



U.S. Department of Energy
Office of Nuclear Energy
National Environmental Policy Act
Determination

NEPA Identification: DOE-ID-INL-26-018

Proposed Action Title: Oklo Aurora-INL

Location(s) (City/County/State):

Proposed Action Description:

Oklo Inc. (hereinafter “Sponsor” or “Oklo”) proposes the Aurora-INL project at the Idaho National Laboratory (INL) involving the construction, installation, configuration, and operation of a pool-type sodium fast reactor and associated support systems within a DOE-controlled site. Reactor activities include receipt of high-assay low-enriched uranium (HALEU) fuel, radiological survey, nuclear material control and accountability (NMC&A) processing, fuel handling, interim storage, core loading, reactivity control system testing, instrumentation validation, reactor startup, and routine operation to support heat and electricity generation and collection of operational and fuel performance data. The Aurora reactor is a metal-fueled, sodium-cooled fast reactor operating at near-ambient pressure and elevated temperatures, with inherent reactivity feedback characteristics and passive safety features. Thermal energy generated by the reactor is transferred through a sodium coolant system and converted to electricity using a conventional power conversion system with air-cooled condensers.

Operational Parameters:

This section provides a summary of the anticipated components and activities associated with the implementation of the Aurora-INL project. The project is expected to include a range of design and operational elements that support its technical, safety, and environmental objectives. These elements are described to offer a clear understanding of the project’s scope, including expected emissions, waste streams, and other relevant considerations associated with construction and operation of the Aurora advanced nuclear reactor.

Location:

The Aurora-INL project will be constructed and operated within the INL Site in Bingham County, Idaho, approximately 3 miles south of the Materials and Fuels Complex (MFC). The facility will be located within an established DOE-controlled footprint of approximately 40 acres and consists of a reactor building, operations building, and other support facilities including associated foundations, utilities, and support systems required for reactor operation.

The site is located within an existing developed area accessible via established INL roadways, including Taylor Blvd, and will utilize existing or extended site infrastructure. The Aurora-INL facility will be constructed within the defined site boundary and will not require expansion beyond the designated project footprint.

Fuel:

Completed fuel assemblies consist of arrays of hermetically sealed cladding tubes with sodium-bonded fuel and will be transported from Aurora Fuel Fabrication Facility (A3F) to the Aurora-INL project via Taylor Blvd. Fresh fuel assemblies will be shipped in a new container compliant with SAR-413, Safety Analysis Report for Intra-INL Transportation and MFC Inter-Facility Transfers.

Sodium:

Sodium receipt, temporary staging, transfer, system filling, operation, draining, and shipment activities are included only within the bounds of the approved Sodium Shipment/Handling Plan and applicable INL procedures. Sodium will be managed in engineered systems with controls for incompatible materials, spill prevention and containment, fire response, and sodium-contaminated waste characterization. Sodium-contaminated wastes, if generated, will be characterized and managed as hazardous, mixed, radioactive, or industrial waste, as applicable.

Safety and Accident-Analysis Basis:

The Aurora-INL project attributes supporting DOE’s B5.26 determination are summarized in the table below. The project is supported by design and accident analyses documented in the Preliminary Documented Safety Analysis, including a maximum hypothetical accident analysis that conservatively evaluates potential offsite radiological consequences at 100 meters, corresponding to the Aurora-INL site boundary, exclusion area boundary, emergency planning zone boundary, and low population zone boundary.



**U.S. Department of Energy
Office of Nuclear Energy
National Environmental Policy Act
Determination**

NEPA Identification: DOE-ID-INL-26-018

Operational Timeline:

Phase One: Construction and Installation, July 2026-February 2028

Phase Two: Initial Startup and Commissioning, February 2028-

November 2028 Phase Three: Operational Phase, Nov 2028-

November 2033

The table below summarizes the key parameters and characteristics of the anticipated project. These parameters reflect the expected operational envelope for the Aurora-INL facility and serve as a reference for understanding the scale and nature of project activities. Should project activities evolve beyond these expectations, additional review under NEPA may be required to ensure continued compliance with applicable environmental regulations.

Parameter	Definition	Bounding Condition
Thermal Output	Maximum thermal power generated by the reactor	Up to 234 megawatts thermal (MWth); initial operation approximately 147 MWth
Electrical Output	Estimate of maximum electric generator output from the reactor	Up to 75 megawatts electric (MWe); initial operation approximately 45 MWe
Fuel Type	Reactor fuel type	High-assay low-enriched uranium (HALEU) metal fuel
Fuel Enrichment	Extent to which fuel has been enriched	< 20% U-235
Fuel Form	Physical configuration of fuel	Metal fuel alloyed with zirconium
Fuel Inventory	Total fuel quantity authorized under this scope	Initial core derived from 5,000 kgU recovered EBR-II material; approximately 5,000 kgU used annually during operation



**U.S. Department of Energy
Office of Nuclear Energy
National Environmental Policy Act
Determination**

NEPA Identification: DOE-ID-INL-26-018

Shipping Configuration	Fuel transportation and storage configuration	SAR-413 compliant INL containers
Commissioning Time	Maximum time to complete installation and readiness testing	Approximately 10 months
Operational Time	Maximum duration of reactor operation	Multi-year operation with onsite used fuel storage capacity supporting at least 10 years of operation

Heat Transfer Medium	Mechanism for removal of reactor heat	Liquid sodium primary system with steam Rankine cycle
Heat Sink	Medium used to dissipate reactor heat	Air-cooled condensers
Water Consumption	Process or operational water use	Approximately 15 gallons per minute for operational and sanitary use
Liquid Effluent	Routine discharge of liquid waste streams	No routine process liquid effluent
Radiological Air Emissions	Projected airborne radionuclide releases	Bounded by design and accident analysis demonstrating minimal offsite dose consequences.
Waste Generation	Anticipated operational waste streams	Low-level radioactive waste, mixed waste, and nonradiological industrial waste managed through established processes and offsite disposal pathways



U.S. Department of Energy
Office of Nuclear Energy
National Environmental Policy Act
Determination

NEPA Identification: DOE-ID-INL-26-018

Reactor Design Attributes	Design features relevant to B5.26 offsite-consequence determination	Pool-type sodium fast reactor using HALEU uranium-zirconium metal fuel, near-ambient-pressure operation, inherent reactivity feedback, passive safety features, sodium heat transfer, and air-cooled heat rejection.
Fuel Inventory / Fission Product Basis	Fuel inventory and source-term basis relevant to accident analysis	Initial core fabricated from recovered EBR-II HALEU; fission-product release consequences are bounded by the PDSA maximum hypothetical accident analysis.
Accident Analysis Basis	Bounding radiological accident analysis used for B5.26 support	PDSA maximum hypothetical accident analysis; conservative hypothetical analysis of potential fission-product release consequences at 100 meters, corresponding to the site boundary, EAB, EPZ boundary, and LPZ boundary.
MHA Offsite Dose Results	Dose results compared to applicable criteria	Worst 2-hour EAB dose: 0.023 rem Total Effective Dose Equivalent vs. 25 rem criterion; first 96-hour EPZ dose: 0.884 rem Total Effective Dose Equivalent vs. 1 rem criterion; first 30-day LPZ dose: 6.763 rem Total Effective Dose Equivalent vs. 25 rem criterion.



U.S. Department of Energy
Office of Nuclear Energy
National Environmental Policy Act
Determination

NEPA Identification: DOE-ID-INL-26-018

Radiological Air Emissions	Routine airborne radionuclide releases	Routine radionuclide emissions bounded to ≤10 mrem/year EDE to the maximally exposed individual at the INL site boundary; accident consequences addressed in MHA rows above.
Sodium / Hazardous Material Controls	Sodium inventory and chemical-hazard controls	Sodium receipt, temporary staging, transfer, system filling, operation, draining, and shipment conducted under the Sodium Shipment/Handling Plan and applicable INL procedures, with controls for incompatible materials, spill prevention/containment, fire response, and sodium-contaminated waste characterization.
Operational Safety Programs	Operational controls reducing release likelihood and consequence	Fuel receipt, radiological survey, NMC&A processing, fuel handling, interim storage, core loading, reactivity-control testing, startup, operation, radiation protection, effluent monitoring, emergency preparedness, and waste-management programs implemented under approved procedures.

Utilities:

Water required for construction activities will be supplied via trucked deliveries from an existing hydrant at MFC. All utility connections will support normal operations, including personnel use, facility services, and limited process needs associated with reactor operation.

The Aurora reactor design requires minimal water use during normal operations and does not rely on large volumes of process water for cooling, given it utilizes air-cooled condensers for heat rejection. Wastewater generation is expected to be limited and managed in accordance with applicable INL systems and regulatory requirements.

Electrical power required for facility operation will be temporarily supplied through existing INL electrical infrastructure, with supporting systems installed as necessary to ensure reliable operation of reactor and facility systems.

Waste:

Waste streams are summarized in the table above and include typical construction debris, nonhazardous operational waste, limited hazardous/universal waste, LLW, mixed waste, and used nuclear fuel. All waste streams will be characterized before disposition and managed through established INL waste management procedures or other DOE-approved compliant disposal pathways. No fuel reprocessing is included within the scope of this action.

Solid and industrial waste generated during construction and operation of the Aurora-INL facility will include typical construction debris and operational waste streams. Nonhazardous construction waste is expected to be generated during site preparation and facility construction activities, while operational waste will include routine facility waste such as municipal solid waste and maintenance-related materials.

Minor quantities of hazardous waste (e.g., solvents, paints, and maintenance materials) are expected to be generated during construction and operation and will be managed in accordance with applicable federal and state regulations.

Low-level radioactive waste (LLW) will be generated during reactor operation from routine activities such as maintenance, filtration, and use of contaminated materials. These waste streams are expected to be limited in volume and will be characterized, stored, and disposed of in accordance with applicable regulatory requirements and INL waste management processes.



**U.S. Department of Energy
Office of Nuclear Energy
National Environmental Policy Act
Determination**

NEPA Identification: DOE-ID-INL-26-018

Used nuclear fuel will be generated during reactor operations and will be stored onsite in engineered systems to allow for decay heat reduction prior to offsite transfer. The initial core is planned to be returned to INL, and subsequent cores are expected to be transported offsite for recycling or other authorized disposition.

Environmental Aspects and Impacts:

Air Emissions

A conservative bounding evaluation of radiological air emissions was performed based on reactor design and operational characteristics. Potential airborne radionuclides are limited to trace quantities of noble gases, iodine isotopes, and particulates associated with routine operations.

Consistent with 40 CFR Part 61, Subpart H, routine radiological air emissions are conservatively bounded to result in an effective dose equivalent to the maximally exposed individual of less than or equal to 10 mrem/year at the INL site boundary. The MHA dose results supporting the B5.26 determination are summarized in the Scope of Work table.

Consistent with Idaho Administrative Procedures Act (IDAPA) 58.01.01, criteria air pollutant and hazardous air pollutant emissions from the Idaho National Laboratory Site are regulated in Permit to Construct P-2020.0045 with a Facility Emissions Cap.

A maximum hypothetical accident (MHA) analysis assuming substantial core damage results in low offsite dose consequences, including approximately 0.023 rem over the worst 2-hour period at the exclusion area boundary, demonstrating that bounding conditions remain within applicable regulatory limits.

Project activities have the potential to generate fugitive dust.

Discharging to Surface, Storm, or

Ground Water

This project is located outside of the boundary of the stormwater corridor and therefore is not considered to have reasonable potential to discharge to Waters of the U.S. However, site stormwater controls will need to be coordinated with MFC, which includes determining whether controls are required.

Disturbing Cultural or Biological Resources

There is the potential for this work to impact various wildlife species. Nesting bird inspections are required between April 1 - October 1 to minimize impacts to birds and their nests per compliance with the Migratory Bird Treaty Act. Bat surveys are also required within structures being modified or enclosed between June 1 to July 31 and November 1 to March 31 in accordance with the INL Bat Protection Plan.

CULTURAL: A Section 106 review was completed under CRMO project number (BEA-26-058) and resulted in No Historic Properties Affected.

Generating and Managing Waste

Hazardous or universal waste generated from maintenance activities is anticipated to be less than 500 pounds per year and will be managed in accordance with RCRA and applicable Idaho requirements. LLW, mixed waste, used fuel, and nonhazardous waste will be characterized before disposition and managed through established INL or DOE-approved pathways. No transuranic waste is anticipated.

Used nuclear fuel management will be conducted consistent with applicable DOE requirements and the Other Transactional Agreement. Fuel handling activities include receipt, interim storage in NRC-certified transportation containers, controlled handling and assembly, and shipment to the Sponsor's authorized facility. Coordination with DOE Office of Environmental Management will occur, as applicable, to ensure appropriate storage, disposition planning, and compliance with DOE requirements. No fuel reprocessing activities are included within the scope of



**U.S. Department of Energy
Office of Nuclear Energy
National Environmental Policy Act
Determination**

NEPA Identification: DOE-ID-INL-26-018

this action. Used nuclear fuel will be generated during reactor operations and will be stored onsite in engineered systems to allow for decay heat reduction prior to offsite transfer. The initial core will be returned to INL, and subsequent cores are expected to be transported offsite for recycling or other authorized disposition.

All waste streams will be characterized prior to disposition and managed through established INL waste management processes. Based on defined management pathways and compliance with applicable federal and state regulations, hazardous waste, low-level radioactive waste, and used nuclear fuel generated by the project can be managed in accordance with applicable requirements.

Construction activities associated with the construction of the Aurora-INL will generate typical non-hazardous construction debris, including packaging materials, scrap metal, wood, and minor concrete or hardware waste. No unique or reactor-specific construction waste streams are anticipated. These wastes will be managed in accordance with applicable federal and state regulations.

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 description indicates materials will need to be purchased or used that require sourcing materials from the environment. Being conscientious about the types of materials used could reduce the impact to our natural resources.

The Oklo site is on previously disturbed land. It is not located within a 100-year floodplain, wetland, or designated critical habitat. The facility is accessible via existing paved INL roadways and utilizes existing INL utility infrastructure.

References:

B5.26: Authorization, siting, construction, operation, reauthorization, and decommissioning of advanced nuclear reactors, provided the DOE determines 1) the project's attributes, including potential fission product inventory, fuel type, reactor design, and operational plans, reduce sufficiently the risk of adverse offsite consequences from the release of radioactive or hazardous materials, and 2) the project demonstrates that any hazardous waste, radioactive waste, or spent nuclear fuel generated by the project can be managed in accordance with the applicable requirements. For the purposes of this category, a project may include multiple reactors within a nuclear facility.

For Categorical Exclusion Determinations:

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 (February 2, 2026)

The proposal fits within the classes of actions listed in Appendix B to 10 CFR Part 1021 or Appendix B and C of DOE's NEPA Implementing Procedures and satisfies the conditions that are integral elements of the classes of actions therein. The proposal does not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Appendix B; (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,



**U.S. Department of Energy
Office of Nuclear Energy
National Environmental Policy Act
Determination**

NEPA Identification: DOE-ID-INL-26-018

Appendix B.

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.

NEPA Compliance Officer

Approved by Jason L Anderson, DOE-ID NEPA Compliance Officer on: 7/20/2026