

Public Meeting for TerraPower's Proposed Test and Fill Facility (TFF) Project

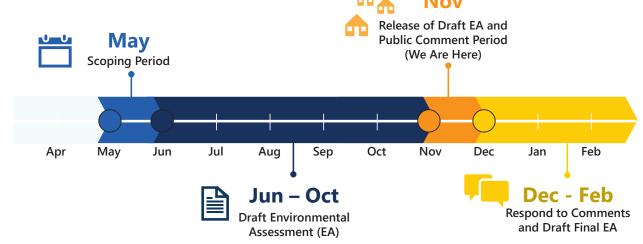
Lincoln County, Wyoming
Draft Environmental Assessment (DOE/EA-2217)











2024





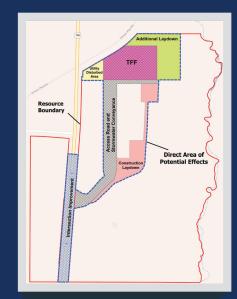
Historic properties are historically or archaeologically significant buildings, structures, objects, sites, and districts. Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the effects of federally funded projects on historic properties. DOE is consulting with the Wyoming State Historic Preservation Office (SHPO) and interested tribes to address potential adverse effects that may result from the proposed action.

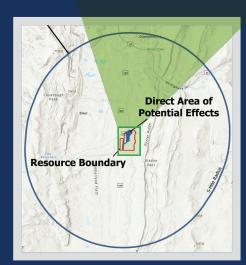
Direct Area of Potential Effects

- The Direct Area of Potential Effects covers 101 acres encompassing the Test and Fill Facility (TFF) and supporting infrastructure, which includes:
 - o one previously recorded cultural resource site;
 - o one newly recorded segment of a previously recorded site; and,
 - o four newly identified sites.

Indirect Area of Potential Effects

- The Indirect Area of Potential Effects extends for a radius of 5 miles around the project.
- It was used to assess the potential visual effects of the project on the sites, develop photo simulations depicting appearance from key observation points, and analyze how much the project would stand out from its surroundings.
- DOE concluded that the indirect effects of the project on historic properties would be minor.









Management 1



Purpose and Need

The U.S. Department of Energy's (DOE) Advanced Reactor Demonstration Projects (ARDP) are working to design, license, construct, and operate two new advanced reactor designs through cost-shared partnerships between DOE and U.S. industry. Demonstrating a next generation of nuclear reactors, which use updated designs and non-light water coolant, offers the opportunity to deepen the benefits from nuclear energy, including greater resiliency for the electricity grid, flexible siting options, and improvements in safety, security, and economics.

The Test and Fill Facility (TFF) is designed to be a non-nuclear testing site for the TerraPower Natrium reactor's operating systems.

Proposed Action

The TFF would serve three main missions: (1) to support prototype-scale sodium testing/qualification for the Natrium Demonstration Plant (Kemmerer Unit 1), (2) advance technologies for future Natrium style reactors, and (3) provide the initial sodium fill for Kemmerer Unit 1. The TFF would be a non-nuclear industrial facility containing the following components:

- Outside equipment area Outside sodium storage area
- Office and control trailer Parking lot and access road
- Sodium test building
- Stormwater retention pond

The research conducted here would also serve the sodium reactor community at-large as the technology continues to grow and be adopted around the world.

No-Action Alternative

Under the No-Action Alternative, DOE would not authorize the expenditure of federal funds by TerraPower in support of the proposed project. For purposes of this analysis, DOE assumes the proposed project would not proceed if DOE does not authorize the expenditure of federal funds.

Environmental Resources Analyzed in Detail

- Ecological
- Cultural
- Socioeconomic
- Geological

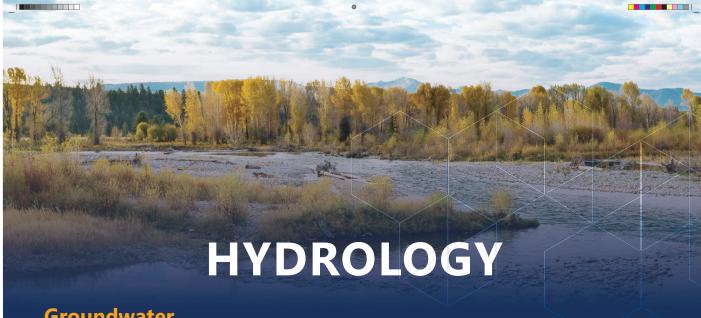
- Hydrology
- Environmental justice
- Infrastructure, traffic, and transportation
- Accidents and hazards



Rendering of TFF Building View





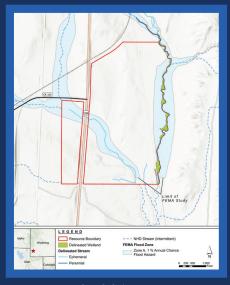


Groundwater

- The Test and Fill Facility (TFF) would be located within a major aquitard or an area where the geological formation restricts the flow of groundwater. This aguitard is not a source of drinking water and is more than 5 miles from a sole source aquifer.
- Construction of the TFF would include drilling up to 8 shafts between 56 feet – 86 feet deep.
 - o The dewatering rate would be 43 gallons per minute (GPM). GPM is a unit of the flow rate of liquids used to specify how fast water moves through pumps, showerheads, and pipes.
 - o During construction, this groundwater would be pumped into holding tanks and recycled onsite for dust suppression.

Surface Water

- The proposed access road would cross the 100-year floodplain (see shaded blue area on the Floodplain Map) and an ephemeral stream (i.e., a stream that has flowing water only after precipitation) that is connected to North Fork Little Muddy Creek (see dashed blue line on the Floodplain Map).
 - o The road's construction could alter the natural flow of water and sediment transport leading to increased erosion upstream and decreased sediment deposition downstream.
 - o To accommodate, the road design would include a drainage system.
 - o A culvert would be installed as a part of the new entrance road to maintain water flow for the ephemeral stream.
- A sediment basin turned into a water detention basin would be used for the TFF.
- Operations water for dust suppression would be trucked in and stored in an onsite 20,000-gallon water storage tank.
- Bottled water would be used for drinking water needs.
- Wastewater would be stored onsite until removal by an outside vendor.



Floodplain Map



Proposed Access Road Map





SOCIOECONOMICS

Socioeconomics is the study of the relationship between social behavior and economic activity. This Study Area for Socioeconomic Impacts Analysis was based on the residential distribution of the Naughton Power Plant workforce. Most socioeconomic impacts would be experienced in southern Lincoln County and Uinta County.

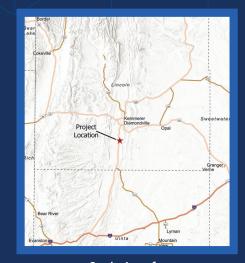
Socioeconomic Impacts Analysis Considered

- Population Growth
- Housing
- Employment (jobs, wages)
- Local taxes (sales and use, property)

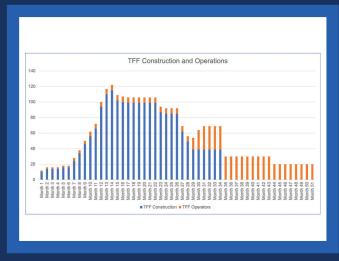
New Temporary and Permanent Jobs

- 29- to 35-month construction period, 20-year operations
- 120-150 workers at construction peak (potential to employ local construction workers)
- 20 to 30 operations staff
- Short-term and long-term beneficial economic impact
- Construction-phase wages would total \$23 million
- Taxes during construction:
 - Sales/use tax payments to local jurisdictions would range from \$8,000 to \$29,000 per year
 - o Property tax payments would total \$466,000 over the construction period
- Taxes during operations:
 - o Sales/use tax payments to local jurisdictions would be a few thousand dollars per year
 - Property tax payments would total \$293,000 annually during operations (not accounting for depreciation)

Based on State of Wyoming forecasts, the population of the study area is projected to slowly increase from 2020 to 2040. TFF related population growth would be less than 2 percent of the current or projected population in the study area.



Study Area for Socioeconomic Impacts Analysis



TFF Construction & Operations Schedule





National Parameter (



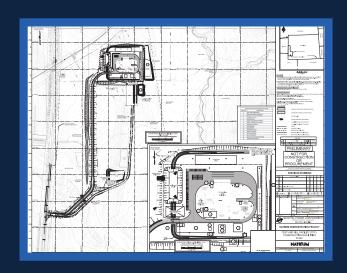
As with any construction project, traffic could be impacted by project-related commuter traffic, as well as the transportation of materials and equipment.

A proposed temporary intersection and access road would provide immediate access for site preparation. This temporary intersection would be improved to develop a permanent intersection and the permanent access road.

The site access to the Natrium Demonstration Project would be located on Highway 189, which is owned and operated by the Wyoming Department of Transportation (WYDOT).

When proposing a new access onto the highway, an access permit and a traffic impact study (dependent on the size of the project) would be required. The intersection's design will meet the WYDOT's requirements. Any design exceptions would require WYDOT authorization.

Design exceptions would be used to minimize or avoid potential impacts to environmental sensitive areas and/or safety.

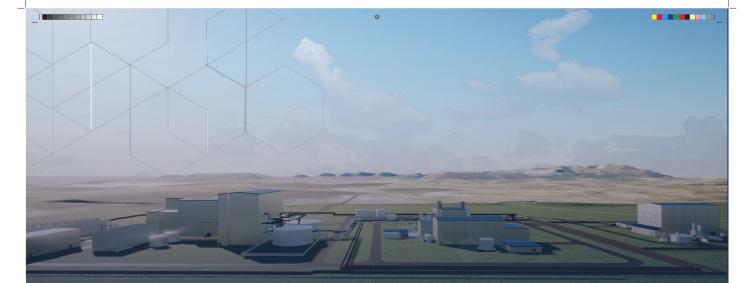


Temporary & Permanent Access Road





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PROJECT PHASES

NEPA (40 CFR Parts 1500-1508) requires federal agencies to assess the environmental impact of federal actions and to inform and involve the public in the decision-making process.

DOE's decision whether to authorize the expenditure of federal funds is subject to NEPA review.

The Nuclear Regulatory Commission's (NRC) decision whether to issue a construction permit and operating license for a domestic nuclear plant would be made pursuant to the Atomic Energy Act of 1954, as amended, and the NRC's regulations at Title 10, Code of Federal Regulations.

To ensure that all components of TerraPower's Natrium Demonstration Project — including the Test and Fill Facility, Kemmerer Unit 1, and the Fuel Fabrication Facility — are appropriately evaluated under NEPA, DOE and NRC have agreed to conduct the review of the Project in four phases.









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DOE invites you to submit official written comments through one of the following methods. All written, official comments will become part of the official project record. Written comments must be submitted on or before **December 1, 2023 at 11:59 P.M. MDT**.

Submit electronically:

E-mail comments to OCED.ESH@hq.doe.gov

Mail:

U.S Department of Energy ATTN: Jessica Buckley 12011 Sunset Hills Rd Reston, VA 20190

Comment Form:

Fill out a comment form and place it in the designated comment box.

Protecting Personally Identifiable Information (PII):

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment — including your personal identifying information — may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personally identifying information, we cannot guarantee that we will be able to do so.





TEST AND FILL FACILITY BUILDING RENDERING







TEST AND FILL FACILITY PROPOSED SITE NEW LOCATION

