



## U.S. Department of Energy Hanford Site

DOE/EA-2148

### FINDING OF NO SIGNIFICANT IMPACT

#### Laser Interferometer Gravitational-Wave Observatory STEM Exploration Center Hanford Site, Washington

**AGENCY:** U.S. Department of Energy, Richland Operations Office

**ACTION:** Finding of No Significant Impact

**SUMMARY:** The U.S. Department of Energy (DOE), Richland Operations Office (RL) is adopting an Environmental Assessment (EA) prepared by the National Science Foundation (NSF) pursuant to the Council on Environmental Quality Regulations (*Code of Federal Regulations* [CFR], Title 40, Parts 1500 through 1508) for implementing the National Environmental Policy Act (NEPA) (42 *United States Code* [USC] Section 4321 *et seq.*). The EA evaluates potential environmental impacts associated with the construction and operation of the proposed Laser Interferometer Gravitational-Wave Observatory (LIGO) Science, Technology, Engineering, and Math (STEM) Exploration Center (LExC) facility. RL coordinated with NSF during the NEPA process and document review and preparation.

LIGO is a national facility for gravitational-wave research located at the Hanford Site (LIGO Hanford) and is funded by NSF and operated by the California Institute of Technology. LIGO Hanford is located on land owned by the United States and administered by DOE. Per its 1993 Memorandum of Understanding with DOE, NSF has a permit to use the site for LIGO Hanford.

Analyses related to the potential impacts of construction of the proposed LExC are contained in the NSF EA (DOE/EA-2148), which DOE adopts and incorporates herein by reference. The EA examines potential environmental impacts of the Proposed Action and concludes that impacts would be minor. Also, mitigation measures include the use of Best Management Practices, and mitigation measures would be prepared in coordination with DOE to further mitigate environmental impacts, in particular to biological resources.

RL reviewed the NSF EA and found that the analysis adequately met DOE requirements, but did not include a discussion of Intentional Destructive Acts per DOE policy (DOE Memorandum, Office of NEPA Policy and Compliance, December 1, 2006). Therefore, DOE is including a discussion of Intentional Destructive Acts in this Finding of No Significant Impact (FONSI). Based on the analysis in the EA, and the additional analysis in this FONSI, DOE has determined that the Proposed Action does not constitute a major federal action significantly affecting the quality of the human environment within the meaning of NEPA. Therefore, an environmental impact statement is not required.

**PURPOSE AND NEED:** Southeastern and central Washington is a region with few hands-on science-education facilities. Since LIGO announced its first detection of gravitational waves in February 2016, the number of schoolteachers and students visiting the site on field trips has increased, more than doubling the number of annual visitors. It is not currently possible for the LIGO Hanford facility to accommodate all educational requests. A dedicated education center is needed to address the growing interest in LIGO's discoveries and provide visitors, including those who are underrepresented in STEM career fields, with science and engineering learning experiences.

The purpose of the Proposed Action is to improve STEM educational capabilities at LIGO Hanford and support the demand for in-person educational opportunities at the Observatory by creating a facility capable of accommodating approximately 10,000 visitors per year.

**PROPOSED ACTION:** The Proposed Action is for NSF to authorize the construction and operation of a LExC at LIGO Hanford within its permitted area and for RL to approve the proposed LExC. The proposed LExC would be constructed east of the existing parking lot and Lab Support Building, along the current access road to LIGO Hanford. The facility would include the construction of an approximately 13,000-square-foot building, parking lot, and associated infrastructure, including water and sewer utilities, electrical service, and telecommunications connection. All utilities would be extended from existing services at LIGO Hanford.

The LExC would include a visitor center with static exhibits displaying the engineering of LIGO and highlighting LIGO staff. Positioning the LExC close to the Lab Support Building would allow the outreach programs to use the existing auditorium while maintaining distance from the interferometer to minimize the impact on it and the data collected at the Observatory. The LExC would be on the same side of the road as the auditorium to reduce visitor and vehicle conflicts while visitors are onsite.

**NO ACTION:** Under the No Action Alternative, NSF and/or DOE would not authorize the construction of the LExC facility at LIGO Hanford. The capacity of the educational and visitor sites to accommodate the increasing number of visitors would continue to be exceeded, resulting in fewer opportunities for LIGO Hanford to educate local school students and the general public about its work and to support STEM education in the region.

**ENVIRONMENTAL CONSEQUENCES:** The analysis of potential environmental consequences in the EA is incorporated herein by reference. A summary is provided below.

**Biological Resources:** The Proposed Action would remove 4.7 acres of vegetation, and ground disturbance during construction could alter native plant communities by increasing the potential for the introduction and spread of weed species at LIGO Hanford. Construction activities would generate intermittent noise and present a physical risk to local wildlife, particularly to less mobile species; however, many potentially affected species would likely relocate elsewhere on the Hanford Site.

**Geology, Soils, and Seismicity:** The construction of the Proposed Action would include site grading, soil compaction, excavation, and construction staging areas that would disturb up to 4.7 acres at LIGO Hanford.

Hazardous Materials and Solid Waste: The Proposed Action is expected to increase the number of people onsite by two full-time employees daily and approximately 5,000 additional visitors per year. The additional personnel and visitors would increase the amount of solid waste generated onsite; however, this amount is relatively small compared to the remaining capacity of the existing disposal facilities.

Transportation: The Proposed Action would accommodate an increase in visitation for the once-a-month Saturday tours to a maximum of 400 visitors during peak visitation months (March through November). Increased Saturday visitation would be expected to contribute approximately 50 to 100 extra vehicles per day on Route 10, in addition to the current weekend average daily traffic of 400 vehicles per day. This minor change to traffic would not exceed roadway capacity or cause delays on the roadway network.

Consideration of Intentional Destructive Acts: The requirement to address Intentional Destructive Acts is a DOE policy, but the proposed LExC is unique and not a DOE facility. There is no known history of intentional destructive acts against LIGO facilities. No significant environmental impacts would be expected from intentional physical damage to the proposed LExC.

Cumulative Impacts: The Proposed Action is in a remote location and no reasonably foreseeable future actions in LIGO's vicinity were identified. While the Hanford Site has had a history of wildfires and human occupation, no significant archaeological resources were found during the field surveys and no past cumulative activities were identified. Mitigation measures would result in a net benefit to biological resources. Because there are no planned future activities beyond LExC construction and operation, and because biological restoration would result in a net benefit, no potential negative cumulative impacts associated with the Proposed Action were identified.

**MITIGATION MEASURES:** The Draft EA identified the original area of project effects as 25.5 acres; however, mitigation of potential impacts included refining the design of the project to reduce the impact area to 4.7 acres, a substantial reduction. Additionally, Best Management Practices (BMPs) would be implemented to avoid, minimize, and reduce potential impacts resulting from the Proposed Action. The LIGO operator would be responsible for the implementation of the following mitigation measures:

- A revegetation management plan would be developed to address the removal of vegetation from construction. The plan would be developed in coordination with DOE and would outline specific mitigation measures, revegetation locations and acreage, and BMPs to avoid and minimize the impacts of the Proposed Action on vegetation.
- Impacts from invasive weeds during construction would be minimized with the implementation of DOE-approved weed mitigation BMPs, and a noxious weeds management plan would be implemented to manage noxious weeds and vegetation during operation and maintenance activities.
- An unanticipated discovery plan would be developed to address buried historic, cultural, or archaeological resources to address any resources that might be discovered during construction.
- Erosion control BMPs would be used to minimize impacts to soil from erosion, and final design plans would evaluate seismicity prior to construction activities.

- Construction BMPs and applicable pollution prevention and spill mitigation plans would be implemented to address the use or generation of hazardous materials and solid waste, and LIGO Hanford would abide by the Hanford Site Pollution Prevention Program following construction.
- Increased sewer utility infrastructure would be built to accommodate increased wastewater generation. Solid waste would be disposed of at existing solid waste facilities with adequate capacity.
- Construction would be conducted in accordance with Occupational Safety and Health Administration regulations and DOE and NSF safety regulations, and existing protective measures, emergency action plans, and access restrictions would remain in place to protect staff and visitors at LIGO Hanford.
- A traffic management plan would be developed prior to construction to minimize construction traffic impacts and construction vehicle traffic would be timed to avoid peak-hour traffic periods to the extent possible.

**PUBLIC COMMENT:** NSF issued the Draft EA for a 30-day public review period beginning on June 23, 2020. A Notice of Availability for the Draft EA was published on June 23, 2020, and June 28, 2020, in the *Tri-City Herald* and the *Yakima Herald-Republic*. The public comment period ended on July 23, 2020 and the EA was revised based on the comments received. NSF coordinated closely with DOE, the State Historic Preservation Officer, and consulting parties to aid in developing the EA and complying with the consultation requirements under Section 106 of the National Historic Preservation Act regarding potential impacts to archaeological, historic, and cultural resources. Native American tribes were provided the opportunity to comment through the regularly scheduled Hanford cultural resources meetings and formal review of the Cultural Survey Report, which included site forms, eligibility, and effects recommendations.

**PUBLIC AVAILABILITY AND CONTACT INFORMATION:** The DOE FONSI and the NSF FONSI and Final EA are available at:

<http://www.hanford.gov/page.cfm/EnvironmentalAssessments>

For questions about this FONSI or EA:

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For information about the DOE NEPA process:

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**DETERMINATION:** Based on the analysis in the EA, I have determined that the Proposed Action would not constitute a major federal action significantly affecting the quality of the human environment within the meaning of NEPA. Therefore, the preparation of an environmental impact statement is not required, and DOE is issuing this FONSI.

Issued in Richland, WA this 23<sup>rd</sup> day of September 2020.

A handwritten signature in black ink, appearing to read 'B. Vance', written in a cursive style.

Brian T. Vance, Manager  
Richland Operations Office /  
Office of River Protection