

**MEMORANDUM TO MEMBERS AND CONSULTANTS OF THE NATIONAL SCIENCE BOARD**

**SUBJECT:** Summary Report of the December 9-10, 2009 Meeting

The major actions and approvals of the National Science Board (Board, NSB) and a preliminary summary of the proceedings at the Board's December 2009 meeting are provided. This memorandum is also made available for public review. The minutes of the Plenary Open Session for the December 2009 meeting will be posted on the Board's public Web site (<http://www.nsf.gov/nsb/>) following Board approval at the February 2010 meeting.

**1. Major Actions and Approvals at the 412<sup>th</sup> NSB Meeting** (not in priority order):

- a. The Board authorized the NSF Director, at his discretion, to make an award for the Cornell High Energy Synchrotron Source (CHESS) and Cornell Electron Storage Ring (CESR).
- b. The Board approved the recipients for the 2010 Vannevar Bush Award and the 2010 NSB Public Service Awards. The names of the awardees will be announced after they have been notified.
- c. The Board approved the site of the next annual Board retreat and off-site visit to be held on September 23-24, 2010 near the Deep Underground Science and Engineering Laboratory (DUSEL) in Lead, South Dakota.
- d. The Board approved the following three priorities for study over the next year: (1) NSF Data Policy, (2) Merit Review Criteria, and (3) Support of Multi-investigator and Large-Scale Research.
- e. The Board approved the minutes of the Plenary Open Session (NSB-09-90) for the September 2009 meeting (<http://www.nsf.gov/nsb/meetings/2009/0923/minutes.pdf>). Minutes for the Plenary Executive Closed (NSB-09-88) and Plenary Closed (NSB-09-89) Sessions for the September 2009 meeting of the Board were also approved.
- f. The Board approved a resolution to close portions of the upcoming February 3-4, 2010 Board meeting dealing with staff appointments; future budgets; grants and contracts; specific Office of the Inspector General investigations and enforcement actions; and National Science Foundation (NSF) participation in a civil or administrative action, proceeding, or arbitration (<http://www.nsf.gov/nsb/meetings/2010/0203/closing.pdf>) (NSB-09-94).

## **2. Board Chairman's Report**

Dr. Steven Beering, Chairman, reported that he and Dr. Craig Robinson, Acting Executive Officer, met with Dr. John Holdren, Director of the Office of Science and Technology Policy and the President's Science Advisor, on December 8, 2009 where they discussed the Board priorities and other issues.

In a January 2009 letter to then President-elect Obama's transition team, the Board recommended a set of actions related to STEM (science, technology, engineering, and mathematics) education. The recommendations included that "the President and his Administration should emphasize to the general public, early and often, the importance of a solid education, especially in STEM, for all of our students." The Board congratulated President Obama for the launch of the "Educate to Innovate" campaign on November 23, 2009 at an event attended by Dr. Arden Bement, NSF Director. This campaign to improve the participation and performance of America's students in STEM will include efforts from the Federal Government as well as leading companies, foundations, non-profits, and science and engineering societies

The Board approved the location near the Deep Underground Science and Engineering Laboratory (DUSEL) in Lead, South Dakota for the Retreat, Meeting, and Research Site-Visit for September 2010. (See 1.c.)

Before the December 1, 2009 due date, the *Office of Inspector General Semiannual Report to Congress, September 2009* was sent to Congress along with the Board transmittal letter and NSF's management response.

In Plenary Executive Closed Session, the Board approved the awardees for the 2010 Vannevar Bush Award and the 2010 individual and group NSB Public Service Awards. The awards will be presented at the annual May Dinner. (See 1.b.)

Dr. Beering announced that Dr. Camilla Benbow was presented with the National Association for Gifted Children's 2009 Presidential Award at the group's annual convention in St. Louis held on November 5-8, 2009. This award reflects a body of work or significant impact by an individual on behalf of gifted education.

Dr. Beering introduced two employees on temporary assignment to the Board Office:

- ◆ Ms. Lee Arslan, leading the Electronic Records Management project, who is on loan for 1 year from the Division of Information Systems where she served as the Branch Chief for Customer Support.
- ◆ Ms. Elke Lower, as an Executive Assistant, on loan for 4 months from the Office of Legislative and Public Affairs (OLPA) where she served as assistant to Mr. Jeff Nesbit, OLPA Director.

## **3. NSF Director's Report**

Dr. Arden Bement, Jr., introduced the following new NSF staff:

- ◆ Dr. Myron P. Gutmann, Assistant Director, Directorate for Social, Behavioral and Economic Sciences (SBE) (as of November 1, 2009).

- ◆ Dr. Stephen H. McKnight, Division Director, Civil Mechanical and Manufacturing Innovation (CMMI), Directorate for Engineering (ENG) (as of August 16, 2009).
- ◆ Dr. Stephen H. Howell, Division Director, Molecular and Cellular Biosciences (MCB), Directorate for Biological Sciences (BIO) (as of September 14, 2009).
- ◆ Mr. William T. Colston, Director, Division of Antarctic Infrastructure and Logistics (AIL), Office of Polar Programs (OPP) (as of November 8, 2009).

Dr. Bement also announced the upcoming departure of Mr. Thomas N. Cooley, NSF Chief Financial Officer. Mr. Cooley accepted a position as Director of Grants Management for Deloitte and Touche LLP in Washington, DC. He will retire from NSF in January 2010, and begin with the firm shortly thereafter.

Dr. Bement reported on the following congressional highlights:

- ◆ On November 5, 2009, the Senate passed its version of the Commerce, Justice, Science and Related Agencies Appropriations bill for FY 2010. The bill provides NSF \$6.917 billion, a 6.6 percent increase over FY 2009 enacted levels.
- ◆ On October 8, 2009, Dr. James Collins, former BIO Assistant Director, testified for NSF before the House Science Committee's Research and Education Subcommittee on Investing in High-risk, High Reward Research. This was the Subcommittee's first hearing aimed at learning more about issues that they expect to be taking up in relation to the NSF reauthorization next year.
- ◆ On October 22, 2009, Dr. Thomas Peterson, ENG Assistant Director, testified for NSF before the House Science Committee's Research and Education Subcommittee on Engineering in K-12 Education. The hearing examined the potential benefits of, challenges to, and current models for incorporating engineering education at the K-12 level.

#### **4. Board Committee Reports**

##### **a. Executive Committee (EC)**

In EC Open Session, the committee discussed possible priority topics for FY 2010, and recommended to the full Board approval of the following three priorities: NSF Data Policy, Merit Review Criteria, and Support of Multi-Investigator and Large-Scale Research. *[The full Board subsequently approved these priorities.]* (See 1.d.)

In EC Closed Session, the committee discussed plans to recruit an NSB Executive Officer and NSB Attorney. Representatives from the Office of the Inspector General (OIG) also presented findings of their review of a personnel matter.

##### **b. Committee on Audit and Oversight (A&O)**

In A&O Open Session, the committee covered a number of topics: Dr. David Spencer, Chairman, Advisory Committee for GPRA Performance Assessment (AC/GPA) and Dr. Sharon Dawes, AC/GPA Vice Chairman, reported on the committee's meeting of June 18-19, 2009. Mr. Sal Ercolano, Clifton Gunderson LLP and Partner-in-Charge of the NSF financial statement audit, reported that the auditors gave NSF an "unqualified" (clean) opinion, the twelfth in a row, and

found no material weaknesses, but did identify one significant deficiency related to the administration of cost reimbursement contracts. Mr. Cooley described NSF's plans to address the significant deficiency in contract monitoring for cost reimbursable contracts and reported that a draft corrective action plan was issued. He also reviewed a number of other topics. Ms. Allison Lerner, Inspector General, discussed OIG's most recent Recovery Act reports, issued since September 2009. Dr. Emily Woodruff, OIG, presented the OIG's FY 2010 Audit Plan.

Dr. Cora Marrett, NSF Deputy Director, discussed the NSF priority for human resource management, and responses needed to consider staffing levels and workload; the directive from the Senate; and the call to all agencies from the Office of Personnel Management. Dr. Mark Suskin, Acting Deputy Director, Office of International Science and Engineering (OISE), reported on the work completed by the NSF "SWAT Team" on Employee Satisfaction and Wellness, and its planned next steps. Ms. Mignon Anthony, Project Director of the "Future NSF" effort, then provided an update on the plans underway for the next generation NSF environment as the current lease expires in 2013.

In A&O Closed Session, the OIG presented details about specific contract administration issues, including information pertaining to procurements and ongoing contracts. Also, OIG investigators briefed the committee about the results of a recent investigation.

### **c. Committee on Education and Human Resources (CEH)**

Dr. Kathy Sullivan gave an update on recent efforts related to the Decadal Survey of NSF's education research investments. Dr. Sullivan reported on an exploratory examination of the "landscape" of investments being made, using visualization tools to identify clusters and gaps. The committee felt this preliminary analysis, done at no cost to the Board, would help to determine whether a more formal study was warranted.

The committee considered the Broader Impacts Criterion (BIC), its application and impact. Drs. Douglas Randall and Thomas Taylor summarized community concerns about inconsistencies in the interpretation of BIC by Principal Investigators (PIs), reviewers, and NSF staff; the inefficiencies of implementing BIC activities through individual PIs, who often lack appropriate expertise; and, the inability to separately account for BIC costs. Dr. Paul (Wyn) Jennings, Program Director, Directorate for Education and Human Resources (EHR), and Einstein Fellows Ms. Heather Pacheco and Mr. John Moore, Directorate for Geosciences (GEO), presented data on the types of BIC activities being proposed within the Divisions of Chemistry, Ocean Sciences, and Earth Sciences. Mr. Moore also demonstrated a prototype geospatial tool to help GEO's PIs leverage other NSF investments with their BIC activities.

The committee felt that NSB should establish a formal task force to evaluate the current merit review criteria and recommend changes in their definitions and application, as appropriate. Due to scheduling constraints, the planned discussion of a draft outline for the white paper summarizing results from the "Preparing the Next Generation of STEM Innovators Expert Panel" was not held.

#### **d. Committee on Science and Engineering Indicators (SEI)**

The committee heard updates on the status of *Science and Engineering Indicators* and various associated products, all of which were on schedule for their projected release dates. *Indicators*, including the print volume, the online appendix tables, an online pdf of the full report, and the *Key Science and Engineering Indicators Digest 2010*, will be released to Congress, the White House, and the public on January 15, 2010. Plans for a rollout event on that date are taking shape. The Board's Companion Piece policy document and the state data tool, which enables users to examine state-level indicators of S&E performance, will be released at the American Association for the Advancement of Science (AAAS) Annual Meeting in February 2010. Info-cards, presentation slides, the *Indicators* CD, and the fully functional Web version of *Indicators* will be released in time for the AAAS Annual Meeting.

As part of the NSB's outreach efforts, staff from the Science and Technology Policy Institute (STPI) and the Board Office have been developing a Web-based tool targeted at students, teachers, parents, and guidance counselors and highlighting *Indicators* data relevant to those audiences. The framework is a chronological pathway spanning pre-K education through entry into the workforce, including data on financial issues affecting students wishing to pursue S&E education. For *Indicators 2012*, outreach efforts will be targeted at industry and are expected to highlight improved data derived from NSF's Business R&D and Innovation Survey. Board Members suggested several organizations that might be approached as part of *Indicators*-related outreach.

#### **e. Committee on Programs and Plans (CPP)**

[Note: CPP Task Force on Sustainable Energy (SE) did not meet in December 2009.]

In CPP Open Session, the committee discussed proposed revisions to the current guidelines on transmitting action items to the Board. Revisions included stipulations that NSF provide information items one meeting in advance of action items. In order to allow for extra deliberation, if necessary, action items must begin at least one additional Board meeting after the action has been presented to the Board. The committee approved these revisions subject to minor edits and changes. (Attachment)

Dr. Kelvin Droegemeier and Mr. Arthur Reilly continued the discussion of proposed revisions to two previously published documents related to the Board's review of Large Research Facility projects: the "Annual Timeline for the Integration of Board MREFC Process with NSF Budget Process," and *Setting Priorities for Large Research Facility Projects Supported by NSF*. Both require an update to reflect current processes and policies. The committee plans to discuss these modifications further and expects to present suggested changes to the Board during the February 2010 meeting.

Dr. Joann Roskoski, BIO Acting Assistant Director, presented an information item on the status of the National Ecological Observatory Network (NEON). NEON is an integrated sensing system to detect and measure the consequences of climate and land use change and of invasive species on the biosphere of the U.S. at the regional and continental scales. NEON passed a final design review (FDR) in November 2009, and will be ready to begin construction in FY 2011. NSF expects to bring an action before the Board at the February 2010 meeting.

Dr. Timothy Killeen, GEO Assistant Director, and Dr. Robert Detrick, GEO Division Director for Earth Sciences, presented an update on the plans for Integration and Recompetition of the EAR Solid Earth Deformation Facilities. All four cooperative agreements for GEO solid earth deformation facilities will expire in the next 4 years. GEO is planning a phased integration and recompetition in the next few years that will allow the directorate to unify and streamline facility operations and management, as well as simplify NSF oversight by condensing the four cooperative agreements into two.

In CPP Closed Session, CPP considered one action item and forwarded it to the full Board for approval: Award for the Operations of the Cornell High Energy Synchrotron Source (CHESS) and the Cornell Electron Storage Ring (CESR) [*The full Board subsequently approved the award resolution.*] (See 1.a.)

#### CPP Subcommittee on Polar Issues (SOPI)

In SOPI Open Session, Dr. Karl Erb, OPP Director, reported that a number of follow-up activities to the International Polar Year (IPY) are planned in the next year. The U.S. and New Zealand have a joint project to install three wind turbines at McMurdo; when completed, these will provide 10 percent of the electricity needs there for McMurdo and nearly all of Scott Base's requirements. Ms. Dana Topousis, OLPA Group leader for Media and Public Information, reported on the Climate Change Conference currently underway in Copenhagen, noting that OPP was selected by the State Department to open the event. Dr. Esin Gulari presented an overview of the Board Members' recent site visit to Antarctic research facilities, including video of the first ever views of the underside of the McMurdo ice shelf in an oceanographic experiment.

Dr. Scott Borg, OPP Division Director, presented an information item on the IceCube operations and maintenance (O&M) renewal proposal, currently under review, in anticipation of an NSB action item in February 2010. Dr. Martin Jeffries, OPP Program Director, provided a status update on Arctic sea ice. He presented a video showing changes in sea ice thickness from 1979 through 2009 that clearly indicates a significant loss of older, thicker ice since 2004.

In SOPI Closed Session, Dr. Simon Stephenson, OPP Division Director, presented an information item on the Arctic Logistics in Support of Research contract.

#### **f. Committee on Strategy and Budget (CSB)**

[Note: CSB Task Force on Cost Sharing (CS) did not meet in December 2009.]

In CSB Open Session, the Subcommittee on Facilities (SCF) chairman, Dr. Jose Marie Griffiths, provided an update on their activities. It was noted that a template for collecting information to assess the NSF facilities portfolio was sent to appropriate NSF Directorates in early December 2009. Dr. Bement presented an update on the FY 2010 Appropriation. He presented highlights from the House-Senate Conference Report, including a 6.7 percent funding increase for NSF over FY 2009, not including American Recovery and Reinvestment Act (ARRA) funding. Dr. Clifford Gabriel, Executive Officer (Acting), Directorate for Mathematical and Physical Sciences (MPS), outlined efforts to revise the NSF Strategic Plan under new guidance received from the Administration. NSF will embark, with input from CSB, on an aggressive schedule to revise the strategic plan by May 2010. Dr. Marrett presented a report on NSF ARRA funding, highlighting specific examples of ARRA funded projects.

In CSB Closed Session, Dr. Bement provided an overview of the major elements within the “passback” information on the FY 2011 Budget Request received from the Office of Management and Budget (OMB). Dr. Robinson provided an update on the NSB budget.

**g. Task Force on the NSB 60<sup>th</sup> Anniversary (60ANN)**

Several presenters reported on the progress of plans associated with the NSB and NSF 60<sup>th</sup> Anniversaries. Dr. Patricia Galloway, 60ANN chairman, reported that NSF-supported individuals, who were nominated to be speakers at the February, August and December 2010 Board meetings, were invited and their responses expected in December 2009. Alternate speakers were also identified.

Mr. Nesbit provided an update of various activities for the 60<sup>th</sup> Anniversary at the February 2010 AAAS Annual Meeting and throughout 2010. The symposium, “The Future of NSF on Its 60<sup>th</sup> Anniversary,” which features current and former NSF Directors, will receive wide publicity. A 60<sup>th</sup> Anniversary logo was developed as well as “branding” artwork to be used at NSF events in 2010. Mr. Nesbit also noted that the first drafts of the “Sensational 60,” a compilation of some of the most outstanding NSF-funded discoveries with wide-ranging impact, as well as the “NSB History Highlights” of the past 10 years were completed. Agency review of the “Sensational 60” will occur after the holidays. Mr. Nesbit also reported on initiatives involving Capitol Hill to highlight the anniversary.

Mr. John Tsapogas, Chairman, NSF Working Group on the 60<sup>th</sup> Anniversary, gave an update on the low-cost, high impact activities approved by Dr. Marrett to be implemented throughout 2010. He reported that plans for the AAAS symposium were proceeding and that a teleconference with the symposium participants was planned for January 2010. Mr. Tsapogas also noted that the NSF Working Group had been officially disbanded in November 2009 with completion of their mission, but that he and Ms. Tracy Gorman, co-chairman, would continue to work on implementation of NSF 60<sup>th</sup> Anniversary activities in 2010.

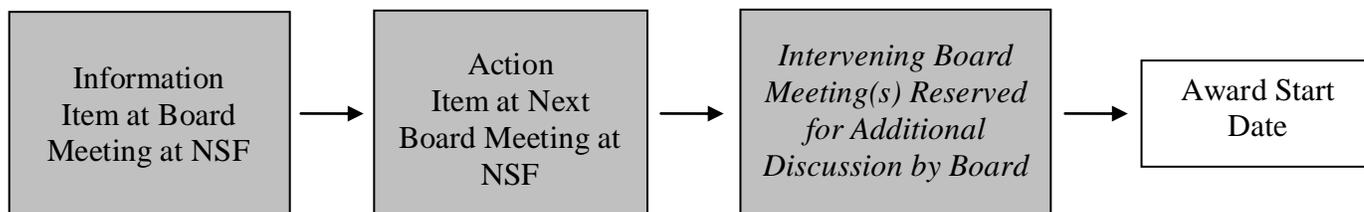
*[signed]*

Craig R. Robinson  
Acting Executive Officer

Attachment: NSB/CPP-09-54, Transmitting Director’s Review Board (DRB) Packages to the National Science Board

**Transmitting Director's Review Board (DRB) Packages  
to the National Science Board<sup>1</sup>**

1. **Annual Timeline:**
  - A. The NSF Deputy Director will provide a proposed schedule of information and action items for the next 12 months to the Board Office Director for review and inclusion in the Board Book for the December Meeting (or the last meeting of the calendar year).
  - B. The proposed annual timeline, and any revisions during the year, will need to be reviewed by the NSB Chairman and the CPP Chairman prior to inclusion in the Board Book.
  - C. The Deputy Director should avoid proposing action items at off-site Board meetings.
2. **Information Items for Future Actions:** The Board expects information items for upcoming actions to be scheduled the meeting before an action item is presented, excluding off-site meetings. Information items will be short oral presentations with the option to provide written materials for Board consideration in the Board Book.
3. **Action Items:** To ensure that the Board is able to fully consider a decision on a proposed action item (new award, continuation of existing award, or renewal), the effective date of the proposed action item must be after the date of the next scheduled Board meeting.
4. **Board Member Packages:** The Office of the NSF Director will provide the Board Office with electronic versions of NSB packages for each Board Member, using the most appropriate medium. This material is needed at least 4 weeks prior to the Board meeting to allow for Board Member review.
5. **Conflicts of Interest:** The Office of General Counsel (OGC) will advise the Board on conflicts of interest for each action item and provide the Board Office with a draft conflicts analysis 4 weeks prior to the Board meeting.



<sup>1</sup> Approved by the National Science Board Committee on Programs and Plans at its meeting on December 9, 2009.