

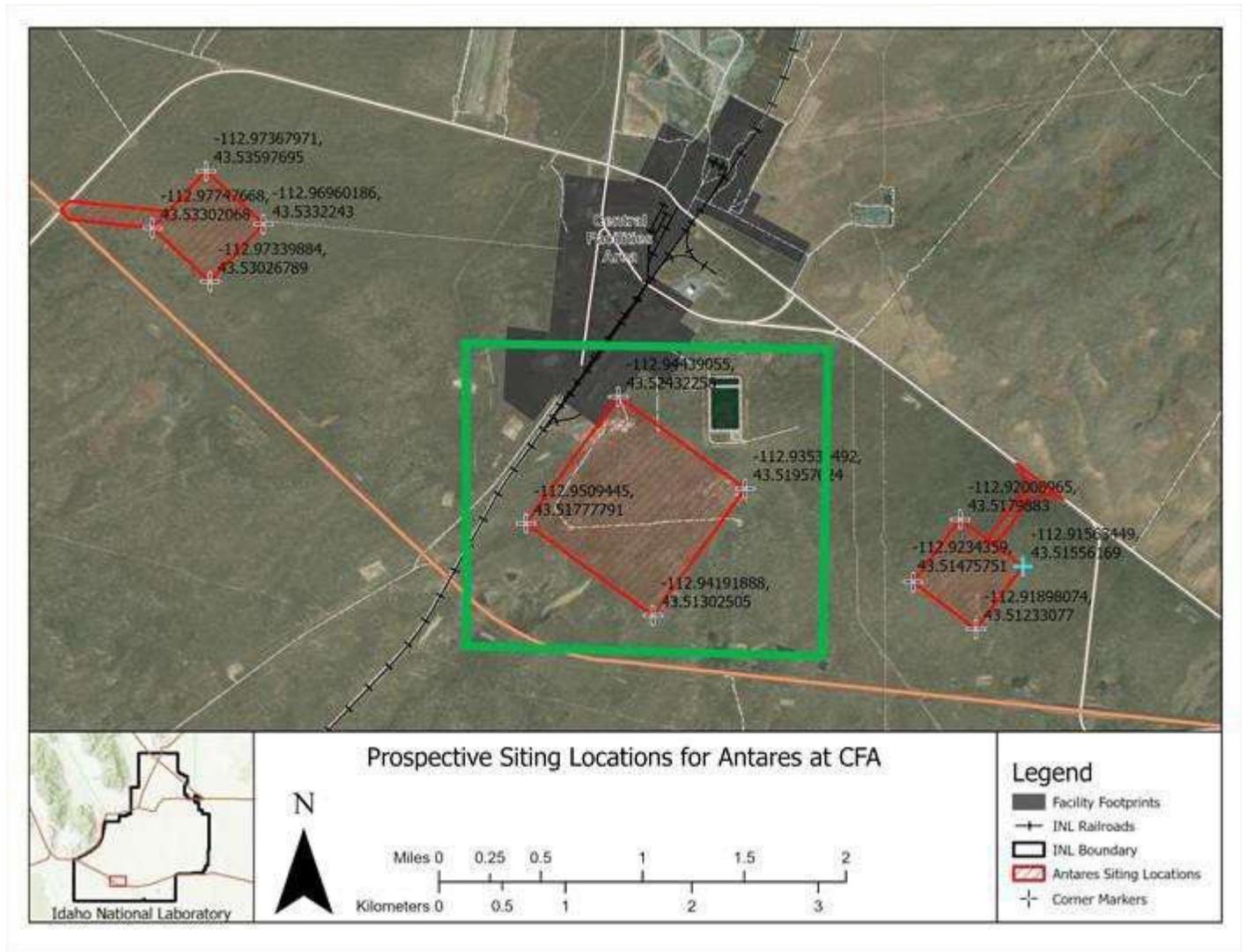
Project Title: ANTARES Commercial Reactor Site Characterization and Pre-Construction Planning R2

Project Description and Purpose:

Revision 2:

This revision includes three new proposed locations at the Central Facilities Area (CFA) for the potential future deployment of the Antares R1 Microreactor at the Idaho National Laboratory (INL). The scope has not changed, only the proposed locations.

Figure 1, Rev. 2 - Three proposed locations at CFA



Revision 1:

This Environmental Compliance Permit (ECP) covers planning and site characterization activities to support the potential future deployment of the Antares R1 Micro reactor at the Idaho National Laboratory (INL). The R1 reactor is a rapidly deployable microreactor created with critical infrastructure resilience in mind and is intended to operate in remote and challenging environments.

Activities included in this scope are limited to technical analysis, engineering support, and field investigations necessary to inform design and siting decisions.

Covered activities include:

- Technical support and analysis related to:
 - Reactor and facility siting

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- Design and selection of materials for nuclear system applications.
- Fuel fabrication and support with nuclear fuel vendors.
- Development of the Antares facility safety analyses
- Design and facilities for irradiation testing of novel reactor systems required for regulatory licensing.
- Design and development of the Antares facility and reactor experiment(s).
- Modeling and simulation of advanced nuclear systems using the High Performance Computing resources maintained by INL.
- Site characterization, including:
 - Geotechnical drilling to evaluate subsurface conditions
 - Cultural, historical, and biological resource surveys
 - Surface clearing and grubbing to facilitate access for drilling and surveys
 - Identification and evaluation of access routes
- Development of construction specification(s) for construction activities and operations plans.

Under the proposed action, field activities will occur within previously defined candidate siting areas. The anticipated disturbance footprint is approximately 3 acres (see figures 1 & 2). Siting areas were developed to be larger than needed to ensure flexibility.

No construction or operation of the reactor is included in the scope of this ECP. Any activities that are not addressed in this ECP, including those associated with reactor construction, commissioning, operation, or D&D will require separate NEPA review.

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Figure 1, Rev. 1 - West CFA Siting Location

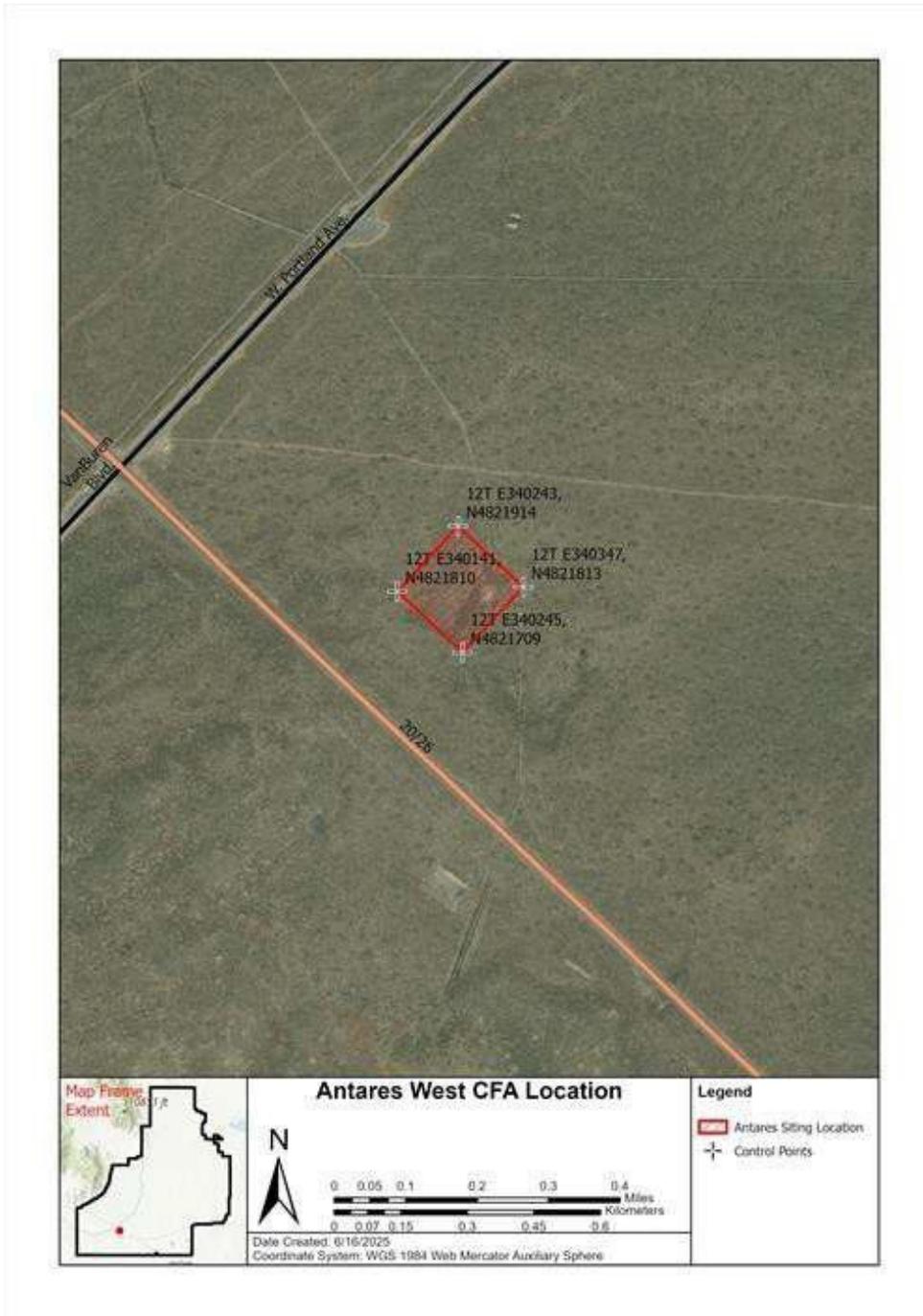
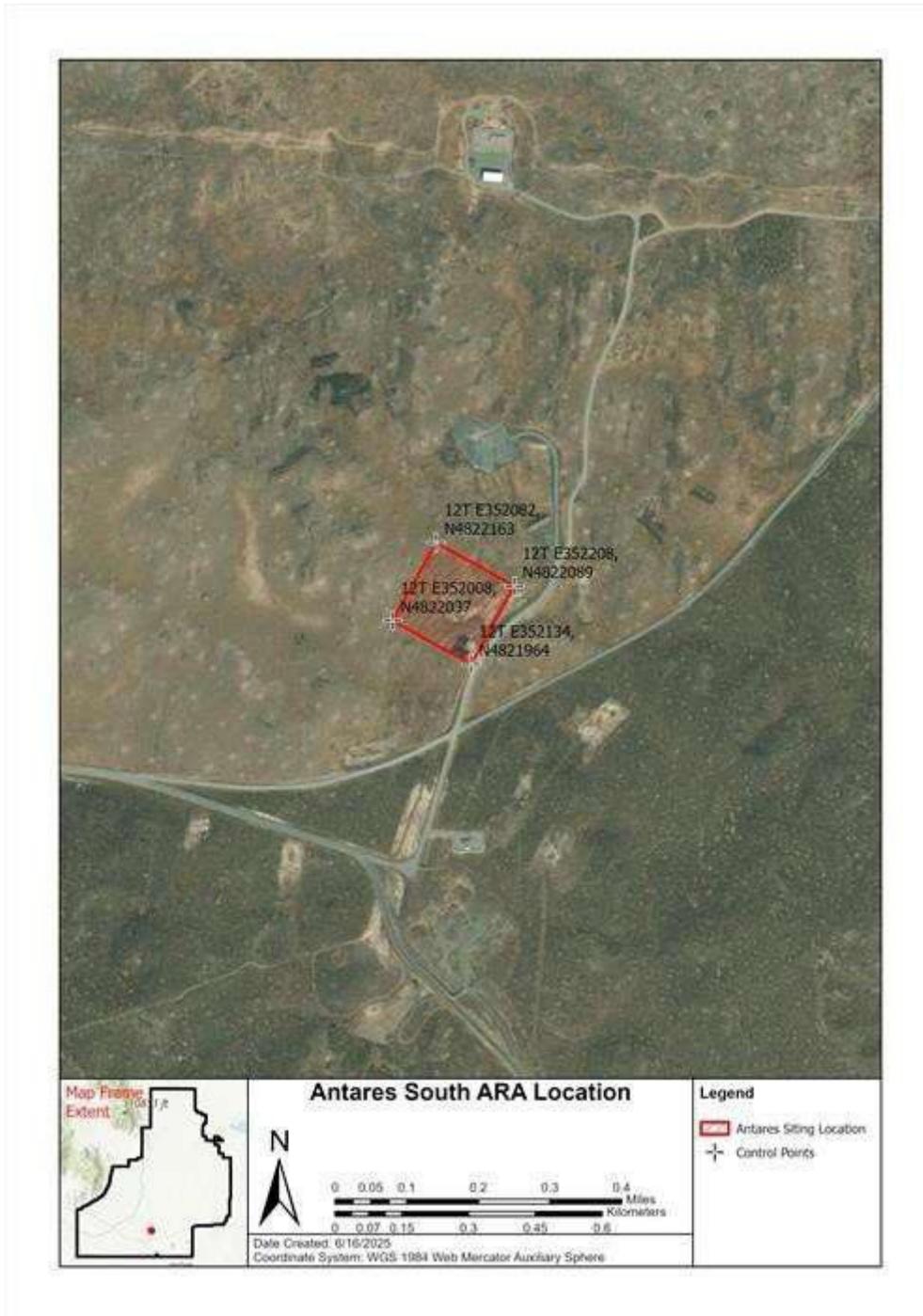


Figure 2, Rev. 1 -South ARA Siting Location



Original ECP:

The purpose of this Umbrella is to provide a platform for public-private partnership. There is no funding associated with this Umbrella. This Environmental Compliance Permit (ECP) is for the broad scope of the Umbrella. Each Project Task Statement (PTS) will require a separate environmental review to assess the environmental impacts to ensure the PTS is within the Umbrella scope. If the PTS scope is outside of the original Umbrella ECP, a revision to the ECP will be required.

This project will be conducted in EROB. No waste is expected to be generated as part of this project.

Environmental Aspects or Potential Sources of Impact:

Air Emissions

Rev 0-2: Field activities have the potential to generate fugitive dust.

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Discharging to Surface-, Storm-, or Ground Water

NA

Disturbing Cultural or Biological Resources

Rev 0-2: There is the potential for this work to impact vegetation and for project personnel to interact with various wildlife species. A Biological Resource Review will be arranged within two weeks prior to the initiation of any activities that might disturb soil or vegetation and again following completion of project activities. A nesting bird survey is included with the Biological Resource Review for actions occurring between April 1 - October 1 per compliance with the Migratory Bird Treaty Act. Bat surveys are also included with the Biological Resource Review in accordance with the INL Bat Protection Plan.

Cultural: Project-specific and project-revision specific Section 106 reviews were completed under CRMO project numbers BEA-25-064 R1 and BEA-25-064R2. Please refer to Holds Points within the ECP.

Generating and Managing Waste

When wastes are generated, how they are disposed can adversely affect the environment. Managing wastes appropriately and responsibly and implementing recycling or reuse practices, where feasible, during project activities can reduce the potential impact on the environment.

Releasing Contaminants

When chemicals are used during the project there is the potential for spills that could impact the environment (air, water, soil).

Using, Reusing, and Conserving Natural Resources

Project activities have the opportunity to reduce the impact on our natural resources by recycling or diverting materials from disposal in the landfill.

Determination

For Categorical Exclusions (CXs), the proposed action must not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environmental, safety, and health, or similar requirements of Department of Energy (DOE) or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment or facilities; (3) disturb hazardous substances, pollutants, contaminants, or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources (see 10 CFR 1021); (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Appendix B. The proposal has not been segmented to meet the definition of a categorical exclusion. Segmentation can occur when a proposal is broken down into small parts in order to avoid the appearance of significance of the total action. However, segmentation does not include proposals that are developed and potentially implemented over multiple phases where each phase results in a decision whether to proceed to the subsequent phase. There is no extraordinary circumstance related to the proposal that is likely to cause a reasonably foreseeable significant adverse effect or for which DOE does not know the environmental effect. Extraordinary circumstances are unique situations presented by specific proposals, including, but not limited to, scientific controversy about the environmental effects of the proposal; uncertain effects or effects involving unique or unknown risks; and unresolved conflicts concerning alternative uses of available resources.

References: B3.1 "Site characterization and environmental monitoring"

Justification: For the DOE procedures regarding categorical exclusions, including the full text of each categorical exclusion, see 10 CFR 1021.102 and Appendix B to 10 CFR Part 1021, and also Section 5.4 (Applying one or more categorical exclusions to a proposal) and Appendices B and C of DOE's National Environmental Policy Act Implementing Procedures (June 30, 2025). Requirements and guidance in 10 CFR 1021.102 and DOE's National Environmental Policy Act Implementing Procedures: (See full text in regulation and in Implementing Procedures).

The proposal fits within a class of actions that is listed in Appendix B to 10 CFR Part 1021 or Appendix B and C of DOE's NEPA Implementing Procedures (June 30, 2025). To fit within the classes of actions listed in Appendix B to 10 CFR Part 1021, or Appendix B of DOE's NEPA Implementing Procedures, a proposal must satisfy the conditions that are integral elements of the classes of actions in Appendix B of both 10 CFR Part 1021 and DOE's NEPA Implementing Procedures.

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There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal. DOE or an applicant may modify the proposal to avoid reasonably foreseeable adverse significant effects such that the categorical exclusion would apply.

The proposal has not been segmented to meet the definition of a categorical exclusion.

[Note: For proposals that fit within the categorical exclusions listed in Appendix C of DOE's NEPA Implementing Procedures, see DOE's notice of adoption for the subject Appendix C categorical exclusion for additional considerations. DOE notices of adoption for other agency categorical exclusions may be found on DOE's Section 109 webpage.]

B3.1 Site characterization and environmental monitoring. Site characterization and environmental monitoring (including, but not limited to, siting, construction, modification, operation, and dismantlement and removal or otherwise proper closure (such as of a well) of characterization and monitoring devices, and siting, construction, and associated operation of a small-scale laboratory building or renovation of a room in an existing building for sample analysis). Such activities would be designed in conformance with applicable requirements and use best management practices to limit the potential effects of any resultant ground disturbance. Covered activities include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. (This class of actions excludes activities in aquatic environments. See B3.16 of this appendix for such activities.) Specific activities include, but are not limited to: Geological, geophysical (such as gravity, magnetic, electrical, seismic, radar, and temperature gradient), geochemical, and engineering surveys and mapping, and the establishment of survey marks. Seismic techniques would not include large-scale reflection or refraction testing; Installation and operation of field instruments (such as stream-gauging stations or flow-measuring devices, telemetry systems, geochemical monitoring tools, and geophysical exploration tools); Drilling of wells for sampling or monitoring of groundwater or the vadose (unsaturated) zone, well logging, and installation of water-level recording devices in wells; Aquifer and underground reservoir response testing; Installation and operation of ambient air monitoring equipment; Sampling and characterization of water, soil, rock, or contaminants (such as drilling using truck- or mobile-scale equipment, and modification, use, and plugging of boreholes); Sampling and characterization of water effluents, air emissions, or solid waste streams; Installation and operation of meteorological towers and associated activities (such as assessment of potential wind energy resources); Sampling of flora or fauna; and Archeological, historic, and cultural resource identification in compliance with 36 CFR part 800 and 43 CFR part 7.

Approved by Jason L Anderson, DOE-ID NEPA Compliance Officer on: 8/21/2025