. Components of the NRC Regulatory Framework[2]

Specifically, the regulatory framework impacts KCVFs through the following two cost contributors:

1. NRC Fees Cost Contributor—The NRC fees associated with complying with the regulatory framework are borne by applicants and licensees. These fees can be specific charges for particular services or actions (reviewing an application, conducting inspections, etc.) or general costs covering broader NRC activities (e.g., evaluating operational experiences). The schedule of NRC fees can be found in 10 CFR Part 170.

[2] How we regulate | NRC.gov

2. Owner/Operator/Developer Engagement Cost Contributor—Owners, operators, and developers incur expenses related to product development activities (design development cost influenced by the design complexity; Structures, Systems, and Components cost; application preparation cost; plant construction cost; etc.) and engagement with NRC (participating in application reviews, facilitating inspections, managing the aftermath of operational experiences, etc.).

Therefore, to meet its main objective, the Idaho Nuclear Project's licensing strategy, to the extent allowed by the budget and schedule, will proactively address these two major contributors to the KCVFs.

5 Purpose of, and Basis for, the Regulatory Engagement Plan

The objective of this REP is to create a well-defined framework that will support a productive relationship between the Idaho Nuclear Project team and NRC project management and technical staff during both pre- and post-application phases. This relationship is critical for the effective execution of the licensing strategy for the power plant as outlined in Section 4, as well as for the timely submission of relevant materials discussed in Section 7.

To achieve the above-stated purpose of the REP, the following key considerations are used in its formulation:

- **Ensuring Full Alignment on Regulatory Expectations**—This plan, from its current revision to future iterations, aims to ensure that the Idaho Nuclear Project team has thoroughly briefed NRC on its comprehension of regulatory obligations and approach to ensuring that its licensing-related submissions align with these obligations.
- **Building Trust and Transparency**—Establishing transparent and open communication channels with NRC to cultivate trust and credibility by defining communication protocols, roles, and expectations will facilitate cooperative, timely, and transparent discussions on crucial matters.
- **Early Communication of Regulatory Risk Reduction Plans**—Providing NRC with a comprehensive understanding of the technical basis for the project team's unique approaches and proactive initiatives for inclusion in its baseline license allows ample time to address potential NRC inquiries and issues. Furthermore, maintaining a clear framework with ongoing transparent interactions ensures that regulatory concerns are dealt with promptly and systematically, minimizing disruptions to the licensing, construction, and operation of the Idaho Nuclear Project.
- **Supporting Project Risk Management and Governance**—This REP objective includes helping the Idaho Nuclear Project team effectively navigate regulatory requirements by being aware of NRC's questions. It also includes upholding good governance practice over the project (including taking on some financial risk of redo to prevent lengthy work stoppage) by aligning regulatory activities with the overall business objectives.

6 General Guidelines

To successfully execute the licensing strategy and meet the REP objective, the Idaho Nuclear Project team will adhere to the general guidelines listed below. These guidelines are developed based on experiences in licensing, construction, and operation of nuclear power plants in the U.S. and globally and the lessons learned from recent successful DOE authorization efforts. These experiences have underscored the critical importance of having an approach that balances the burden and responsibilities of the applicant/licensee and NRC. The guidelines are as follows:

1. **Clarity and Transparency**—The project will communicate clearly and transparently how it intends to meet regulatory requirements, expectations, and processes. This approach will include issuance of this REP, holding meetings, and submitting white papers and topical reports (on an as-needed basis).
2. **Proportionality**—The project will propose licensing paths that ensure regulatory requirements are proportionate to the risks (public and environmental) posed by its activities by suggesting licensing and NRC oversight processes that meet the intent of the regulatory processes to address the specific risks involved while minimizing NRC fees and the project engagement costs, including the overall time to deployment.
3. **Efficiency and Timeliness**—The project will propose licensing approaches and pathways that strive to be efficient and timely because delays in regulatory processes can impose burdens on the project, leading to increased costs and operational challenges and impacting the affordability of the energy produced for the customer.
4. **Collaboration and Engagement**—This element will be executed with the full understating and recognition of the required NRC's independence while maximizing the use of the lessons learned from the collaborative yet independent characteristics of the DOE authorization process. For example, the project will engage in open dialogue and collaboration during its design development and deployment activities to effectively address regulatory issues. The execution of this element will include enabling active involvement of key NRC staff during design development to ensure the staff is thoroughly familiar with the design and the underlying basis for the design decisions to balance regulatory safety requirements with the operational needs of the plant (i.e., graded and avoiding undue burden).

7 Idaho Nuclear Project Deployment Strategy and Supporting Licensing Submittals

As stated in Section 2, the Idaho Nuclear Project is planned to be in operation by 2029 to meet current and future electricity needs of the utility partner. This is a relatively short design-to-deployment timeline of a plant utilizing advanced nuclear technology and design. Therefore, the Idaho Nuclear Project team is developing a meticulous and detailed plan for efficient and effective execution of the project, as well as innovative fabrication, construction, licensing, and permitting approaches. This section of the REP briefly discusses the deployment strategy to provide a context for the licensing approach and timeline and the planned submittals to NRC.

The Idaho Nuclear Project deployment strategy includes developing the design (the integrated reactor, steam generator design, and turbine design), establishing equipment qualification and testing protocols/processes, procurement, operating program development, fuel development and supply, construction, startup, and commissioning. To allow effective execution of these activities in a timeline that supports the targeted 2029 operational date, a number of these activities must be performed in parallel, including those that relate to obtaining a COL (e.g., activities associated with establishing site and reactor safety cases). The project team's strategy to meet both its licensing obligations and deployment timeline includes:

- Completing the plant design, including the design of the Aalo-1 reactor and the plant and site safety cases by December of 2025.
- Submitting a COLA for the Idaho Nuclear Project by June 2026 with the target date of June 2028 for receiving the full approval for starting operation. The COLA will be prepared based on the site characteristics and a bounding reactor safety case based on deploying seven Aalo-1 reactors. The COLA will be prepared by:
    - Developing and documenting the plant safety case using applicable RIPB regulatory guides, including NUREG 1.233 and RG 1.253.
    - Submitting an Environmental Assessment report for the proposed plant that follows the design parameters of the Aalo Atomics 10-module power plant, as it is anticipated that the project will not result in any significant adverse effects on the quality of the human environment.
    - Including a 10 CFR Part 50.59-like process for dealing with the potential changes during construction as part of the initial license. The lessons learned from the Plant Vogtle Units 3 and 4 project clearly show the importance of having a predictable and reliable process for managing changes during construction but before initial fueling that have the potential to significantly impact the capital cost without any impact on

the safety of the ultimate power plant. This process will build on the guidance provided in RG 1.237, "Guidance for Changes During Construction for New Nuclear Power Plants Being Constructed Under a Combined License Referencing a Certified Design Under 10 CFR PART 52" to increase flexibility of change management and reduce unnecessary burden on NRC staff and the project.

- Including as many RIPB operational programs as possible. These include but are not limited to the following:
  - RIPB technical specifications
  - RIPB surveillance frequency control program
  - RIPB Inservice Inspection
  - RIPB fire protection program
  - RIPB Structures, Systems, and Components categorization

  It is noted that, as far as the advanced non-LWRs are concerned, there is a lack of guidance in developing many of the RIPB programs available to light water reactors. However, operating experience indicates that deployment of such programs will positively impact the provision of reasonable assurance of adequate protection while realizing the commercial viability promise. Therefore, all attempts will be made to develop such operational owner-controlled RIPB programs.
- Demonstrating the rationale behind why the established fuel qualification criteria specific to TRIGA class reactors directly apply to and hold relevance for the Aalo-1 reactor. This involves highlighting the similarities and key parameters shared between TRIGA reactor fuel and the fuel utilized in the Aalo-1 reactor, affirming the transferability and appropriateness of the qualification standards across these reactor types.
- Establishing an operational program that addresses the operating experience element of the regulatory framework. This program will be an extension of the configuration control of the baseline safety case and licensing basis since the configuration control of the NUREG 1.233 safety case will require evaluating the operating experience on the baseline design and licensing basis. This inclusion will be used as part of the justification for the NRC fee reduction for the power plant because the objective of the fourth component of the regulatory framework will be met by this program.
- Considering the design and operation characteristics of seven Aalo-1 reactors for the following:

- The site safety case includes geological stability, proximity to population centers, seismic activity, and meteorological conditions.
- An Environmental Assessment will evaluate the potential impacts of the plant on the surrounding environment, including ecosystems, air quality, water resources, and public health.
- Emergency Preparedness will include the development of emergency response plans and evacuation procedures for accidents or natural disasters.

- Starting activities for fabricating the main structures of Aalo-1 reactors in the factory soon after January 2026. These structures will be completed on site by June of 2028 to be fully functional as a utilization facility, including being fueled on site. Firm technical and, if needed, legal justification will be provided to demonstrate that NRC oversight of the fabrication activities, using the same NRC protocol used for fabricating the reactor vessel internally for the current light water reactors, is adequate for fabricating the main structures of the reactors in the factory without the need for a manufacturing license. This justification will be based on the fact that the factory-manufactured component will not meet the following 10 CFR Part 50.2 "Definitions"[3] [emphasis added]:

  1. "Utilization facility means: …*Any nuclear reactor* other than one designed or used primarily for the formation of plutonium or U–233…"
  2. "Nuclear reactor means *an apparatus*, other than an atomic weapon, *designed or used to sustain* ***nuclear fission in a self-supporting chain reaction***."

  The justification will be shared with NRC during meetings with NRC staff/management, the submission of a white paper or topical report, and/or working on an industry effort on the subject.

Finally, the COLA submittal will be preceded or complemented by submittal of one or more topical reports. The objective of these topical reports include:

1. Gaining NRC staff approval of a particular topic that is crucial to the execution of the deployment strategy outlined above—Currently, the Quality Assurance Plan topical report is one of the reports that fit this category. Additionally, a topical report to provide the technical and legal basis for not requiring a manufacturing license to start Aalo-1 fabrication activities may be submitted. These topical reports will be submitted prior to submittal of the COLA.

[3] https://www.nrc.gov/reading-rm/doc-collections/cfr/part050/part050-0002.html

2. Protecting proprietary data or Idaho Nuclear Project safeguards information—In some cases where the information is not suitable for inclusion in the application itself, the appropriate topical reports will be submitted in parallel with the COLA.

It should be noted, as a result of engagement with NRC staff, development and submittal of additional documents may be needed.

7.1 Engagement Plans

This subsection of the REP lists proposed meetings and topical report submittals. Adjustments in timing and scope are expected as the project proceeds and deployment plans and licensing strategy evolve. However, the list in this revision of the REP has been kept minimal.

7.1.1 Quality Assurance

Aalo Atomics will submit the Quality Assurance Program (QAP) description as a topical report by August 2024 for NRC staff review and approval. This QAP complies with 10 CFR 50 Appendix B, 10 CFR Part 21, ASME NQA-1-2022, and RG 1.28, Revision 6 for all nuclear safety-related work (nuclear reactor projects) and in a manner graded with all other Aalo Atomics work when applicable.

7.1.2 Applicability of Regulations

Current deployment locations, construction, and operational framework opportunities afforded by the Aalo-1 microreactor features will be used to perform an analysis to identify regulatory requirements applicable to the Idaho Nuclear Project. This regulatory review considers the relevant NRC requirements in 10 CFR and identifies the regulations that apply to the power plant and its Aalo-1 reactor, those that do not apply, and those that require an exemption from the regulations.

Since a topical report submission is not currently envisioned for this activity, the project team plans to hold several meetings with NRC staff to share its conclusions of the assessment.

Initial Meeting and Presentation	October 2024

7.1.3 Aalo-1 Design

This pre-application interaction will include initially providing an overview of the Aalo-1 plant design to describe innovative features and related research and development activities. A

number of subsequent meetings are envisioned to provide more details about the overall design and specific features of the design.

Initial Meeting and Presentation	November 2024

7.1.4 Safeguards Information Plan

This pre-application submittal reviews the plan for protecting safeguards information (SGI). NRC review and approval of the plan will enable NRC staff to provide SGI as necessary for the Aalo-1 reactor to consider safeguards and security in the facility's design and the physical security program.

Presentation	December 2024
Plan Submittal	February 2025

7.1.5 Other Potential Meetings, White Papers, and Topical Reports

Other potential meetings, white papers, and topical reports include:

- Engineering Computer Codes for the Aalo-1 Reactor
- RIPB Change Evaluation During On-Site Construction
- RIPB Operational Programs
- Consensus Codes and Standards
- Testing Plan and Methodology
- Emergency Preparedness Methodology
- Reactivity Control Methodology, Including Inherent Idaho Nuclear Project Shutdown Capability
- Justification of Aalo-1 Fuel Being Qualified, Including Fuel Performance Methodology
- Mechanistic Source Term and Consequence Methodology
- Initial Thermal Hydraulic Model
- Plant Control and Data Acquisition System
- Training Programs, Control Room Operator Qualification and Eligibility
- Seismic Design Analysis
- Concept of Operation Including Staffing Requirements