



**Department of Energy**  
Washington, DC 20585

MEMORANDUM FOR ROBERT G. CARD  
UNDER SECRETARY

FROM: JAMES F. DECKER  
ACTING DIRECTOR  
OFFICE OF SCIENCE

A handwritten signature in black ink, appearing to read "J. Decker", written over the typed name.

SUBJECT: ACTION: Approval of the Acquisition Execution Plan for the  
Center for Nanophase Materials Sciences Project

ISSUE: DOE Order 413.3 and the Deputy Secretary's memorandum of  
November 15, 2001 on Project Acquisition Plans and Critical  
Decisions requires your approval of an Acquisition Execution  
Plan for a new Office of Science (SC) construction project, the  
Center for Nanophase Materials Sciences (CNMS) at Oak  
Ridge National Laboratory (ORNL).

BACKGROUND: The CNMS is one of three proposed DOE Nanoscale Science  
Research Centers that comprise an important part of SC's  
contribution to the National Nanoscience Initiative.  
Nanoscience is the creation and use of materials, devices, and  
systems through control of matter "one atom at a time," that is,  
on the scale of nanometers. When completed, the CNMS will  
function as a scientific user-facility for the design, synthesis,  
processing, fabrication, and characterization of novel  
molecules and nanoscale materials. The project scope includes  
a new, 80,000 gross square foot laboratory/office building  
located adjacent to the Spallation Neutron Source (SNS) at  
ORNL. It will have clean rooms, state-of-the-art  
nanofabrication facilities, and an initial set of advanced  
scientific equipment.

The Acquisition Executive, Dr. Patricia M. Dehmer, Associate  
Director for Basic Energy Sciences, approved CD-0 (Mission  
Need) for this project on June 13, 2001. ORNL's Conceptual  
Design Report was successfully reviewed in December 2001  
by an independent committee organized by SC's Construction  
Management Division. The preliminary Total Project Cost for  
CNMS is \$65 million, and the proposed completion date is  
September 2006.



The Department's FY 2002 budget contains \$1.5 million of Project Engineering Design (PED) funding to support starting Title I design, and the President's FY 2003 budget request proposes another \$1.0 million of PED funding and \$24.0 million to initiate long-lead procurement and construction activities.

Your approval of the attached Acquisition Execution Plan will allow the Acquisition Executive to approve CD-1 (Approve Preliminary Baseline Range) and authorize the start of Title I design.

SENSITIVITIES: Both the CNMS and SNS projects have received strong support from the Tennessee congressional delegation, especially from Congressman Zach Wamp whose district includes ORNL.

POLICY IMPACT: None.

RECOMMENDATION: That the Under Secretary sign the CNMS Acquisition Execution Plan.

Attachment

Approve:

  
\_\_\_\_\_

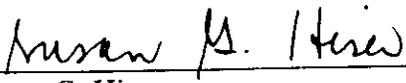
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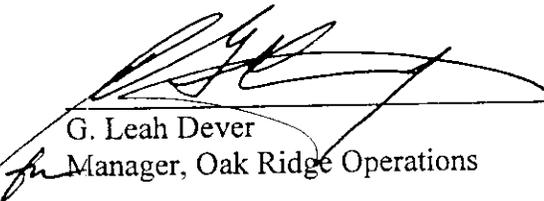
**CONCURRENCES:**

  
\_\_\_\_\_  
Susan G. Hiser  
DOE-ORO Contracting Officer

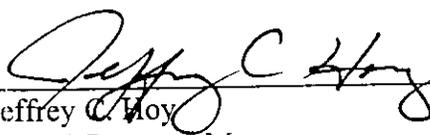
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David K. Arakawa  
CNMS Federal Project Manager

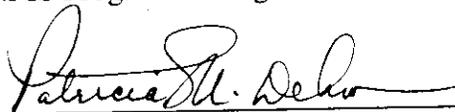
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G. Leah Dever  
Manager, Oak Ridge Operations

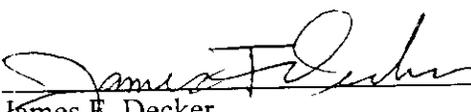
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\_\_\_\_\_  
Jeffrey C. Hoy  
CNMS Program Manager

Date: 1/30/02

  
\_\_\_\_\_  
Patricia M. Dehmer  
Associate Director for Basic Energy Sciences

Date: 2/1/02

  
\_\_\_\_\_  
James F. Decker  
Acting Director, Office of Science

Date: 2/8/02

\_\_\_\_\_  
Bruce M. Carnes  
Director, Office of Management, Budget and Evaluation

Date: \_\_\_\_\_

**APPROVED:**

\_\_\_\_\_  
Robert G. Card  
Under Secretary for Energy, Science and Environment

Date: \_\_\_\_\_

**CONCURRENCES:**

\_\_\_\_\_  
Susan G. Hiser  
DOE-ORO Contracting Officer

Date: \_\_\_\_\_

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David K. Arakawa  
CNMS Federal Project Manager

Date: \_\_\_\_\_

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G. Leah Dever  
Manager, Oak Ridge Operations

Date: \_\_\_\_\_

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Jeffrey C. Hoy  
CNMS Program Manager

Date: \_\_\_\_\_

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Patricia M. Dehmer  
Associate Director for Basic Energy Sciences

Date: \_\_\_\_\_

\_\_\_\_\_  
James F. Decker  
Acting Director, Office of Science

Date: \_\_\_\_\_

  
\_\_\_\_\_  
James A. Rispoli  
Acting Director ME-90 / for  
Office of Management, Budget and Evaluation

Date: 2-15-2002

**APPROVED:**

\_\_\_\_\_  
Robert G. Card  
Under Secretary for Energy, Science and Environment

Date: \_\_\_\_\_

# **CENTER FOR NANOPHASE MATERIAL SCIENCES (CNMS)**

## **ACQUISITION EXECUTION PLAN**

### **I. CNMS Project Background and Objectives**

#### **Statement of Need**

The mission of the DOE Office of Science (SC) is “To advance basic research and the instruments of science that are the foundations for DOE’s applied missions, a base for U.S. technology innovation, and a source for remarkable insights into our physical and biological world and the nature of matter and energy.” The proposed CNMS facility at Oak Ridge National Laboratory (ORNL) provides a unique opportunity for a major advance in carrying out that mission.

Nanotechnology is the creation and use of materials, devices, and systems through the control of matter at the nanometer-length scale. It will fundamentally change the way materials and devices will be produced in the future.

Nanoscale Science Research Centers (NSRC) were recommended by the NSTC Interagency Working Group on Nanoscale Science, Engineering and Technology (IWGN) as part of DOE’s contribution to the National Nanotechnology Initiative (NNI). The NNI proposed significant increases in this Nation’s investment in nanotechnology in order to ensure a competitive position in this rapidly developing field of science and technology. Europe and Japan are already heavily committed to this field of research, which promises to revolutionize technology in the 21<sup>st</sup> Century. The importance of collocation of NSRCs with facilities for x-ray and neutron scattering was also recognized by the IWGN. The NSRCs will provide unique scientific and engineering capabilities not available in any of the parallel programs sponsored by other Government agencies. The Centers will become the cornerstone of the Nation’s nanotechnology revolution, covering the full spectrum of nanomaterials and providing an invaluable resource for universities and industry.

In FY 2001, SC’s Office of Basic Energy Sciences solicited proposals from the national laboratories for establishing NSRCs. Following the completion of a competitive scientific peer review process, three of five proposals submitted were selected (including CNMS) for further development. In June 2001, Critical Decision 0 was approved for all three chosen NSRCs to begin Conceptual Design.

As one of three proposed NSRCs, CNMS will integrate nanoscale research with neutron science, synthesis science, and theory/modeling/ simulation (TMS), bringing together four areas in which the United States has clear national research needs. Collocation of the CNMS with neutron characterization facilities, including the SNS, makes this facility unique in the United States. All three NSRCs will complement each other to provide DOE’s contribution to the National Nanotechnology Initiative (NNI).

CNMS will provide the research infrastructure and environment needed to support highly collaborative and interdisciplinary research, including resident scientific collaborators, long- and short-term visiting scientists, technical support personnel, synthesis and characterization facilities, shared properties measurement facilities, and nanofabrication capabilities. This will permit assembling teams to tackle research problems of a scope, disciplinary breadth, and complexity that cannot be done by small-group efforts. The majority of the Center's users will be researchers from academia, industry and other national laboratories. The Center will also provide a fertile training opportunity to introduce young scientists and engineers to nanoscale science, neutron science, and advanced synthesis and TMS tools. The CNMS addresses science needs for the 21<sup>st</sup> Century in a unique way that is both complementary to and not found in other nanoscience research in universities and industrial laboratories. Not building this facility would result in lost opportunities for basic understanding of nanoscale phenomena and the fabrication (and ultimate use) of nanoscale materials. The opportunity cost, in both scientific and technological terms, of not building the CNMS far exceeds the cost of construction because it will synergistically link a wide range of ongoing and future university, national laboratory, and industrial research efforts.

### **Applicable Conditions**

This facility is needed in a timely manner to support emerging nanoscale research. Standard design and construction methods will be used to provide economical results. There are no unusual requirements that require accelerating the schedule using uneconomical methods, but there are many business synergies and cost advantages to be gained by leveraging existing ORNL contracts for the Spallation Neutron Source (SNS) project. The operation of this facility will provide a unique opportunity to capitalize on the combined research capabilities of the SNS, the High Flux Isotope Reactor (HFIR), and the Center for Computational Science (CCS) at ORNL to advance nanophase materials science. DOE's management and operating (M&O) contractor, University of Tennessee (UT) – Battelle, is uniquely suited to serve as the Government's prime contractor for CNMS. It already has an Architect Engineer/Construction Management (AE/CM) contract in place to build the SNS, the core expertise to manage the design and construction work, and the technical expertise to direct the procurements of state-of-the-art equipment for CNMS. The proposed CNMS construction site is on Chestnut Ridge, adjacent to the SNS Central Laboratory and Office Building. Upon approval from the DOE, ORNL (UT-Battelle) is ready to meet CNMS acquisition objectives by:

- Modifying the existing AE/CM subcontract with the Knight Jacobs Joint Venture (Knight/Jacobs) to accomplish design and construction services, and;
- Identifying and procuring specialized scientific equipment under the DOE-approved UT-Battelle procurement system.

## Cost

The scope of this project includes design and construction of the CNMS building, and procurement and installation of an initial set of specialized scientific equipment needed to support research activities. There will be state-of-the-art clean rooms as well as general laboratories for sample preparation, fabrication, and analysis. As proposed in the FY 2003 Construction Project Data Sheet, this project has a preliminary Total Estimated Cost (TEC) of \$64.0 million and a preliminary Total Project Cost of \$65.0 million. The major elements of the TEC based on conceptual design are \$2.0 million for design, about \$20.7 million for construction, \$26.0 million for special equipment, \$11.8 million for contingency, and \$3.5 million for management, inspection, design and construction support. The \$1.0 million of Other Project Costs is comprised of \$155,000 for conceptual design and NEPA documentation, and \$845,000 for pre-operations costs. For this stage of the project, there is reasonable confidence in these preliminary estimates because they were developed using a bottoms-up approach as part of the conceptual design process. In addition, they were reviewed and endorsed by an independent Conceptual Design Review Committee led by the SC Construction Management Division in December 2001. The construction cost estimate is based on conceptual bills-of-materials prepared in each discipline. Labor and material pricing is based on actual experience at SNS, vendor quotes, ORNL in-house experience, R.S. Means and other recognized sources. The estimate for special equipment is based on a representative list (see Attachment 4) that will be further developed following a series of future workshops with the scientific user community. The final list will be constrained to within the \$26.0 million allowance.

- Life-cycle cost – Although the total life-cycle cost has yet to be determined, it is possible to identify the components. The estimated life expectancy of the building is 40 years, while the operating lifetime for each piece of equipment in the building will vary and be determined at the time of purchase. The FY 2003 Project Data Sheet contains an Annual Facility Operating Cost estimate of \$18 million (in FY 2006 dollars; exclusive of costs associated with the various research programs). It is anticipated that additional scientific equipment will be procured during this 40-year period. Lastly, there are no radiation concerns or unusual decontamination requirements/costs associated with CNMS activities, that is, D&D should be routine and relatively inexpensive.
- Design-to-cost –The AE firm will be required to design a building of around 80,000 gross square feet to meet a target construction cost of about \$21 million. Design Within Funding Limitations and Responsibility of the A/E Contractor clauses will be used to limit design costs.
- Application of should-cost – Should cost objectives - Although this effort does not have a single procurement with a detailed, special form of cost analysis as identified in Federal Acquisition Regulation 15.407-4, it does have an extensive amount of should cost methodology in preparing the TEC. The TEC breaks out

the estimated program costs for the design, construction and equipment budgets and each individual procurement will use some form of price or cost analysis to compare with the TEC estimates for validation. As a result, the TEC will serve as the should-cost benchmarks as this project evolves. Cost estimates in the design, construction, and equipment are based on budgetary quotations from vendors or actual experiences from recent construction and supply contracts.

### **Capability**

CNMS will be a four-level structure of about 80,000 gross square feet with a connected single-story Nanofabrication Research Laboratory (NRL). There will be office space for staff and visitors immediately adjacent to “wet” and “dry” materials synthesis and characterization laboratories. The specialized scientific equipment will provide capabilities for design, synthesis, characterization, shared properties measurement, and fabrication of nanoscale materials and assemblies.

### **Delivery Requirements**

The CNMS project is scheduled for completion in September 2006. The facility design should be complete in November - December 2002. Knight/Jacobs will obtain competitive bids for the overall construction package with an award anticipated in the third quarter of FY 2003. For foundation support on Chestnut Ridge, some friction piles may need to be installed by a separate contract in early October 2002 depending on the results of site soil investigations. Incremental funding will be used to support the construction award with about \$17.5 million in FY 2003 and the balance to be funded in FY 2004. Major equipment procurements (about \$7.5 million) will start in FY 2003 and continue through FY 2006, with installation activities being accomplished by vendors supplying the equipment. The following list is a schedule of key milestone dates for CNMS.

<u>Schedule</u>	<u>Start</u>	<u>Finish</u>
Title I & II Design	Mar 02	Nov 02
DOE CD-2 Approval/partial CD-3 possible	Aug 02	Aug 02
DOE CD-3 Approval	Feb 03	Feb 03
General Building Construction	Apr 03	Nov 04
Procure Technical Equipment	Oct 02	Jun 06
Install and Startup Equipment	Jun 04	Sep 06
DOE CD-4 Approval (Phased)	Dec 04	Sep 06

#### Attached Milestone Charts

- UT-Battelle Award of Knight/Jacobs Contract Modification (Attachment 1)
- UT-Battelle Award to Knight/Jacobs for Title I and Title II (Attachment 2)
- Knight/Jacobs Competitive Award of CNMS Building (Attachment 3)

## **Trade-offs**

Certain tradeoffs were analyzed in arriving at the acquisition strategy described in this plan. They are based on the assumption that the CNMS facility will be built at ORNL and adjacent to SNS in order to capitalize on ORNL's preeminent materials science research program and neutron science facilities (HFIR and SNS). At the most fundamental level, DOE/SC considered it to be much more efficient to rely on the ORNL M&O contractor, UT-Battelle, to function as prime contractor for the CNMS project instead of having DOE serve in that role. Next, there are many persuasive advantages in having UT-Battelle sole source the conventional facilities portion of the project to the AE/CM contractor team already in place for the SNS project rather than going through a competitive procurement process. Among the most important of these advantages are having a capable workforce that is already mobilized and familiar with the site and the CNMS-SNS interfaces; and a CM with economical bulk purchase agreements on SNS for concrete and steel, an outstanding safety program, a comprehensive liability insurance program that covers all its subcontractors on site, and good working relationship with the local trade unions. Lastly, UT-Battelle is best suited to select (with scientific user input) and procure the technical equipment, rather than assigning that responsibility to the AE/CM.

## **Risk**

The risks associated with this project and acquisition strategy are judged to be minimal. In a technical sense, the design and construction of the building are straightforward. The specialized equipment is readily available from commercial vendors. UT-Battelle has a DOE-approved procurement system to handle procurement activity for equipment procurements while Knight/Jacobs has expertise in design and construction work for CNMS which will be located on the SNS job site. In fact, risks have been reduced by having the design/construction work accomplished by Knight/Jacobs because it eliminates coordination, interface, and design compatibility requirements that would surface if other contractors were awarded this work. Also, many of the cost risks have been diminished by allowing CNMS work to enjoy the savings earned on major construction supply and equipment contracts already in place at the SNS. The existing CM's Coordinated Insurance Program and Integrated Safety Management Program reduce risk and ensure that compatible standards exist for CNMS work in relation to other work at the SNS construction site.

## **Acquisition Streamlining**

The procurement systems and processes to streamline the CNMS project are already in place. The Knight/Jacobs team can accomplish the design and construction work by taking advantage of existing design and construction award processes. The on-site SNS design/construction manager, leveraging large quantity needs, will utilize several construction supply contracts that were competitively awarded for SNS. Commercial and best business practices will be used to accomplish all procurements. Many of the equipment procurements will use commercial or best value source

selection concepts allowing cost and technical tradeoffs to ensure the best value is obtained in acquiring equipment. Fixed price contracts are contemplated for all CNMS construction awards. A draft solicitation will be released for industry comment prior to formal solicitation, and pre-proposal and pre-award conferences will be held.

## **II. Plan of Action**

### **Sources**

Knight/Jacobs will be the design and construction site services manager while the list of equipment sources is not yet fully developed. The attached list (Attachment 4) of equipment sources is a result of market research done to date by ORNL technical personnel. Any large business firms awarded contracts on CNMS will be required to submit small business subcontracting plans as required (\$0.5 million for supplies and equipment, \$1 million or more for construction).

### **Competition**

The CNMS award to Knight/Jacobs, although non-competitive by UT-Battelle, will still result in a competitive solicitation for the construction work to be done by their lower tier subcontractors. Knight/Jacobs, based on their extensive experience with the SNS site, including the complimentary requirements associated with collocating CNMS next to the SNS Central Laboratory Office Building, will perform the design work. Equipment procurements will follow many different paths. Some may be non-competitive as well as foreign procurements, but all will be accomplished using DOE-approved UT-Battelle procurement processes which emphasize best business practices.

### **Source Selection Procedures**

Source selection procedures will vary based on the acquisition process for each particular piece of CNMS, as described below:

- Title I, II, and III (about \$2 million) will be negotiated by UT-Battelle with Knight/Jacobs on a non-competitive basis to minimize design costs because of the extensive familiarity they have with the CNMS job site.
- Fixed Price construction contracts (about \$21 million) will be competitively awarded by Knight/Jacobs using their source lists, and taking advantage of existing contracts for SNS construction materials which enjoy 25-45 percent savings of price-listed items for certain construction commodities such as electrical supplies, concrete, etc.

- CNMS technical equipment contracts (about \$26 million) will be procured by UT-Battelle for the most part by the use of commercial or best value acquisition practices with installation being accomplished by vendors, or separate installation contracts.

**Contracting Considerations**

The single most unique contracting consideration for CNMS is the design and construction work because of the approach used to acquire these items. UT-Battelle will modify the existing Knight/Jacobs AE/CM contract for SNS. CNMS will be built on the SNS job site and intends to take advantage of the existing SNS contracts that will lead to lower costs for CNMS and ensure compatibility with existing architectural requirements. Furthermore, previously obtained cost information for SNS design activities will enhance the evaluation of design proposals on CNMS and provide an excellent database to ascertain the reasonability of prices. With Knight/Jacobs managing these interfaces with their lower tier subcontractors, the risk of interface problems is dramatically reduced.

**Budgeting and Funding**

The line item funding profile based on conceptual design and contained in the FY 2003 CNMS Project Data Sheet is as follows:

<u>Project Engineering and Design</u>	<u>Budget Authority (\$ in Millions)</u>
FY 2002	\$ 1.5
FY 2003	\$ 1.0
<u>Construction</u>	
FY 2003	\$24.0
FY 2004	\$20.0
FY 2005	\$17.5
<hr/>	
Total Estimated Cost	\$64.0

In addition, there is \$1.0 million of Operating Expense funding budgeted during FY 2002 – 2006 to support the CNMS conceptual design and environmental analysis, as well as pre-operational costs. The \$11.8 million of contingency in the TEC is distributed between Project Engineering and Design (\$0.5 million), and Construction (\$11.3 million).

**Product Description**

The conventional facility portion of the project will consist of designing and constructing a 4-story building and a connected single-story clean room building, together totaling approximately 80,000 gross square feet. This facility will provide labs, offices, clean rooms, and equipment to perform the research described in the Statement of Need section.

As for the specialized equipment, Attachment 4 identifies a preliminary list of equipment items to be procured and their anticipated costs. This list is expected to evolve as planning for the CNMS scientific program continues with its future users at universities and in industry.

### **Priorities, Allocations, and Allotments**

There are no unique priorities, allocations or allotments associated with procuring CNMS.

### **Contractor vs. Government Performance**

All work associated with CNMS will be performed by contractor personnel. Plans are for UT-Battelle and Knight/Jacobs to award all contracts to commercial firms. There does not appear to be any advantage in DOE directly handling CNMS procurements, including design and construction.

### **Inherently Governmental Functions**

There are not any inherently governmental functions associated with CNMS. Neither design, construction, equipment purchases, nor nanoscale materials research activities are inherently governmental functions.

### **Management Information Requirements**

Contractors for construction will be required to use earned value reporting, track and report costs by Work Breakdown Structure, and provide progress schedules to measure performance. CNMS senior management will also be required to comply with the Contractor Requirement section of DOE Order *413.3 Program and Project Management for the Acquisition of Capital Assets*, at the frequency and intervals required by the order and the Federal Project Manager. Also, Project Assessment and Reporting System (PARS) requirements will be met.

### **Make or Buy**

UT-Battelle will buy all aspects of the CNMS building structure design, construction and equipment under its M&O contract with DOE. UT-Battelle does not have the resources or capability to self-perform design, construction, and fabrication of equipment for CNMS.

## **Test and Evaluation**

Standard construction acceptance processes will be used for any test and evaluation considerations for CNMS conventional facilities. Criteria that follow established industry practices will be developed for acceptance testing of all special equipment and clean room installations.

## **Logistic Considerations**

Unique logistical considerations are not currently foreseen for the CNMS. Delivery of highly technical, one-of-a-kind scientific equipment near the end of the project may require close scrutiny to ensure operational considerations are met.

## **Government-Furnished Property**

Government-furnished property (GFP) may be provided if it is a more economical approach. Technical equipment items will be installed by UT-Battelle or UT-Battelle vendors, but are not considered GFP. However, certain pieces of construction property (uninterrupted power supplies, air handling units, chillers, unit substations, etc.) are available for use by the successful CNMS construction contractor via the Knight/Jacobs AE/CM contract for SNS. None of these items pose any delay issues, as they are mostly commercial "off-the-shelf" items.

## **Government-Furnished Information**

The CNMS Systems Requirements Document and Conceptual Design Report will be provided to Knight/Jacobs to ensure an understanding of the requirements for the CNMS facility. This information contains the desired design estimates and construction cost objectives for CNMS, as well as the estimated amounts budgeted for equipment.

## **Environmental and Energy Conservation Objectives**

All work done on the CNMS will be in accordance with applicable Federal, state and local guidelines for environmental objectives. In June 2001, a National Environmental Policy Act Environmental Assessment for the ORNL Facilities Revitalization Project resulted in a Finding of No Significant Impact (FONSI). Subsequently, an ORNL evaluation of CNMS CDR project scope was done to ensure that no changes were necessary to the original FONSI. This was provided to DOE on November 29, 2001 and is sufficient for the NEPA documentation. Site grading is included under the SNS Environmental Impact Statement. Additionally, energy conservation objectives are outlined in specification and drawing requirements, and comply with 10 CFR 435 (Energy Conservation requirements).

## **Security Considerations**

Normal security requirements will exist for CNMS activity, and access to and from the CNMS job site is controlled by construction access passes. None of the work on CNMS is classified.

## **Contract Administration**

Surveillance of the CNMS work will be done at three basic levels. First, the Federal Project Manager will monitor and evaluate UT-Battelle project performance against technical, cost, and schedule baselines through monthly line item coordination meetings, quarterly performance project reviews, and in-depth reviews. Environment, safety and health performance will also be monitored by conducting periodic field observations, using subject matter experts as necessary. Second, UT-Battelle has overall project management responsibility, including monitoring the Knight/Jacobs AE/CM contract to ensure that design and construction work is proceeding as planned and providing procurement support, construction support services, and utility tie-ins. Likewise, UT-Battelle will award and administer equipment contracts to ensure the timely and cost effective delivery of systems to enable full CNMS research operations in 2007. Lastly, Knight/Jacobs will have their monitoring systems in place to evaluate the progress on construction contracts.

## **Other Considerations**

There are no other significant considerations associated with the CNMS work.

## **Milestones for the Acquisition Cycle**

Milestones are identified in Attachments 1 – 3.

## **Participants in Preparing the Acquisition Execution Plan**

The following ORNL and SNS staff participated in developing the CNMS Acquisition Execution Plan:

James Roberto, ORNL Associate Laboratory Director  
Doug Lowndes, Director, CNMS  
Jack Stellern, Conventional Facilities Project Manager, CNMS  
Barry Miller, SNS Procurement Director  
Joel Pearman, SNS Compliance Officer  
Al Guidry, SNS Sr. Contract Administrator  
Bob Baird, SNS Sr. Contract Administrator  
Tony Chargin, SNS Conventional Facilities Director

Attachment 1

**CNMS TITLE I AND II DESIGN FUNDING AND DELIVERY MILESTONES**

*A. TITLE I DESIGN MILESTONES*

UT-Battelle Receives CD-1 Approval	TBD
UT-Battelle Commits Title I Design Funding	TBD
Issue Title I & II Design Request for Proposal to K/J	TBD
Receive Design Proposal from K/J	TBD
UT-Battelle Completes K/J Proposal Technical Evaluation	TBD
Approval to Award Title I Design Task Order Subcontract	TBD
Award Title I & II Design Task Order Subcontract to K/J	03/01/02
Issue Notice-to-Proceed to K/J to begin Title I Design	03/01/02
K/J Delivers Complete Title I Design, General Construction	05/31/02
UT-Battelle Title I Design Acceptance	06/11/02

*B. TITLE II DESIGN MILESTONES*

UT-Battelle Commits Title II Design Funding	06/12/02
Approval to Award Task Order Mod. For Title II Design	06/13/02
Issue Modification to K/J Task Order Subcontract	06/13/02
Issue Notice-to-Proceed to K/J to begin Title II Design	06/13/02
K/J Delivers Final CNMS Title II Design	11/29/02
ORNL Title II Design Acceptance	12/29/02

TBD = To be determined by the approval date of this AEP

Attachment 2

ITEM DESCRIPTION: CNMS Facility Overall Acquisition Plan Milestones

<b>Milestone</b>	<b>Planned Completion Date</b>
1. Prepare Draft CDR	10/12/01 (A)
2. CDR Review and Comment	11/19/01 (A)
3. Prepare Assessments	01/11/02 (A)
5. Prepare Final CDR	01/11/02 (A)
6. DOE CD-1 Approval & Funding Authorization	TBD
7. Issue RFP for Title 1 & 2 Design	TBD
8. AE/CM Design Proposal Due	TBD
9. Issue Design Task Order	TBD
10. Title 1 Design of General Construction Package	TBD
11. DOE External Review	08/29/02
12. Title II Design General Construction Package	11/29/02
13. DOE CD-2 Approval	08/30/02
14. DOE Independent Review	01/31/03
15. DOE CD-3 Approval	02/03/03
16. Issue General Construction Solicitation Package	01/07/03
17. Award General Construction Contract	04/01/03
18. CNMS Facility Construction Complete	11/30/04
19. DOE CD-4a Approval	12/07/04
20. DOE CD-4b Approval	09/29/06

(A) = Actual

TBD = To be determined by the approval date of this AEP

Attachment 3

ITEM DESCRIPTION: *CNMS Facility General Construction Milestones*

<b>Milestone</b>	<b>Planned Completion Date</b>
1. Pre-Solicitation Conference	12/13/01 (A)
2. Approval of K/J GC Advance Procurement Plan	10/30/02
3. Receive ORNL Funding for General Construction	12/02/02
4. K/J Spec./Drawing Constructibility Review Meeting	12/02/02
5. Review/Approval of Specifications/Drawings by Construction Manager	12/10/02
6. CFC Specifications/Drawings to K/J Procurement	12/13/02
7. Preparation of Procurement Package	12/18/02
8. K/J Procurement Estimate	12/18/02
9. Solicitation to SNS Procurement for review	12/23/02
10. Office of General Counsel (ORNL) review	12/26/02
11. Solicitation consent meeting with SNS Procurement	12/27/02
12. Solicitation consent meeting with DOE-ORO	01/02/03
13. Receive DOE-ORO Solicitation Consent	01/06/03
14. Issuance of Solicitation	01/07/03
15. Pre-proposal conference/site visit	01/17/03
16. Opening/closing date of Solicitation	02/09/03
17. Evaluation of proposals, audits, and field reports	02/22/03
18. Pre-award survey	02/24/03
19. Forward Consent to Award Subcontract to SNS Compliance Procurement Review	02/28/03
20. Award consent meeting with SNS Procurement	03/01/03
21. Office of General Counsel (ORNL) review	03/07/03
22. Award consent meeting with DOE-ORO	03/14/03
23. Congressional notification of Award	03/21/03
24. DOE-ORO Authorization to Award	03/28/03
25. Notice of Award to Subcontractor	04/01/03
26. Subcontract Distribution	04/10/03
27. Pre-construction conference	04/20/03
28. Issue Notice to Proceed	04/20/03
29. Construction Subcontract Completion	11/30/04

(A) = Actual

**Preliminary Special Equipment List**

<u>Description</u>	<u>Estimated Cost (\$M)</u>
Soft Materials Characterization	\$ 3.0
Nanophase Materials Synthesis and Characterization Equipment	\$ 3.0
Nanoscale Magnetism Characterization	\$ 2.0
Nanofabrication Research Laboratory	\$11.0
Neutron Environments	\$ 1.0
<u>General Use Equipment</u>	<u>\$ 6.0</u>
<b>TOTAL</b>	<b>\$26.0</b>