

MEMORANDUM TO NATIONAL SCIENCE BOARD MEMBERS

SUBJECT: Major Actions and Approvals at the May 3-4, 2004 Meeting

This memorandum will be made publicly available for any interested parties to review. A more detailed summary of the meeting will be posted on the National Science Board (NSB, the Board) public Web site within 10 business days. A comprehensive set of NSB-approved Open Session meeting minutes will be posted on the Board's public Web site following its August 2004 meeting.

Major actions and approvals at the 380th meeting of the Board included the following (not in priority order):

1. The Board approved the minutes for the Open Plenary Session (http://www.nsf.gov/nsb/meetings/mtg_list.htm#recent) and Closed Plenary Session of the March 2004 meeting of the NSB.
2. The Board approved a resolution to close portions of the upcoming August 4-5, 2004, NSB meeting dealing with staff appointments, future budgets, pending proposals/awards for specific grants, contracts, or other arrangements, and those portions dealing with specific Office of the Inspector General (OIG) investigations and enforcement actions, or agency audit guidelines (NSB-04-49) (Attachment 1).
3. Dr. Warren M. Washington was re-elected to a two-year term as Chairman of the Board and Dr. Diana S. Natalicio was re-elected to a two-year term as Vice Chair. Drs. Washington and Natalicio were elected by acclamation to two-year terms as members of the Executive Committee.
4. The Board approved a new priority order for existing new start Major Research Equipment and Facilities Construction (MREFC) Projects, in the following order: Scientific Ocean Drilling Vessel, National Ecological Observatories Network, Rare Symmetry Violating Processes, Ocean Observatories Initiative, and Alaska Region Research Vessel.
5. The Board authorized the Acting Director at his discretion to make an award to Network for Earthquake Engineering Simulation (NEES) Consortium, Inc., for NEES Consortium operations during FY 2005-FY 2009.
6. The Board authorized the Acting Director at his discretion to extend the current Cooperative Agreement with Florida State University for the support of the National High Magnetic Field Laboratory.

7. The Board authorized the Acting Director at his discretion to negotiate a cooperative agreement with the University of Wisconsin for construction of the IceCube Neutrino Observatory.
8. The Board approved the transmittal letter and management response to the OIG Semi-Annual Report.
9. The Board approved the annual report of the Executive Committee from the Chair, Dr. Arden L. Bement, Jr., NSF Acting Director (NSB/EC-04-6) (Attachment 2).
12. The Board approved a schedule of meetings for 2005, (NSB-04-75) (Attachment 3).
10. The Board was notified that the NSB Chair had received a request from a U.S. Senator that no further steps be taken to implement the Board's recent policy change regarding eligibility of Smithsonian Institution (SI) researchers to apply for NSF grants. After further consultation with Board Members, congressional staff and the Office of Science and Technology Policy (OSTP), the NSB Chair agreed that the NSF Acting Director would stop his negotiations with the SI on a memorandum of understanding to implement the policy change. The Chair has notified the Senator that the Board will not take any further action toward implementing such a policy change until OSTP has completed its government-wide review of federal researchers who compete for other federal funds, and consensus for implementing the Board's SI resolution has been reached by the Congress (see Attachment 4).
11. The Board unanimously approved a new process for developing, reviewing, approving and prioritizing large-scale research facility projects. The Board-approved document describing this process (see Attachment 5) provides an overarching cross-discipline context and addresses recommendations from a recent National Research Council report, as well as concerns expressed by the Congress. The specific details for implementing this new process will be developed jointly by the Board and the Foundation in the coming months, and will be reviewed and approved by the Board prior to full implementation.

Michael P. Crosby
Executive Officer

- Attachment 1: NSB-04-49
Attachment 2: NSB/EC 04-6
Attachment 3: NSB-04-75
Attachment 4: Chairman's Letter
Attachment 5: NSB-04-97

NSB-04-49
March 29, 2004

MEMORANDUM TO MEMBERS THE NATIONAL SCIENCE BOARD

Subject: Closed Session Agenda Items for August 4 - 5, 2004 Meeting

The Government in the Sunshine Act requires formal action on closing portions of each Board meeting. The following are the closed session agenda items anticipated for the August 4 - 5, 2004 meeting.

1. Staff appointments
2. Future budgets
3. Grants and contracts
4. Specific Office of Inspector General investigations and enforcement actions

A Proposed resolution and the General Counsel's certification for closing these portions of the meetings are attached for your consideration.

/signed/
Michael P. Crosby
Executive Officer

Attachments (2)

PROPOSED
RESOLUTION
TO CLOSE PORTIONS OF
381st MEETING
NATIONAL SCIENCE BOARD

RESOLVED: That the following portions of the meeting of the National Science Board (NSB) scheduled for August 4 - 5, 2004 shall be closed to the public.

1. Those portions having to do with discussions regarding nominees for appointments as National Science Board members and National Science Foundation (NSF) staff appointments, or with specific staffing or personnel issues involving identifiable individuals. An open meeting on these subjects would be likely to constitute a clearly unwarranted invasion of personal privacy.
2. Those portions having to do with future budgets not yet submitted by the President to the Congress.
3. Those portions having to do with proposals and awards for specific grants, contracts, or other arrangements. An open meeting on those portions would be likely to disclose personal information and constitute a clearly unwarranted invasion of privacy. It would also be likely to disclose research plans and other related information that are trade secrets, and commercial or financial information obtained from a person that are privileged or confidential. An open meeting would also prematurely disclose the position of the NSF on the proposals in question before final negotiations and any determination by the Director to make the awards and so would be likely to frustrate significantly the implementation of the proposed Foundation action.
4. Those portions having to do with specific Office of the Inspector General investigations and enforcement actions, or agency audit guidelines.

The Board finds that any public interest in an open discussion of these items is outweighed by protection of the interests asserted for closing the items.

CERTIFICATE

It is my opinion that portions of the meeting of the National Science Board (NSB) or its subdivisions scheduled for August 4 – 5, 2004 having to do with nominees for appointments as NSB members and National Science Foundation (NSF) staff, or with specific staffing or personnel issues or actions, may properly be closed to the public under 5 U.S.C. § 552b(c) (2) and (6); those portions having to do with future budgets may properly be closed to the public under 5 U.S.C. § 552b(c) (3) and 42 U.S.C. 1863(k); those portions having to do with proposals and awards for specific grants, contracts, or other arrangements may properly be closed to the public under 5 U.S.C. § 552b(c) (4), (6), and (9) (B); those portions disclosure of which would risk the circumvention of a statute or agency regulation under 5 U.S.C. § 552b(c) (2); and those portions having to do with specific Office of the Inspector General investigations and enforcement actions may properly be closed to the public under 5 U.S.C. § 552b(c) (5), (7) and (10).

/signed/

Lawrence Rudolph
General Counsel
National Science Foundation

MEMORANDUM TO MEMBERS OF THE NATIONAL SCIENCE BOARD

SUBJECT: 2003 Annual Report of the Executive Committee

In accordance with the requirements of Section 7 (d) of the National Science Board (NSB) Act of 1950, as amended, I hereby submit the annual report of the NSB Executive Committee. This report covers the period from May 2003 through April 2004. I have served as Acting Director of the National Science Foundation (NSF) and NSB Executive Committee Chair since February 22, 2004. Dr. Rita Colwell served as NSF Director and NSB Executive Committee Chair from May 2003 until February 21, 2004.

The elected membership of the Executive Committee during the past year was Dr. Warren M. Washington, Dr. Diana S. Natalicio, Dr. Robert C. Richardson and Dr. Delores Etter. Mr. Gerard Glaser, Acting NSB Executive Officer, served as Executive Secretary to the Executive Committee from May 2003 to July 27, 2003. Dr. Michael P. Crosby, NSB Executive Officer and Director of the NSB Office, served as Executive Secretary of the Executive Committee from July 28, 2003 through April 2004.

The Executive Committee met six times during this period: five meetings at the NSF in Arlington, Virginia, and one meeting on the campus of Xavier University in New Orleans, Louisiana. Oral reports of its activities were made at meetings of the full NSB and are reflected in the minutes of those meetings.

During this period the Executive Committee took no actions on behalf of the NSB.

May 21, 2003 Executive Committee Meeting (Meeting 03-3)

The Executive Committee approved the annual report on the 2002 activities of the Executive Committee.

Arden L. Bement, Jr.
Chairman
Executive Committee

2005 Calendar of National Science Board Meetings

February 7-8 (Monday-Tuesday)
[Annual Retreat/Site Visit]

March 29-30 (Tuesday-Wednesday)

May 25-26 (Wednesday-Thursday)
[Annual Meeting]

August 10-11 (Wednesday-Thursday)

September 28-29 (Wednesday-Thursday)

November 30 - December 1 (Wednesday-Thursday)

April 27, 2004

The Honorable Christopher S. Bond
Chairman
Subcommittee on VA, HUD and
Independent Agencies
U.S. Senate
Washington, D.C. 20510

Dear Senator Bond:

Thank you for your letter of April 23, 2004 in which you describe your concerns on the recent action by the National Science Board (NSB) regarding the eligibility of Smithsonian Institution (SI) researchers to apply for National Science Foundation (NSF) grants.

The Board shares your concerns for setting no precedent that would allow Federal research agencies or Federally funded research centers to become eligible to apply for NSF grants. For this reason, the Board required that no change in existing policy would be implemented unless and until such time that we would be assured that such a precedent would not be made. We had also planned to consult further with key members of the Congress and the Office of Science and Technology Policy (OSTP) to ensure that there was consensus agreement for implementation once a draft memorandum of understanding (MOU) between NSF and SI had been negotiated.

In response to your request, I have asked the NSF Acting Director to discontinue negotiations between NSF and SI to develop draft MOU implementation language and procedures. At the NSB's May 3-4, 2004 meeting, I will recommend to my colleagues that the Board consult further with Congress and OSTP on this issue. I will also recommend that the Board take no further action toward implementing such a policy change until OSTP has completed its government-wide review of Federal researchers who compete for other Federal funds and consensus for implementing NSB's SI resolution has been reached by Congress.

The Board greatly appreciates your long-standing and significant support for the National Science Foundation. If you have any questions concerning NSB's strategy in dealing with this issue, I will be happy to meet with you or your staff to discuss it further.

Sincerely,

/signed/
Warren M. Washington
Chairman

Cc: A. Bement, NSF
J. Marburger, OSTP
D. Natalicio, NSB

Priority Setting for Large Facility Projects Summary

This white paper defines the process used by the National Science Foundation (NSF) and the National Science Board (NSB) to select and prioritize multiple competing large-scale research facility projects. This process has evolved to be more clearly visible to the community and to the Congress. Evaluation stages, evaluation participants, and evaluation criteria for selection and prioritizing of projects are now more clearly defined.

The following summary highlights key elements of the process. Later pages describe the process in more detail.

- NSF nurtures and develops candidate facility projects by working with the research community, building consortia, and maturing high-risk technology.
- While projects are developing, the NSF sponsors forums for evaluation of all aspects of proposed projects. This includes evaluation within and across fields, and the use of the National Academies and the Directorate Advisory Committees, as appropriate. The NSF will clarify the criteria used during this development stage, drawing on the first and second ranking criteria proposed by the National Research Council task force on *Setting Priorities for Large Facility Research Projects*.
- The final stage during which NSF develops a project is the *readiness* stage. It has formally defined entry and exit gates, defined in terms of specific criteria through which a project enters and leaves.
- NSF will define as a science road map those science objectives for which large facilities *may* be required. It is that set of *NSF Science Objectives* that provides an overarching, cross-discipline context for evaluating the value of a proposed facility in comparison to other investments.
- The Director will present the Board with all projects that are developed enough to pass through the entry gate into the *readiness* phase. The Board will be asked to concur that the conditions necessary to pass the entry gate have been addressed.
- The Board maintains a set of guidelines that constitute the entry criteria for projects that move to the *Board approved* stage. These will be updated taking into consideration the third ranking criteria proposed by the National Research Council .
- The NSF Director will – from time to time – nominate one and preferably groups of projects that have attained readiness while in the *readiness* stage. The Board will evaluate those projects against the entry criteria for the *Board approved* stage, and move some of them to that next stage. The Board will prioritize *Board approved* projects in light of how the projects advance *NSF Science Objectives*.
- The Director will include *Board approved* projects into the annual NSF budget proposals in priority order, as budget is available.
- The NSF will maintain a Facility Plan that lists facility projects that are in various stages of construction, in the *Board approved* stage, and in the *readiness* stage. The Facility Plan will map the projects against the objectives contained in the *NSF Science Objectives* document. On an annual basis the Director will provide an update of the Facility Plan, along with a description of candidate facility projects that are on the horizon.

Priority Setting for Large Facility Projects

Detailed Description

The rationale and the criteria used to select and prioritize facility projects to be funded by the National Science Foundation (NSF) should be clearly and publicly articulated. This paper describes that process as executed by the NSF and the National Science Board.

The process can be viewed as a sequence of stages through which candidate facility projects progress. NSF defines and implements early stages during which a candidate facility project is first proposed, and then developed. It is during these early stages that project plans are developed within the community. Technology risk is reduced, sometimes with NSF-funded technology explorations. Appropriate community evaluation groups critique and evaluate the project. This includes ad hoc workshop groups in one or more disciplines, NSF Directorate Advisory Groups, and, in some cases, convened National Academies groups. It is the Director's MREFC Panel that manages this process.

The final project development stage is called the *readiness* stage. A project achieves full readiness while it is *in* the *readiness* stage. Readiness is defined in terms of a clearly defined science program, construction engineering plans, plans for operation subsequent to construction, budget projections, and late stage evaluation of the proposed project both by the research community and within the NSF.

It is in the early stages and the *readiness* stage that the appropriate first and second rank evaluations suggested by the National Research Council task force on *Setting Priorities for Large Research Facility Projects* are first performed. First level ranking includes assessment by researchers in a field or interdisciplinary of the scientific and technical criteria for a project. The second rank evaluation assesses the proposed project from the view of related fields. The second ranking should be performed by the NSF with advice from its Directorate Advisory Committees, and any other community groups that the NSF causes to be convened. Over time the NSF should evaluate and adapt the first and second ranking criteria and publish them publicly.

The ability to evaluate multiple projects can only be accomplished in a context of stated objectives. So, NSF should develop and maintain a document that summarizes *NSF Science Objectives*. The *NSF Science Objectives* document would summarize the guiding science objectives of all of NSF, with emphasis on objectives for which large facilities may be required. It is recognized that some objectives can be attained without the use of large facilities. Models for this document include the national academies report, *Connecting Quarks with the Cosmos*, and the GEO directorate document entitled *NSF Geosciences Beyond 2000*. The *NSF Science Objectives* document should be short; should be a summary of the objectives as stated across the NSF directorates; and it should be updated periodically, as needed, by the Foundation.

The *readiness* stage is concretely defined. It has an entry gate and an exit gate. It is the Director, with the advice of the MREFC Panel, who proposes projects to the Board that are believed to be ready to move through the entry gate into the *readiness* phase. The Board is asked to concur that the conditions, necessary to pass the entry gate to go into the *readiness* phase, have indeed been addressed. The Foundation will clearly articulate how conditions have been met to qualify a project to move through the entry gate into the *readiness* stage. Conditions will include:

- community groups and the relevant directorate advisory groups have evaluated the project and assess it to have very high priority,
- the facility directly addresses one or more objectives in the current *NSF Science Objectives* document,
- technology to create the facility exists or shortly can exist to be used without excessive risk, and
- there is no lower cost or alternative to the facility, in order to perform the science and address the objectives that the proposed facility addresses.

The *readiness* stage has an exit gate. The Director may propose *readiness* stage projects for consideration by the National Science Board for entry into the (next) *Board approved* stage. Such projects must have the following exit gate properties:

- project plans are judged to be construction ready by the Large Facility Deputy,
- the budget for construction and for operations costs has been justified to the satisfaction of the Chief Financial Officer,
- the project has been evaluated by the community and the NSF MREFC Panel asserts that it is of high priority to meet specifically identified *NSF Science Objectives*, and
- NSF Director proposes the project to move into the *Board approved* stage.

Note that a project may fall out of the *readiness* stage for many reasons: insufficient priority over the long-term, failure of the plans to reach construction readiness, eclipse by other projects, or any other reason that the Director deems appropriate.

When the Director proposes ready projects from time to time, the Board considers them. The Board strongly prefers to consider multiple projects at a time and may ask the Director to defer singleton projects until multiple projects are ready for consideration. For the Board to approve a project to enter the *Board approved* stage, the Board considers the following:

- research enabled by the proposed facility,
- construction plans together with their risk and readiness,
- budget justification for construction and operation of the facility,
- funding is imminent – likely to be available in the next two or so years, and
- priority of the project against one or several of the *NSF Science Objectives*, including documented evaluations from the community and the relevant Directorate Advisory Committees.

The Board will reconsider its current guidelines for project approval in order to refine, adapt them using the third ranking criteria proposed by the National Research Council, and then re-publish them as the criteria defining the entry gate for a project to move into the *Board approved* stage. If a project is not approved, then the Board remands the project back to the *readiness* stage either with or without prejudice.

Each time that the Board approves one or more projects, it specifies the priority among all projects in the *Board approved* stage. Priority among projects may change at that time. If a project's plans are no longer deemed to be clearly and fully construction ready, the Board will remand that project back to the *readiness* stage (without prejudice) for further work.

Annually, it is the Director who proposes funding for some subset of the *Board approved* projects in their priority order, as budget permits. The Director negotiates with the Office of Management Budget on budget inclusion.

The NSF will maintain a Facility Plan that lists facility projects that are in various stages of construction, in the *Board approved* stage, and in the *readiness* stage. The Facility Plan will map the projects against the objectives contained in the *NSF Science Objectives* document. On an annual basis the Director will provide an update of the Facility Plan, along with a description of candidate facility projects that are on the far horizon, which are at a stage prior to the *readiness* stage.

The Board ascribes the very highest priority to projects that are under construction. There is no priority among them; they should all move forward at a suitable pace. It has long been the policy of the Congress, the Board, and the Foundation to move all such projects forward at a rate consistent with sound engineering plans.