

**04-R-314, The Center for Integrated Nanotechnologies (CINT)
 Facility, Sandia National Laboratories
 Albuquerque, New Mexico, and
 Los Alamos National Laboratory
 Los Alamos, New Mexico**

1. Construction Schedule History

	Fiscal Quarter					
	A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete	Total Estimated Cost (\$000)	Total Project Cost (\$000)
FY 2004 Budget Request (<i>Preliminary Estimate</i>)	3Q 2002	2Q 2004	3Q 2004	3Q 2007	73,800	75,800

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
Project Engineering and Design (PED)			
2002	1,000	1,000	167
2003	3,200	3,200	4,033
Construction			
2004	29,850	29,850	20,000
2005	35,300	35,300	31,300
2006	4,450	4,450	18,300

3. Project Descriptions, Justification and Scope

This project provides materials and services required to design and construct the proposed Center for Integrated Nanotechnologies (CINT) Facility. CINT will be a distributed center operated jointly by Sandia National Laboratories (SNL) and Los Alamos National Laboratory (LANL). CINT will include a Core Facility in Albuquerque, a Gateway to Sandia, and a Gateway to Los Alamos.

The Core Facility will provide approximately 83,000 gross square feet of laboratory and office space, including state-of-the-art clean rooms with an initial set of nanofabrication and characterization equipment. This facility will also have general purpose chemistry/biology laboratories and electronic and physical measurement laboratories. Lastly, there will be offices and meetings rooms for the Center staff, SNL/LANL collaborators, Center-sponsored post docs, visiting students and faculty, and industry collaborators.

The Gateway to Sandia will focus on specialized microfabrication and nanomaterials capabilities and expertise. This gateway will utilize existing space in SNL's Integrated Materials Research Laboratory and thus will not require any construction funding. The Gateway to Los Alamos will focus on connecting CINT scientists to the extensive biosciences and nanomaterials capabilities at LANL. The facility will provide approximately 31,000 gross square feet of general purpose chemistry/biology laboratories and characterization laboratories outfitted with an initial set of scientific equipment, as well as office and interaction space.

The primary objective of CINT is to develop the scientific principles that govern the performance and integration of nanoscale materials, thereby building the foundations for future nanotechnologies. The distinguishing characteristic of the Center is its focus on exploring the path from scientific discovery to the integration of nanostructures into the micro- and macroworlds. This path involves experimental and theoretical exploration of behavior, understanding new performance regimes and concepts, testing designs, and integrating nanoscale materials and structures. The initial technical focus of CINT will be on the four thrusts that derive from expertise at SNL and LANL: nanophotonics and nanoelectronics; complex functional nanomaterials; nanomechanics; and nanoscale bio-micro interfaces.

No existing facilities at SNL or LANL satisfy the needs and objectives of CINT. The Compound Semiconductor Laboratory (CSRL) and the Microelectronic Development Laboratory (MDL) at SNL have some of the needed capabilities, but they are highly subscribed and not available for exploratory work by students and visitors and do not meet the open environment requirement for NSRCs. Likewise, the Materials Science Laboratory at LANL has some of the needed capabilities but it too is highly subscribed with programmatic deliverables and activities.

4. Details of Cost Estimate ¹

(dollars in thousands)		
	Current Estimate	Previous Estimate
Design Phase		
Preliminary and Final Design costs	2,640	N/A
Design Management Costs	540	N/A
Project Management Costs	400	N/A
Total, Design Costs	3,580	N/A
Construction Phase		
Buildings.....	35,990	N/A
Special Equipment ²	15,760	N/A
Standard Equipment.....	1,540	N/A
Inspection, Design and Project Liaison, Testing, Checkout and Acceptance	2,900	N/A
Construction and Project Management.....	1,030	N/A
Total, Construction Costs	57,220	N/A
Contingencies		
Design Phase.....	620	N/A
Construction Phase.....	12,380	N/A
Total, Contingencies (17.6% of TEC)	13,000	N/A
Total, Line Item Costs (TEC)	73,800	N/A

¹ This cost estimate is based on direct field inspection and historical cost estimate data, coupled with parametric cost data and completed conceptual studies and designs. Escalation rates are taken from the DOE construction project and operating expense escalation rate assumptions (as of January 27, 2002).

² Initial research equipment including testing and acceptance.

5. Method of Performance

Contracted Architect-Engineering (AE) support was used for development of the design concept and associated narrative and supporting material for the Conceptual Design Report. Design Criteria and other documents required during the conceptual phase for the Core Facility will be prepared by SNL personnel with external support as needed.

Performance specifications will be prepared by LANL staff with contracted support for the Gateway to Los Alamos Facility. A design-build contract will be awarded to a construction contractor selected using a competitive best value process. The process will consider the bidders' qualifications, experience, and the quoted price.

SNL and LANL personnel will provide project management, design management, and project controls support.

6. Schedule of Project Funding

(dollars in thousands)

	Prior Years	FY 2002	FY 2003	FY 2004	Outyears	Total
Project Cost						
Facility Cost						
Design	0	167	4,033	0	0	4,200
Construction	0	0	0	20,000	49,600	69,600
Total, Line item TEC.....	0	167	4,033	20,000	49,600	73,800
Other Project Costs						
Conceptual design cost	330	0	0	0	0	330
Other project-related costs ¹	45	425	0	150	1,050	1,670
Total, Other Project Costs	375	425	0	150	1,050	2,000
Total, Project Costs (TPC)	375	592	4,033	20,150	50,650	75,800

¹ Includes tasks such as NEPA documentation, Safety documentation, ES&H Monitoring, Operations and Maintenance Support, Readiness Assessment, and Pre-operational Start-up. Experimental research will begin at the time of beneficial occupancy of the facilities. These research costs are not part of the TPC and will be funded by the BES program.

7. Related Annual Funding Requirements ¹

(FY 2006 dollars in thousands)

	Current Estimate	Previous Estimate
Annual facility operating costs	340	N/A
Annual facility maintenance/repair costs	400	N/A
Programmatic operating expenses directly related to the facility	16,920	N/A
Utility costs	840	N/A
Total related annual funding (operating from FY 2006 through FY 2046)	18,500	N/A

8. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, OMB Circulars, Federal Property Management Regulations, and DOE Orders. The total estimated cost of the project includes the cost of measures necessary to assure compliance with Executive Order 12088A Federal Compliance with Pollution Control Standards, the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, the Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6. The project will be located in an area not subject to flooding determined in accordance with Executive Order 11988. The scientific research which will take place in this facility requires a unique research facility and location as described in Section 3.

¹ These costs are preliminary and based on the conceptual design.