Department of Energy

Oak Ridge Office
P.O. Box 2001
Oak Ridge, Tennessee 37831

FINDING OF NO SIGNIFICANT IMPACT AND NOTICE OF INTENT TO ADOPT THE NATIONAL SCIENCE FOUNDATION ENVIRONMENTAL ASSESSMENT FOR THE NATIONAL ECOLOGICAL OBSERVATION NETWORK

AGENCY: United States (U.S.) Department of Energy (DOE)

ACTION: Finding of No Significant Impact (FONSI) and Notice of Intent to Adopt the National Science Foundation (NSF) Environmental Assessment (EA) for the National Ecological Observation Network (NEON)

SUMMARY: In accordance with the National Environmental Policy Act of 1969 (NEPA) (42 U.S. Code 4321 et seq), the U.S. Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and 45 CFR Part 640 for NSF's compliance with NEPA, the NSF completed an EA, dated November 16, 2009, for the National Ecological Observatory Network. DOE proposes to adopt NSF's EA to fulfill its NEPA obligations with research activities being conducted on the Oak Ridge Reservation as part of the Oak Ridge National Laboratory's (ORNL) participation in the NEON Project.

The National Science Foundation's EA evaluated the potential environmental and socioeconomic impacts associated with construction and operation of NEON, a tool that would allow scientists to analyze, understand, and forecast the nature and pace of biological change at scales ranging from local to continental. It is widely recognized that greater understanding of ecological systems is possible, but only if site-based research can be placed into a larger, more integrated regional or continental context.

Based on the analysis in the NEON EA, NSF determined that implementation of NEON, with the condition that appropriate project design features and best management practices (BMPs) would be implemented as needed and additional agency coordination would be completed where necessary, would result in no significant adverse impacts to the natural or human environment. The NSF determined that implementation would result in no significant environmental impacts, executed a FONSI, and proceeded with implementation of the Proposed Action.

PUBLIC AVAILABILITY: The NSF held public meetings to provide public participation opportunities with respect to the EA. The Preliminary Final EA was made available to the public for comment for a period of 30 days. At the end of the 30-day public review period, the NSF considered all comments submitted by individuals, agencies, or organizations. The NSF posted the NEON EA and FONSI online, and it is available at the following website address:

http://www.neoninc.org/news/490

The FONSI and the EA prepared by NSF on the NEON Project may be reviewed at and copies of the documents obtained from:

U. S. Department of Energy
Information Center
Building 1916-T1
1 Science.gov Way
Oak Ridge, Tennessee 37831
Phone: (865) 241-4780
DOEIC@oro.doe.gov

FURTHER INFORMATION ON THE NEPA PROCESS: For further information on the NEPA process, contact:
Gary S. Hartman
NEPA Compliance Officer
U. S. Department of Energy
P.O. Box 2001, SE-32
Oak Ridge, Tennessee 37831
Phone: (865) 576-0273
hartmangs@oro.doe.gov

DESCRIPTION OF PROPOSED ACTION: Under the Proposed Action, the NSF established a continental-scale network of long-term ecological infrastructure deployments called the National Ecological Observatory Network. The NEON Project would develop the capability to address all the National Research Council's identified Grand Environmental Challenges in an integrated fashion across the continent. The design divided the U.S. into 20 domains, encompassing the range of environmental variability of the U.S. Collectively, the domains evaluated for the NEON Project represented ecological and climate variability across the continental United States, Alaska, Hawaii, and Puerto Rico. Within each domain, the regional footprint included field study sites and associated field and laboratory facilities, and the ORNL was one of the laboratory facilities evaluated.

The ORNL is located within Domain 7 which encompasses the Appalachian/Cumberland Plateaus. Domain 7 includes central and southern Ohio, southern Indiana, southwest West

Virginia, the western tip of Virginia, the northeast corner of Georgia, the northwest corner of South Carolina, eastern and central Tennessee, and all but the western tip of Kentucky.

NEON is designed to collect data on the natural world and allow scientists to achieve a better understanding of ecosystem-level systems and processes. NEON includes project design features and BMPs to avoid or minimize impacts to the extent practicable.

ALTERNATIVES: During preparation of the EA, it was determined that no action alternatives other than the Proposed Action would satisfy the scientific purpose and need of the Proposed Action without substantially compromising the science mission and objectives. Accordingly, only the Proposed Action and No Action Alternative were evaluated. The Proposed Action was determined to be the Environmentally Preferred Alternative consistent with the definition provided in NEPA and the National Park Service (NPS) Director's Order# 12: Conservation Planning, Environmental Impact Analysis, and Decision-making and its accompanying Handbook.

ENVIRONMENTAL IMPACTS: For analysis purposes, the EA considered potential impacts from:

- Establishment and operation of Core Sites, which would be permanent (30-year) infrastructure deployments typically consisting of no more than three Fundamental Instrument Units (FIUs), an Aquatic Array, and multiple Fundamental Sentinel Unit (FSU) sampling points to collect ecological data. Core Sites would be representative of undeveloped areas within the domain.
- Initial deployment and operation of Relocatable Sites, which would be intermediate length (3- to 5-year) infrastructure deployments consisting of one FIU, one Aquatic Array, and multiple FSUs. Relocatable Sites would be deployed to collect data along gradients relevant to the Core Site investigation. Typically, a Relocatable Site would have fewer FSUs than a Core Site.
- Deployment and operation of Mobile Deployment Platforms (MDPs), which would include a small to medium sized transportable tower. MDPs would be used for short-term research objectives and education or other related activities.
- Deployment of Airborne Observation Platforms, which would be used to collect spatial data to allow extrapolation of data collected locally from in-situ measurements to regional and continental scales.
- Deployment and operation of a stream observatory network, which would include experiments with long-term manipulation of stream ecosystems.
- Development and operation of the NEON Land Use Analysis Package, which would be used to transfer data sets produced by federal agencies and other scientific or commercial

sources to the NEON data archive and to reanalyze these existing data for use alongside data from the NEON program.

To conservatively bound the analysis of impacts, the EA analyzed the potential impacts from the maximum amount of infrastructure that may be deployed at a site and the maximum level of sampling that could occur. As a matter of practice, the amount of infrastructure deployed at a site may be less than the amount analyzed, but would not exceed the amount analyzed.

The existing environmental and socioeconomic conditions potentially affected by the Proposed Action, as well as the potential environmental and socioeconomic impacts of implementing the Proposed Action were evaluated for each domain. In compliance with NEPA, CEQ guidelines, and 45 CFR Part 640, the description of the affected environment focused on those resources and conditions potentially subject to impacts from the Proposed Action.

Five resource areas (**Land Use**, **Topography**, **Hydrogeology and Groundwater**, **Demographics**, and **Community Resources**) were determined to have no potential for impacts and would not be a factor in the decision about whether to implement NEON. Three resource areas (**Hydrology**, **Hazardous and Toxic Substances**, and **Socioeconomic Impacts on the Local Economy**) were determined to have similar impacts among all domains with no substantial variation as a result of domain-specific conditions. All other resource areas were considered under each location within each domain, as site specific conditions could influence potential impacts. The analysis of the direct, indirect, and cumulative environmental and socioeconomic effects that would likely occur with the Proposed Action is also included in the EA, as well as any adverse environmental effects that cannot be avoided through project design.

Based on the analysis in this EA and with the condition that appropriate project design features and BMPs would be implemented as needed and additional agency coordination would be completed where necessary, NSF determined that implementation of NEON would result in no significant impacts to the natural or human environment and would have no effect on public health and safety, land use, topography, hydrogeology and groundwater, demographics, and community resources in any of the 20 domains. Implementation of BMPs would minimize impacts to wetlands, floodplains, and ecological receptors.

The NEON Project is not considered controversial, nor would it result in unique or unknown risks. The Project does not establish a precedent for future actions with significant efforts, nor does it involve significant cumulative effects. Based on this analysis, NSF determined that implementation of NEON would have no significant impacts which would require analysis in an Environmental Impact Statement. It also was determined that, even though NEON would not result in a change in demographics, there would be minor short-term and long-term beneficial impacts to the local economies of the areas where infrastructure would be placed through secondary spending by construction crews, maintenance technicians, and researchers.

DETERMINATION: Based on the results of the analysis reported in the NEON EA, DOE has determined that the proposed action is not a major federal action that would significantly affect the quality of the human environment within the meaning of NEPA. Therefore, the preparation of an Environmental Impact Statement is not necessary, and DOE is adopting the NSF's Environmental Assessment and issuing this FONSI.

Issued at Oak Ridge, Tennessee, this 29th day of May 2013.

Larry C. Kelly, Manager