U.S. Department of Energy (DOE)
Finding of No Significant Impact
Construction and Operation of the Molecular Foundry at Lawrence Berkeley National Laboratory (LBNL), California.

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

ACTION: Finding of No Significant Impact (FONSI)

SUMMARY: The U.S. Department of Energy (DOE) has prepared an Environmental Assessment (EA), DOE/EA-1441, evaluating the proposed action to construct and operate the Molecular Foundry at Lawrence Berkeley National Laboratory (LBNL).

Based upon the information and analyses in the EA, the DOE has determined that the proposed federal action does not significantly affect the quality of the human environment within the meaning of the National Environmental Policy Act of 1969.

A draft was reviewed by the public and state agencies without significant comment. Only one individual or organization commented on the draft, regarding water service, wastewater, and water conservation. The final EA was modified to clarify the source and distribution of LBNL's water service. Clarifying language was added to address the adequacy of wastewater system capacity. Landscaping information has been revised to clarify requirements for irrigation and selection of water-saving plants.

Description of the Proposed Work:

The DOE proposes to construct the Molecular Foundry at Lawrence Berkeley National Laboratory (LBNL). The Foundry would be a resource for DOE's participation in the National Nanotechnology Initiative (NNI). Nanotechnology is the design, fabrication, characterization and use of materials, devices, and systems through the control of matter at the nanometer-length scale. Nanoscience will develop the understanding of building blocks and the nanometer-length scale and the methods by which they are assembled into multi-component devices.

The Molecular Foundry would support a broad research effort focusing on both "hard" nanomaterials (nanocrystals, tubes, and lithographically patterned structures) and "soft" nanometer-sized materials (polymers, dendrimers, DNA, proteins, and whole cells), as well as design, fabrication, and study of multi-component, complex, functional assemblies of such materials. Foundry laboratories would be user facilities, available to scientists from universities, industry, and government laboratories. The Foundry would also leverage existing nanoscience research capabilities at existing major user facilities: the Advanced Light Source (ALS), the National Center for Electron Microscopy (NCEM), and the National Energy Research Scientific Computing Center (NERSC). The Foundry would further DOE's mission of planning, constructing, and operating user facilities to provide special scientific and research capabilities to serve the needs of U.S. universities, industry, and Federal laboratories

The Molecular Foundry would consist of a six-story building of approximately 86,500 gross square feet (gsf), and an adjacent 8,000 gsf Central Utility Plant. The buildings would be located on mostly undeveloped slopes between Building 72, NCEM, and Building 66, the Surface Science and Catalysis Laboratory (SSCL). Total gross area of the new building and utility plant would be approximately 94,500 square feet, containing laboratories, offices, and seminar rooms as well as providing clean rooms, cold and warm rooms, and ultra-low vibration areas. The partly below-grade utility plant will also serve as the foundation for 16 surface parking spaces.

The Molecular Foundry would be staffed and/or used by an estimated 137 persons, of whom approximately 59 are staff, 36 are students, and 42 are visitors (i.e., visiting scientists). Operation of the Molecular Foundry is expected to begin in 2006, with an estimated operational lifetime of 20 years.

Construction of the Molecular Foundry would require removal of an existing paved 18-space parking lot and retaining walls, as well as excavation into an undeveloped hillside.

Approximately two dozen mature trees would be removed along with approximately one dozen saplings. The project would replant or replace trees, generally in kind, and in or around the site. LBNL anticipates it would reuse all soil excavated for the Molecular Foundry to construct the new Lee Road extension and widen the existing roadway.

Alternatives:

The alternatives considered to the proposed action are: (1) no action; (2) a different building configuration; and, (3) an alternate building site at LBNL. Under the no-action alternative, DOE would not construct the Molecular Foundry at LBNL and the short-term impacts associated with the construction would not occur. However, the no-action alternative would not meet DOE's mission and need. Under the second alternative, DOE would construct a facility that is approximately 70% smaller. Visual impacts, net new vehicle trips, and effects on traffic conditions associated with Alternative 2 would probably be less than those of the proposed action. However, the amount of research that could be conducted, and therefore the ability to achieve the goals and objectives of the NNI, would be severely restricted under this alternative. Under the third alternative, DOE would construct the Foundry at another site at LBNL. This alternative would require demolition of existing buildings, some which are identified historic resources. Substantial historic work may be required. Air quality would be impacted during demolition due to probable asbestos and lead used in the construction of those buildings. Contaminated soil has been identified at this alternate site which would require remediation. New vehicle trips would be similar to those for the proposed alternative but additional construction trips might be required to remove building debris and possibly contaminated soil. Visual impacts would be greater under this alternative.

Environmental Impacts:

The EA analyzed the impacts of the Molecular Foundry at LBNL for environmental consequences from excavation, grading and construction and from operations. The project would not have any effect on land use, floodplains/wetlands, socioeconomics, and environmental justice. The EA considered impacts to geology, hydrology, air and water quality, biological and archaeological resources, visual quality, traffic and circulation, noise, public services and utilities, energy, and hazards and human health. A potential significant impact related to the Alameda whipsnake has been analyzed and is summarized below. As described in the EA, there would be no significant environmental impacts from construction and operation of this facility.

Biological Resources: The project site is not within designated critical habitat for the Alameda whipsnake but is approximately 500 feet from the boundary of designated habitat. Also, the site is 1,500 feet from the nearest shrub community that might provide suitable habitat, and is separated by roads and other development. Existing vegetation management measures, referenced in the EA, make the area unlikely to be used as a dispersal corridor for whipsnakes. Despite these facts, mitigation measures will be enacted to protect any whipsnakes that might move into the project area during construction. No substantial adverse effects on any special status wildlife or plants are expected. With the inclusion of mitigation measures referenced herein, the project would have a less than significant impact on biological resources.

Cumulative Impacts: The EA considered planned, pending, and reasonably foreseeable projects at LBNL, UC Berkeley, and the City of Berkeley. Areas where there would be no foreseeable substantial cumulative impacts include geology, archaeological resources, land use, socioeconomics and social justice. Regarding biological resources, LBNL projects in undeveloped areas would include whipsnake avoidance measures as well as vegetation management, to sustain no significant impact. Other areas considered are hydrology, visual and air quality, traffic and circulation, noise, public services and utilities, energy, and hazards and human health, with conclusions of less than significant impact. No cumulative or measurable long term environmental impacts are expected due to the construction and operation of the Molecular Foundry.

Environmental Justice: Executive Order 12898 requires that all federal agencies evaluate whether proposed actions would cause disproportionate impacts on minority or low-income communities. Neither the construction or operation of the proposed action would affect low income or minority community or place it at a disproportionate risk, nor would it use criteria, methods or practices that would discriminate on the basis of race, color or national origin.

Determination:

Based on the information and analysis in the EA, the DOE has determined that the proposal to construct and operate the Molecular Foundry at LBNL does not constitute a federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969. Therefore, a FONSI is made and an Environmental Impact Statement is not required.

Public Availability:

Copies of this EA are available from:

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