

Appendix B
National Biocontainment Laboratory

APPENDIX B NATIONAL BIOCONTAINMENT LABORATORY

Background

The United States is under-prepared to deal with outbreaks of emerging diseases like hantavirus, West Nile virus and Severe Acute Respiratory Syndrome (SARS) or with biological attacks by terrorists, according to a recent report from the U.S. National Academies. To meet this need, the National Institute of Allergy and Infectious Diseases (NIAID), a division of the National Institutes of Health (NIH), has developed a plan to boost the nation's ability to respond quickly and effectively to disease outbreaks and to stimulate research leading to new vaccines, treatments, and diagnostic tests.

The NIAID is proposing to fund construction of up to two National Biocontainment Laboratories (NBL) as part of this plan. These buildings would include state-of-the-art Biosafety Level 4 laboratories capable of handling any infectious microorganism safely, associated Biosafety Level 2 and 3 laboratories, and other research support facilities. (Biosafety levels are defined in Section 4.7.1.2 of the LRDP EIR).

In October 2002, the NIAID issued a request for proposals (RFP) asking interested institutions to submit proposals for funds to construct and operate an NBL. The NIAID will provide up to \$150 million each to build the two NBLs. In February 2003, UC Davis submitted a Federal Grant Application to the NIH for federal authorization and funding to construct and operate an NBL. In addition to the funding provided by NIAID, the University of California and the State of California together will provide an additional \$50 million in financing for the NBL. The lengthy application included the following:

- Budget
- Description of the proposed research programs and emphasis
- Proposed site at UC Davis
- Conceptual site development plans
- Schematic facility plans
- Summary of proposed research spaces
- Qualification statements

The UC Davis proposal to the NIAID for the NBL is available for review during normal working hours at the Office of the Vice Chancellor for Research, 4th floor, Mrak Hall, University of California, Davis.

The NIAID has received applications from at least six other institutions including The University of Texas Medical Branch at Galveston, University of Maryland School of Medicine, University of Illinois at Chicago, Boston University Medical Center, The New York State Department of Health, and Oregon Health & Science University.

In the summer of 2003, the NIAID will contact top-ranked applicants and will begin a process of negotiation that will include site visits. After the negotiation is complete, NIAID will announce

one or two intended awardees in Fall 2003. Negotiations between the applicant and the NIAID could result in changes to or refinement of the design and/or location of the facility. In addition, as stated in the NIAID RFP:

The National Environmental Policy Act (NEPA) requires Federal agencies to assess the probable environmental consequences of any major Federal action, including construction projects supported in whole or in part through Federal contracts, grants, subsidies, loans, or other forms of funding assistance. If the project has a significant environmental impact, a full Environmental Impact Statement must be prepared and released by the Federal Government before the grant award.

In addition, The Regents of the University of California would need to accept the award and approve the project design. As lead agency under the California Environmental Quality Act (CEQA), the Regents would prepare an Environmental Impact Report (EIR) that would inform them, the public, the campus community, and federal, state, and local agencies of the potential environmental impacts of siting an NBL at UC Davis. If UC Davis is notified by the NIAID in Fall 2003, it is anticipated that refinement of the research program for the facility would occur from October 2003 through February 2004. Schematic designs and site plans would be prepared from February 2004 through July 2004. Preparation of the environmental documents would begin in late 2003 as the program and designs are further developed. Consideration of approval of the design by The Regents would occur no sooner than January 2005.

NBL Program at UC Davis

An NBL facility at UC Davis would accommodate research that focuses on protecting public health by developing new and improved vaccines, new diagnostic techniques, and new therapeutic treatments for reducing and eliminating the health consequences of emerging (new) and re-emerging diseases. As stated in the proposal to the NIAID, the facility would also serve as a national and regional resource for diagnosing and characterizing samples of potentially infectious materials that may arise from public health threats due to either natural causes or bioterrorism. The potential facility would accommodate research on highly infectious human and animal diseases in a highly contained facility unlike other facilities currently on the UC Davis campus.

The 2003 LRDP designates an approximately 20-acre site located south of the Health Sciences District, north of I-80, and east of SR 113 (land that is currently used by the UC Davis Equestrian Center) for High Density Academic and Administrative and Parking uses. The 2003 LRDP proposes relocating the existing Equestrian Center from this location to a site on Russell Ranch and designates a site there for Physical Education/Intercollegiate Athletics/Recreation as the relocation site.

Relocating the Equestrian Center, makes this 20-acre site available adjacent to the School of Medicine and School of Veterinary Medicine in the Health Science District of campus for expansion of programs at these schools. One of the facilities that could be located there is the NBL, and this location was identified as the potential site for the NBL facility in the application submitted to NIAID. This area on the campus could potentially be the site of the NBL and/or could be used in the future for other campus academic and administrative buildings. Thus, this land use designation is not specifically for the potential NBL facility.

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Subsequent to submitting the proposal to NIAID, UC Davis was approached by representatives from several neighboring jurisdictions that expressed an interest in hosting the an NBL affiliated with UC Davis. In response to these inquiries, the campus has asked these jurisdictions to submit letters of interest to the campus by mid-May 2003. The campus will evaluate this information, follow up as appropriate, and decide whether to discuss alternative sites with NIAID.

The use of biohazardous materials at BSL levels 2 and 3 is a routine part of existing operation at UC Davis. Applicable regulatory standards and current patterns of use of these materials at UC Davis are described in Sections 4.7.1.2 and 4.7.1.3 of Volume I of the 2003 LRDP EIR. Most of the spaces in an NBL would be similar in nature to biological laboratories that already exist on the campus. The schematic design in the UC Davis proposal to NIAID was a building of approximately 135,000 assignable square feet (305,000 gross square feet). Approximately 88 percent of the building would be research laboratories, offices, and support space typical of biological sciences research buildings on the campus.

An NBL would differ from existing activities at UC Davis by bringing BSL-4 organisms to the facility, campus, and community. In addition, research programs would use more BSL-3 microorganisms than currently on campus. Thus, the operation of the NBL would introduce new biohazardous materials and accompanying risks including potential worker, campus, and community exposure via laboratory acquired infection, secondary transmission from workers, theft, upset conditions on site or during transportation, and escape from the facility though air, water or solid waste.

Laboratory safety is provided by designing laboratories to minimize exposure to chemical, biological, radiological, and physical hazards. An NBL would be designed to meet the latest guidelines and codes for addressing these hazards. The basic approach is a box-in-a-box concept that layers the spaces requiring containment within an outer shell of non-containment spaces. This arrangement allows access and maintenance of the facility to take place without exposure of workers to potentially contaminated areas. Incoming and outgoing air from the high containment laboratories is filtered through high efficiency particulate air (HEPA) filters. Liquid wastes are heat-treated to decontaminate potential microorganisms present in the waste. In general, liquids entering the waste treatment system are pretreated in steam sterilizers or by liquid disinfectants. All piped services into the high containment facilities are protected by HEPA filters or backflow prevention devices. Personnel entering the facility are provided with appropriate changing and decontamination facilities to allow removal of potential biohazards prior to exiting the facility.

The proposal submitted to NIAID is for a facility based on this type of design. In addition, the proposal contained proposed plans for security and operational procedures. However, these documents are proposals subject to revision when the programming and schematic design would be refined in late 2003 and the first half of 2004 if UC Davis is selected to move forward with this proposal.

Relationship to the 2003 LRDP and LRDP EIR

The 2003 LRDP is a land use plan that sets the context for future campus development. It does not commit the campus to any project. It does set the general pattern for the future location of new facilities and identifies expected population growth and total square footage of new academic and administrative facilities. As stated above, the 2003 LRDP identifies the area at the

southern end of the Health Sciences District as a zone for location of High Density Academic and Administrative Facilities. Relocation of the existing Equestrian Center and development of this site is planned regardless of whether NIAID selects the UC Davis proposal.

The 2003 LRDP EIR is a program level document that analyzes the overall effects of campus growth through the 2015-16 academic year. The LRDP EIR analysis assumes development of the former equestrian center site with academic and administrative facilities typical of the rest of the campus. If the UC Davis NBL proposal is selected by the NIAID, construction of the facility would not result in the development of any new land not included in the LRDP, would not result in an increase in the anticipated population growth on the campus, and would not exceed the 2.5 million assignable square feet of academic and administrative growth under the 2003 LRDP and used as the basis for analysis in the 2003 LRDP EIR. With the exception of the use of BSL-4 microorganisms, the research programs and use of the facility would be comparable to other facilities on campus. Therefore, with this exception the 2003 LRDP EIR adequately analyzes the potential environmental effect of building academic and administrative facilities on the site identified in the UC Davis proposal to the NIAID.

Project-Specific Environmental Review for the NBL

The NBL would be a unique campus facility that would bring potential hazards and risks unlike others on the campus. Use of BSL-4 materials would not occur on the campus unless the campus proposal to NIAID is selected, negotiations with NIAID are successful, and the required NEPA and CEQA environmental reviews are prepared. Therefore, these new potential environmental effects and risks are specifically related to the proposed NBL facility and are project specific.

Although the campus submitted a detailed and lengthy proposal, the project and program for an NBL at UC Davis is still subject to considerable revision and refinement.

- A response from NIAID on the proposal is not expected until later in the year. Their review and comment could result in changes in the program, design, or siting.
- Proposals from other communities interested in hosting the facility are not due to the campus until mid-May and then must be evaluated. The potential exists that an NBL would not be built on campus even if UC Davis is selected as the host institution.
- The proposal to NIAID included preliminary schematic building designs, site plans. Even on simple projects, significant design details routinely change between this level of design and the designs that are evaluated by the University in environmental documents. Details specific to the design, siting, and operation of the facility will influence the details of the environmental review.
- Security, health and safety plans will be facility and site specific. Therefore, these plans will evolve with the design and change if the program changes in response to input from NIAID or due to refinement of campus initiatives.

The appropriate time to analyze the unique aspects and risks associated with the NBL is when the design details and location are sufficiently developed to inform the analysis. This stage will not be reached until after the NIAID notifies applicants, the proposed site is confirmed, and the

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detailed program and design are developed. An analysis now of the potential impacts of the NBL under CEQA and NEPA, would be premature and speculative.