

Report of the
Committee of Visitors of the Office of Nuclear
Physics
(FY 2007, 2008, and 2009)
12-14 January 2010
Germantown, MD

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Executive Summary

A Committee of Visitors (COV) for the Office of Nuclear Physics (ONP) was formed as a subcommittee of the Nuclear Science Advisory Committee (NSAC) in response to a charge from the ONP. The COV met for three days, 12-14 January 2010, to evaluate (a) the efficacy and quality of the processes used to solicit, review, recommend, monitor, and document application, proposal, and award actions; (b) the quality of the resulting portfolio, including its breadth and depth, and its national and international standing; and (c) the transfer of the Isotope Development and Production for Research and Applications (IDPRA) subprogram. Additionally the COV was asked to comment on ONP's response to the 2007 review and make recommendations for improving the review process in the future. The period for which the COV was asked to evaluate the program was FY2007-09. The COV was composed of 20 members who had scientific expertise across the portfolio of the ONP program or technical expertise in operations or project management.

The Committee congratulates the ONP on their stewardship of the national nuclear physics program. Because of their insight, diligence, and planning, the US is well-positioned to continue to lead the world in this crucial area of research. The ONP is composed of dedicated and hardworking individuals. The Committee believes that the processes that are currently being used to evaluate projects for awards are appropriate with respect to ensuring a balanced degree of innovation and risk. The projects process in fact may vary depending upon the degree of risk for a project. This serves the community and the science well.

The COV was pleased to find the ONP had successfully filled vacant positions and received authorization to augment the staffing of the Office. The transfer of the IDPRA program has been successful and the current positioning of IDPRA within ONP presents an opportunity to revitalize R&D efforts within IDPRA. The new authorized positions will allow ONP to realize the potential of this program. The Small Business Innovation Research (SBIR) program is being used to support and enhance the ONP programs. Most issues raised by the 2007 COV have been addressed; some still need to be addressed.

While the COV was generally impressed with the operations of the ONP it was not clear that there were processes in place to utilize all the available data to assure continuous improvement in the operation of the office. The program managers have a great feel for what they are doing, but it is not clear that all the decisions of the office are governed by the available data. For example timeliness of proposal actions is a clear concern both of the community and the office (as evidenced by the fact that the COV was asked to assess this in our charge), yet the difficulty in assembling these data for the COV was a clear indication that this is not something that is looked at on a regular basis to monitor processes in the office. Data on the diversity of the people supported are in a similar situation, as is the "turnover" rate of PIs. Data on grant size as a function of various parameters should be tracked to identify potential hidden biases, if there are any, as a function of group size, gender and ethnicity of faculty,

longevity of grant and other factors. It would seem that the office would want to track these aspects of the data on a continual basis to monitor and improve its processes.

The COV puts forth the following recommendations in order to provide guidance so that an already outstanding office can rise to an even higher level of performance. The recommendations are listed below in three categories. The committee feels that the first set of four prioritized recommendations are very important to set the stage for continuous process improvement in the ONP. The second set of recommendations are intended to help improve specific processes of the ONP and are in the order in which you will find them in the report. The final two recommendations pertain specifically to the COV process.

Major recommendations:

1. Consistent with the recommendations of the 2007 COV, it is imperative that the ONP immediately establish a database that can be used to track relevant proposal and grant information.
2. The COV recommends that a discussion of workforce development and diversity be required in all proposals. The COV further recommends that the ONP modify the proposal review / scoring method to elevate the importance of workforce development with emphasis on attracting and training women and members of under-represented groups.
3. The COV strongly recommends that the ONP develop a written policy to finalize the reports of the laboratory research group reviews within four months after the panel review.
4. The COV recommends that the ONP prepare a written response to the COV recommendations within three months of receiving them from NSAC. This response should contain a plan of action to address the recommendations in this report. A report card that details the progress on the COV recommendations should be sent to NSAC at the time of charging the next COV committee.

Process specific recommendations:

Soliciting and reviewing proposals

- The COV recommends that the ONP work toward improved feedback to PIs. Feedback to PIs on reviews of proposals in general, including the OJI/Early Career Awards and Theory Topical reviews, should provide sufficient detail to enable the PI to improve future proposals. Additionally, the review documentation should be uniform and include panel rankings when panels have been used.
- The COV recommends that ONP develop a metric that effectively measures the performance of SBIR projects in contributing to the ONP mission and goals. Equally important, the COV recommends that ONP proactively work to make the Nuclear Physics Community aware of new technological developments which result from the SBIR / STTR program.

- The COV recommends that ONP identify ways for program managers to have face-to-face contact with university research groups at least once during a grant cycle. Such meetings should be documented to ensure that they are taking place and to provide useful feedback to the ONP and the PI. This could be accomplished with site visits, reverse site visits, or at conferences
- The COV recommends that the ONP consider a way to compare university grants across each program. It is important that a process be developed to establish, normalize and monitor research grant support and performance across each program element.

Monitoring projects and programs

- The COV recommends strengthening and formalizing the regular review of facility operations at the four national user facilities operated by the Office of Nuclear Physics to better address maintenance, budgetary efficiency and long term planning issues in facility operations.
- The COV recommends that the Associate Director be involved in developing and approving the final strategy for the handoff of a project to scientific operations. Effective coordination between the Physics Research Division and the Facilities and Project Management Division on the CD-4 requirements for projects is essential to optimize the overall benefit of the project with consideration of the budgets for both divisions.
- The COV recognizes that DOE Order 413.3A is an effective tool for developing and monitoring projects and recommends that the ONP consider further tailoring in the application of the order for smaller low-risk projects. Prudent reduction in documentation and other requirements on small projects should reduce cost and effort without significantly increasing risk.
- The COV recommends that the ONP establish a mechanism for funding travel expenses for all members of review panels and site visits other than using the individuals' research grants.

Portfolio for the future

- The COV recommends that the ONP continue to pay close attention to the issue of supporting new investigators and new scientific opportunities. Even in tight budget times the importance of investing in the future is crucial.

COV specific recommendations:

- The COV review materials (COV book) should be made available electronically to the Committee two weeks prior to the visit. The ONP should work closely with the COV Chair to determine the contents of these review materials.
- As part of preparations for the next COV, the COV chair should solicit comments from the community regarding the operation of the ONP.

Introduction:

A Committee of Visitors (COV) for the Office of Nuclear Physics (ONP) was formed as a subcommittee of the Nuclear Science Advisory Committee (NSAC) in response to a charge from the ONP. The COV met for three days, 12-14 January 2010, to evaluate (a) the efficacy and quality of the processes used to solicit, review, recommend, monitor, and document application, proposal, and award actions; (b) the quality of the resulting portfolio, including its breadth and depth, and its national and international standing; and (c) the transfer of the Isotope Development and Production for Research and Applications subprogram. Additionally the COV was asked to comment on ONP's response to the 2007 review and to make recommendations for improving the review process in the future. The period of time for which the COV was asked to evaluate the program was FY2007-09. The COV was composed of 20 members with scientific expertise across the portfolio of the ONP program, or technical expertise in operations or project management.

The Committee congratulates the ONP on their stewardship of the national nuclear physics program. Because of their insight, diligence, and planning, the US is well-positioned to continue to lead the world in this crucial area of research.

Although the COV was generally impressed with the operations of the ONP, it was not clear that there were processes in place to assure continuous improvement of the operations of the office. The program managers have a great feel for what they are doing but it is not clear that all the decisions of the office are governed by the available data. For example timeliness of proposal actions is a clear concern of the community and the office (as evidenced by the fact that the COV was asked to assess this in our charge), yet the difficulty in assembling these data for the COV was a clear indication that this is not something that is looked at on a regular basis to monitor processes in the office. Data on the diversity of the people supported are in a similar situation, as is the "turnover" rate of PIs. Grant size as a function of various parameters should be tracked to identify potential hidden biases, if there are any, as a function of group size, gender and ethnicity of faculty, longevity of grant and other factors. It would seem that the office would want to track these aspects of the data on a continual basis to monitor and improve its processes. The four major recommendations from the COV are intended to address precisely this issue.

- *Consistent with the recommendations of the 2007 COV, it is imperative that the ONP immediately establish a database that can be used to track relevant proposal and grant information.*
- *The COV recommends that a discussion of workforce development and diversity be required in all proposals. The COV further recommends that the ONP modify to the proposal review / scoring method to elevate the importance of workforce development with emphasis on attracting and training women and members of under-represented groups.*

- *The COV strongly recommends that the ONP develop a written policy to finish the reports from the laboratory research group reviews within four months after the panel review.*
- *The COV recommends that the ONP prepare a written response to the COV recommendations within three months of receiving them from NSAC. This response should contain a plan of action to address the recommendations in this report. A report card that details the progress on the COV recommendations should be sent to NSAC at the time of charging the next COV.*

Throughout this report there are other recommendations, but the committee believes so strongly in the importance of using all of the available information in a timely fashion to continuously improve the operation of the office that these recommendations are emphasized up front.

Major Findings, Comments and Recommendations

A. The effectiveness, efficiency and quality of the processes used to solicit, review, recommend, and document proposal actions.

Findings:

UNIVERSITY RESEARCH:

The Committee paid much attention to details of the review process. The priorities and criteria used to assess university research proposals appear to be consistent with the program solicitations and guidelines. Care is given to selection of reviewers who understand these criteria, while also recognizing the need to attempt to enlarge the pool of reviewers. The program managers do a fine job of adhering to the principles of the program goals and solicitation announcements and in general do an excellent job of using the reviews and their own judgment in making and documenting funding decisions. However, the letters to the PIs whose proposals were declined were form letters that did not give the PI any feedback that could be used to improve his or her proposal. The Committee noticed a number of reporting inconsistencies in the grant proposal folders. In particular, we encountered a lot of confusion on the dates used on the inside front folder cover.

In FY2008 and FY2009 the ONP solicited new grants early so they could compete directly with renewal grants. By our count, approximately 10% of the grants awarded in 2007-2009 were to new PI's, but not all these were new grantees. About half of the new awards were in theory, and about half in experiment. Many were Outstanding Junior Investigator (OJI) awards.

The COV observed, both in the proposal and grant folder documentation and anecdotally among the committee members, that a good deal of confusion still remains in the community regarding the details of the proposal and grant administration process. This includes (but is not limited to) the sorts of things that can or should be included in proposed budgets; the ability to reallocate funds based on needs and availability of personnel; and the responsibilities of the PI to the larger community for things like proposal review and dissemination of work.

The workforce survey provides valuable data on the number of people supported in the field. However, the demographic information available on the people supported on research grants was limited. There was no information in our COV book in the section marked diversity. The number of female and under-represented minority PIs was the total extent of what could be produced, and this seemed only possible due to the efforts of the individual program managers. The table below that shows the fraction of female and under-represented minority PhD-level faculty and permanent staff was extracted from data presented by the individual program managers.

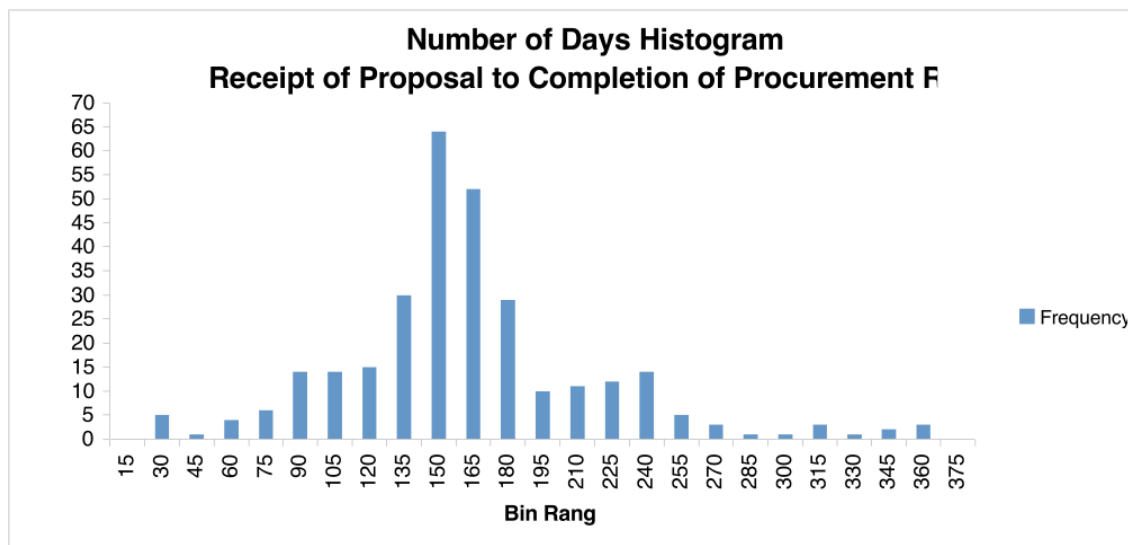
	Univ - Female	Lab - Female	Univ - URM	Lab - URM
HI ⁺	10 / 73	4 / 60	2* / 73	0* / 60
LE	3 / 91	4 / 90	3 / 91	3 / 90
ME	No data available			
TH ⁺	15 / 101	3 / 49	3 / 101	4 / 49

*US Pacific Islanders not included as they were reported with the broader Asian group.

⁺Assuming numbers of women and URG reported are for permanent faculty/staff
 HI = Heavy Ions; LE = Low Energy; ME = Medium Energy; TH = Theory

The committee was told that in determining grant size for renewal grants the starting point was a percentage increase from the previous grant budget. We found no evidence for program-wide comparison of university grants, hence it is the program managers who must provide the cross calibration of the various grants within a program.

Regarding time to decision, we were provided with the following data:



The histogram shows the number of days after proposal submission to the date that the PI is notified of the funding decision by ONP. (Note that this does not include the time necessary for the funding decision and funding to pass through the Chicago office to the successful grantee.) The mean and median times are over five months.

LABORATORY RESEARCH:

In general the committee found the system of rotating 4-year reviews for laboratory research in theory (TH), medium energy (ME), heavy ions (HI), and low energy (LE) to be an excellent system that is complementary to other reviews such as Science and Technology reviews for the laboratories. We commend the ONP on the implementation of this system.

The proposals (e.g., accomplishments for previous project period, research plan for next project period, budget and budget justification) provide sufficient information for the reviewers to make well-informed assessments. The laboratories related their proposals to the established milestones for the field, but the proposals did not neglect high-quality research that might not fit within the milestones.

In response to recommendations of the 2007 COV on “cost effectiveness” the ONP standardized the budget format in the proposals by providing a budget template in the instructions. The new budget template is very similar to that used in the university-based grant proposals to the ONP and should be familiar to most reviewers. Also, consistent with the 2007 COV recommendations, the instructions now include a section on workforce development and the reviewers are instructed to comment on these efforts.

All proposals in a subfield are submitted during the same year and are reviewed by a single panel that is chaired by the ONP program manager for that subfield. The use of a single panel to review all the proposals in the same subfield provides a forum for consistent evaluation of the performance of laboratory groups and allows for direct comparisons of the proposals. At the conclusion of

the review meeting, the program manager has the essence of the panel findings. After receipt of the written reviews of all proposals, the program manager who chaired the panel writes the final report that is sent to the research groups. The ONP is commended for assembling panels with sufficiently broad expertise to review the laboratory research programs in an entire subfield and for their highly professional handling of the reviews.

In general the timeline for the review process (from the solicitation to receipt of the final review report by the laboratory research groups) seems adequate. The final review report is typically sent to the research group leaders within four months of the panel review. During the period covered by this COV, research programs in three subfields (LE, TH, HI) were reviewed. (It is expected that the ME program will be reviewed in FY 2010.) The LE review was executed professionally and extremely well with the final report to the laboratories within 4 months. The review of the TH program was conducted in a thorough and professional manner with the report finished in a timely fashion. In contrast, the final report for the review of the HI program is now 16 months overdue. Yet funding actions have been taken at the ONP on these HI proposals in the absence of formal feedback being given to the research groups. The COV finds the length of the delay in completing the report of the May 2008 review of the HI program to be excessive and unacceptable. We were informed that the delay in completing the final report of the HI program was mainly caused by the delay in receiving all the reports from the panelists (the last report was not received until 2009) compounded with the substantially higher workload of the program manager during 2009.

Development of a talented workforce is an essential investment for ensuring continued world-class leadership in nuclear physics. As described in the 2004 NSAC report on education in nuclear science, the field must be proactive in attracting the best and brightest young people and in cultivating new talent. While the instructions to the laboratory research groups clearly request information on their training activities, the level of detail on those activities provided in proposals varies considerably and seems to be somewhat of an add-on to the proposals rather than a central theme. The committee noted that the percentage of women on the permanent staff at the National Laboratories is extremely low (~5%).

The rotation period of four years for the reviews seems appropriate for the scope of work proposed by the groups at the national laboratories and for effective and efficient program evaluation by the ONP. Also, this period gives the research groups flexibility while providing adequate time for them to develop new research directions in response to emerging opportunities.

SBIR GRANTS:

The ONP now receives in excess of 100 proposals for Phase 1 Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) awards per year (a 250% increase over 4 years.) This is seen as a positive indication by the Facilities and Project Management Division of increasing interest and success in the nuclear physics program in the small business community.

Based upon a two-part review process, including both panel and mail reviews, and relevance to the NP mission and goals, the Program Manager selects the proposals for Phase 1 awards (up to \$100K). Typically 20 to 30 Phase 1 awards are selected per year. Once the awards are placed, the PI has 9 months to complete the work and submit a report and an application can be made for Phase 2 funding. For those PIs requesting Phase 2 funding, the reports are sent back to the reviewers for recommendation of award of Phase 2 funding (up to \$750K per award for two years.) About 10 Phase 2 awards are made every year. There has been a focused effort to bring the goals of the SBIR/STTR program and those of the ONP into alignment.

PROJECTS:

Large projects are often initiated with the CD-0 process that allows ONP to identify “Mission Need.” The evidence for mission need is obtained primarily from NSAC advice and various reports (the Long Range Plan, NRC studies, and other evidence of community support for new initiatives). The Facilities and Project Management Division (FPMD) is open to and considers specific proposals that might initiate Major Item of Equipment (MIE) projects. In most (but not all) cases National Laboratory participation is a prerequisite for the initiation of a MIE project because a Federal Project Director from a DOE site office is often required. Smaller projects are often initiatives coming from the community and the ONP sometimes uses science reviews to better establish the need for particular items.

Comments:

A database is essential to track the time-to-decision, workforce and other grant demographics to enable evidence-based decision-making. The Committee appreciates the desire to make use of a Science-wide system, but the benefits of having something in place soon are too great to ignore. This information would be extremely useful for oversight by the ONP Division Directors and Associate Director, and not just for the COV or other review committees. Such a database could be set up as a simple spreadsheet to which knowledgeable people can submit data. These data could include award amounts, dates, reviews, rankings, actions, milestone dates, number of supported faculty, post-docs, graduate students, and undergraduates, gender and ethnicity breakdowns, and so on. Included in this database should be analysis and graphing tools, and other user-friendly features for straightforward evaluation of the data.

In general the COV could not find evidence of how the program managers determine the funding levels for University grants across the program and how these amounts are tied to the quality of the science the group is doing. Additionally, it is not clear to the Committee how initial grant levels are established. On one hand, some PI’s believe that they should discuss an appropriate funding level with the Program Manager before submitting a proposal, but on the other hand it is not clear what considerations are taken into account in such recommendations. Similarly, for proposals that are approved but

are asked to first submit revised budgets, the criteria for the budget targets are not clear to us. The incremental nature of budget increases over time makes the initial grant level very important for a new investigator.

There is great value in one-on-one discussions, especially in person, to enhance communication between PI's and program officers. Sometimes this can be arranged when serendipity puts the two in the same place at the same time, such as conference attendance, but it is too important to leave this to chance. Site visits of some sort are one way to close that gap, but it is important that this process not put an undue burden on a program manager's or PI's time or travel budget.

The tracking sheet on the inside cover of the proposal file was apparently suggested by a previous COV. Although the idea is sound, the date entered needs to consistently be the date on which the noted action was taken. It is our expectation that many of these inconsistencies would be cleared up with electronic tracking of proposals in a local database.

Letters informing PIs of grant decisions should explicitly state that PIs can request feedback from their proposal review. Information in an edited form should be made available upon request.

As observed by the 2007 COV, the Committee wonders if the rate of new PIs is sufficient to sustain the field. It was difficult to accurately assess the status of new PIs since our estimate of 10% does not count new faculty added to existing group grants and does count some faculty that are not really new investigators. ONP-wide tracking of senior personnel on grants would aid this analysis and provide for consistency across the programs.

Perhaps one reason for the very modest presentations in the area of workforce development and diversity in the proposals from the National Laboratories is that these items are not explicitly included in the proposal-scoring matrix. Demographics data presented in the talks by the program managers reveal that the laboratories have a substantially lower percentage of women in permanent scientist positions compared to tenure-track faculty who are supported by ONP at universities. The average percentage of women in permanent science staff positions supported by the ONP at the laboratories is about 5.5% while the average percentage of tenure-track women faculty at universities is about 11%. This area is one where the proposal and performance review process might be revised to have an increased impact on these issues.

Efforts to enhance the diversity of the workforce do not seem to be considered in the university research grants or project grants.

Though the laboratory research panel review seems to work well, there may be areas where it can be improved. The mechanism for evolving/improving the panel review process wasn't clear to the COV. The ONP should consider soliciting feedback from the panelists on the review process. The amount of paperwork should be reduced where possible. For example, it is certainly not

necessary anymore to send out empty template forms for each of the laboratories to each of the reviewers.

The submittal of the final panel report to each laboratory research group completes the review process. The review report is a major component of the mechanism for making and communicating funding decisions on proposals and for providing feedback to the laboratory groups on their proposed activities and performance. Although the delay of the final report of the review of the HI program was an anomaly, it could be an indication of fragility in the review process.

The lead-time for generating MIE projects is often very long. The ONP needs to work hard to identify opportunities and the scientific justification for future projects in order to reduce this time lag. The Office of Nuclear Physics should make timely responsiveness to new opportunities a high priority.

While panels and reports are used extensively as inspiration and justification for new projects, the initiation process is largely an internal exercise that must take careful account of the overall breadth and balance of the portfolio, the overall ONP budget, and the nature and quality of the specific proposals in hand.

The administrative burden of the SBIR program is substantial but it seems with great effort ONP is managing this program well. The process used to solicit, review, select and decline proposals for the SBIR is logical and appropriate. The level of effort expended by the Office and the Program Manager to ensure a successful outcome for the SBIR/STTR program and ONP program and mission is noted and applauded. The Committee feels that this effort should continue and that a metric be developed to measure the relevance of Phase 2 awards to the ONP mission and goals and use that to improve the outcome. In addition, the Committee feels that the Office should share the results of this program directly with the nuclear physics community to open opportunities for exploiting the developments produced by this program.

The Committee observed considerable evidence that the workload of the Office of Nuclear Physics is heavy and not likely to be reduced in the future. In this regard we certainly hope that all open positions in the office can be filled in the near future. In addition, it is natural to look for ways in which the office personnel can use their limited time in even more effective ways. One aspect of this is the possibility of less detailed management of equipment construction projects when the nature or size of the project does not seem appropriate for such detailed management.

Another possibility concerns the involvement of Program Managers in many detailed decisions of grantees during the grant period. Clearly if the grantee plans to change scope significantly during the grant period the grantee should consult with the Program Manager. However, it seemed from what we heard that Program Managers expect to be consulted before even relatively minor and straightforward decisions were taken. The annual Progress Report certainly includes information on how funding has been spent. It is not clear to us that

having to discuss ahead of time detailed personnel decisions is a good use of time by the Program Managers, and relaxing this expectation could save important time for these individuals to be able to address other important issues.

Recommendations:

- Consistent with the recommendations of the 2007 COV, it is imperative that the ONP immediately establish a database that can be used to track relevant proposal and grant information.
- The COV recommends that a discussion of workforce development and diversity be required in all proposals. The COV further recommends that the ONP modify to the proposal review / scoring method to elevate the importance of workforce development with emphasis on attracting and training women and members of under-represented groups.
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- The COV recommends that ONP develop a metric that effectively measures the performance of SBIR projects in contributing to the ONP mission and goals. Equally important, the COV recommends that ONP proactively work to make the Nuclear Physics Community aware of new technological developments which result from the SBIR / STTR program.
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- The COV recommends that the ONP consider a way to compare university grants across each program. It is important that a process be developed to establish, normalize and monitor research grant support and performance across each program element.

B. Monitoring of active projects and programs

Findings:

PROJECTS:

There are currently two major (>\$20M) projects in process within ONP, namely the JLab 12 GeV Upgrade in construction and the FRIB project in conceptual design.

- The JLab Upgrade project is following the rigorous requirements defined in DOE Order 413.3A, as required of M&O Contractors for projects over \$20M in Total Project Costs (TPC).
- FRIB is developing as a Cooperative Agreement between DOE and Michigan State University. The plan is to follow the general approach of Order 413.3A, with some exceptions.

Additionally, the ONP actively monitors 14 projects that fall below \$20M in TPC using Order 413.3A. Order 413.3A is required for projects above \$5M, although some tailoring of the requirements to individual projects is allowed. The ONP has decided to use many aspects of Order 413.3A requirements for selected projects below \$5M in TPC, especially for those perceived to have significant risk.

Status and plans for projects with TPC greater than \$5M are reviewed about annually with a panel review. The 12 GeV Upgrade and FRIB are reviewed at least annually using the DOE-SC Office of Project Assessment (Lehman review) process. In addition, progress towards completion of these projects is updated and assessed monthly by ONP and input to the DOE project-monitoring (PARS) database. Quarterly reviews with broader DOE stakeholder representation are also conducted. Smaller projects (<\$5M) are reviewed by ONP on a quarterly basis as well as during facility S&T reviews. The Majorana R&D effort is costly, so the ONP is also using a process based on Order 413.3A to manage this project.

CD-4 (project completion) criteria were examined for all active NP projects. The criteria are in general conservative.

FACILITIES:

Technical elements and performance metrics of facility operations together with progress on small Accelerator Improvement Projects and Research and Development are evaluated as part of the annual Science and Technology reviews. However, no operations-focused reviews of facility operations were conducted during the FY07-FY09 review period.

The operations funding models at ATLAS and HRIBF have been modified to establish consistency between the four user facilities. Additionally, revised operations metrics that better represent experimental program performance at the four national user facilities have been developed and are being reported.

Operations Metrics

Operations metrics at accelerator facilities can be complex and must be carefully evaluated to ensure that performance in support of experimental programs is properly measured. The Office identified a need to modify certain measures at its user facilities to ensure that beam parameters such as luminosity, current, polarization, and isotopic content together with experimental equipment availability are properly represented in the overall assessment of facility performance. This approach provides a better assessment of the quality of the research beams each facility produces during times beams are scheduled to be available for use. These metrics were implemented and reported on in FY09 and will ensure ongoing critical evaluation of experimental program effectiveness at each of the facilities.

Isotope Program

The Isotope Program, which is engaged in critical isotope production and research for the nation, was transferred from Nuclear Energy to the ONP during FY 2009. A national workshop entitled “The Nation’s Needs for Isotopes: Present and Future” was held in August 2008 prior to the transfer to engage the isotope communities in identifying needs and challenges. Federal staff and funds were transferred from Nuclear Energy to Nuclear Physics to support the effort and to minimize any disruptions. In FY 2009 Congress identified a total of approximately \$5M additional funding for the isotope program; American Recovery and Reinvestment Act (ARRA) funding in FY09 boosted funding by approximately \$15M in both research and operations categories. The Isotope program maintained an on-time delivery for more than 570 shipments to support customer needs and met greater than 98% of their customers’ needs. As the NSAC Isotopes Subcommittee report is released, the ONP plans to develop a Five Year Isotope Program Plan during FY 2010.

Accelerator Research and Development

The ONP directly funds accelerator development that supports ONP programs and projects. The funded activities may advance the state of basic accelerator physics knowledge and techniques, but the main goal of all funded programs is to solve technical problems related to ONP mission needs. The Office of High Energy Physics handles generic accelerator development activities. Accelerator Development became an identifiable line item in the FY09 ONP budget and significantly increased in FY09 & FY10. The base budgets of some national user facilities also fund permanent groups in accelerator R&D. RIB ‘generic’ R&D created the technology basis to justify the FRIB design. Accelerator Improvement Project (AIP) base funds at user facilities enable projects of modest scope (<\$5M) that improve or enhance facility performance and are part of the facility Field Work Proposal (FWP) budget process. As AIP projects are capped at \$5M, accelerator projects that are over \$5M become construction projects and are proposed and reviewed separately from the base budgets. These large accelerator projects are managed according to DOE Order 413.3A. No stand-alone AIP project in the last ten years has exceeded its TPC. For projects with budgets under \$5M, a graded approach is applied to meet the intent of DOE Order 413.3A. Project management structures are employed including Project Management Plans, work breakdown structures, and fully loaded schedules.

Earned Value Management Systems (EVMS) are not generally employed for these projects, as it is not required for projects less than \$20M. For small AIP projects, the budget and schedule are generally agreed upon at the pre-conceptual design stage or possibly preliminary design stage.

Management

Three key leadership positions in the Facilities and Project Management Division are vacant and searches are underway to fill these positions.

The monitoring of active projects and programs requires the efforts of many people in the community. For ONP-supported scientists that are asked to serve on a site visit or review panel, the ONP expects travel expenses to be reimbursed from a PI's existing DOE research grant.

Comments:

The NP office is currently monitoring an impressive number of projects, including some very complicated ones. The office has achieved an outstanding record of successfully managing its projects, using consistent and well-established approaches.

The conservative criteria for project completion effectively transfers risk to the operations budgets under the responsibility of the ONP Physics Research Division. Therefore, close coordination between the Physics Research Division and the Facilities and Project Management Division is essential to ensure that projects are completed with the correct scope and scientific capabilities.

DOE Order 413.3A allows considerable flexibility for tailoring the project management requirements to specific projects, as appropriate, particularly those with low TPC.

User Facility Operations

The annual S&T reviews do have an operations component, but an operations specific review would benefit from a dedicated operations agenda and a panel of accelerator and experimental operation experts. For example, are the facilities being adequately maintained for optimal performance in the long term?

The FY09 S&T reviews consistently recommended that the laboratories develop staffing plans for the upcoming years. The result of this request should be included and reviewed as part of the planned FY10 Operations reviews. This set of planned reviews could initiate a revised ongoing approach to more detailed facility operations reviews.

The reviews should also consider the effectiveness of the completed AIP projects within the laboratory and comment on proposed AIP projects. The projected increase in operations budgets due to completed ONP Major Initiative projects (especially CEBAF 12-GeV and FRIB) will challenge the program and may require optimized and accurate operations cost estimates for all facilities to

support budget decisions in the out-years. Continuing the established close communication (such as the present bi-weekly conference calls) between program and facility managers will be essential for program success. A comprehensive operations review of the recent and projected cost to operate the four NP facilities will enable more accurate budget forecasts and integrated program management.

Isotope Program

Preparations for the isotope program transition from the Office of Nuclear Energy to the Office of Nuclear Physics were comprehensive and robust and the transition was very effectively managed to ensure performance continuity

The isotope program plans to continue investments in research and operations. Consistent with these plans, we are pleased that the Office of Nuclear Physics charged NSAC to prepare a long-term Isotope Program Plan that will inform internal budget formulation processes.

Accelerator Research and Development

The AIP management process appears robust with annual project reviews by ONP for the larger AIP projects, monthly teleconference meetings, and monthly and quarterly reports.

For AIP projects under \$5M, especially those that are truly cutting edge, locking in the project budget and schedule at the pre-conceptual design stage or preliminary design stage can expose the project to much greater schedule and cost risks. A possible modification to the approval process for these projects could be to fund any necessary R&D and preliminary design work prior to full commitment to the total project. Thus, having a Test Case Management Process (TCMS) review at this point for the project should provide reduced risk in both schedule and budget and may allow a lower contingency to be employed than would be required if the project was funded at the pre-conceptual design point. Such a change should not cause the total project schedule to extend significantly. Discussions with staff indicate this is done for some projects, but implementing this routinely may be beneficial for small projects.

Management

The committee noted that three key positions in the Facilities and Project Management Division are vacant and that searches are underway to fill these positions. The most visible and important of these is the Program Manager for Nuclear Physics Facilities, a position that entails management of nearly half of the Office's budgetary authority. Filling this position will enable focused and integrated management of the accelerator-based capability for which the Office is steward.

Two Program Management positions in the Isotope Program for Isotope Facilities and Isotope Research and Development are vacant. Given the recent transition of this program to the Office of Nuclear Physics it is important to fill these positions as quickly as possible to provide continuing effective program oversight, a sound foundation for future success and to ensure the continued

strength and growth of both the research and production elements of this important program.

The policy to pay for travel expenses out of research grants can cause a hardship for an individual grantee, who cannot predict being asked to participate in a site visit or on a panel service when preparing his or her proposal budget. This can put the individual in a conflicted position because it is often a decision between research and service. On the other hand, the ONP knows how many panels and site visits will be held in a given time period, and can budget accordingly.

Recommendations:

- The COV recommends strengthening and formalizing the regular review of facility operations at the four national user facilities operated by the Office of Nuclear Physics to better address maintenance, budgetary efficiency and long term planning issues in facility operations.
- The COV recommends that the Associate Director be involved in developing and approving the final strategy for the handoff of a project to scientific operations. Effective coordination between the Physics Research Division and the Facilities and Project Management Division on the CD-4 requirements for projects is essential to optimize the overall benefit of the project with consideration of the budgets for both divisions.
- The COV recognizes that DOE Order 413.3A is an effective tool for developing and monitoring projects and recommends that the ONP consider further tailoring in the application of the order for smaller low-risk projects. Prudent reduction in documentation and other requirements on small projects should reduce cost and effort without significantly increasing risk.
- The COV recommends that the ONP establish a mechanism for funding travel expenses for all members of review panels and site visits other than using the individuals' research grants.

C. Within the boundaries defined by DOE missions and available funding, how the award process has affected the breadth and depth of the Nuclear Physics portfolio elements

Findings:

The Committee congratulates the NP Office on their stewardship of the national nuclear physics program. Because of their insight, diligence, and planning, the US is well-positioned to continue to lead the world in this crucial area of research. We draw attention to the following examples of research programs that are of the highest scientific interest and that bring great credit to DOE and to the investigators that it supports:

- *Constraining the quark-gluon origin of the nucleon spin*

- *Measurement of the precise charge distribution of the neutron*
- *Parity violation measurements of electron scattering to place stringent limits on the contributions of strange quarks to the electromagnetic properties of the proton*
- *Discovery of a nearly perfect liquid in relativistic heavy ion collisions*
- *Observation of strong jet quenching in relativistic heavy ion collisions*
- *Demonstration of Anti de Sitter space/Conformal Field Theory correspondence in nuclear theory*
- *Elucidation of the structure of neutron-rich nuclei at the limits of stability*
- *Precision measurements and theoretical description of nuclear reaction rates of importance to astrophysics*
- *Further precise investigations of neutrino oscillations*
- *A very precise determination of the weak mixing angle*

Accelerator development is a crucial activity required for ONP to achieve its mission goals. Over the past decade, accelerator R&D has been funded in fields that support the radioactive beam program, the HI program, the LE program and the ME program. Accelerator R&D is being effectively applied to support the ONP mission and goals and must continue to be supported at a robust level in order to provide the tools necessary for world-class research in nuclear physics.

A significant fraction of Accelerator R&D funded by ONP comes from the base operating budgets of the national user facilities. This funding is important not only for the technology developments but also because it allows the creation of stable accelerator physics teams focused on specific fields of accelerator physics (SCRF, cryogenics, beam optics...) rather than needing to recreate these teams for each new focused R&D need.

In the past three years, a new category of mission-focused R&D has been added to the ONP that allows targeted additional funding of smaller groups with specific expertise as needed. (This category has replaced RIB R&D that provided the technology base for the FRIB project.) This is a positive development that allows more flexibility in responding to new ideas and initiatives and will be important in exploring cutting edge technology that will be necessary for future research initiatives.

Comments:

The overall quality of the science supported by the ONP is very high. The Office makes excellent use of reviewers and panels to ensure that the breadth and depth of the nuclear physics research program remains world-leading. The scope, size, and duration of awards appear to be carefully formulated to take advantage of the strengths and capabilities of the various research groups. The ONP appears to be sensitive to ensuring that new investigators and emerging scientific opportunities receive appropriate consideration.

The Committee believes that the process that is currently being used to evaluate projects for awards is an appropriate one with respect to ensuring a balanced degree of innovation and risk. The projects process in fact may vary depending upon the degree of risk for a project. This serves the community and the science well.

It is not clear to the Committee that restricting Accelerator R&D to mission-focused work is the best long-term strategy for the ONP. The decisions to fund accelerator development groups and projects should be made with a broad interpretation of the needs for program support, since new developments in accelerator technology can provide the technology to make projects feasible that are currently unaffordable. FRIB is a good example of this. Additionally, accelerator R&D is an area that is crucial to a variety of societal applications and goals. While the ONP has historically supported mission-focused work, the ONP is now in a position to join HEP in supporting truly generic research in this area, which promises to provide many long-term benefits to the nation. The need to support educational programs in Accelerator R&D is especially acute, and the ONP would appear to be well positioned to meet that need.

Recommendations:

- The COV recommends that the ONP continue to pay close attention to the issue of supporting new investigators and new scientific opportunities. Even in tight budget times the importance of investing in the future is crucial.

D. The national and international standing of the portfolio elements

The COV employed the criteria of scientific focus, uniqueness, number of users, investments and productivity to assess the national and international standing of all the portfolio elements of the ONP. With the resources steered by the ONP, the world leadership of the two large laboratories (RHIC and CEBAF), along with their respective science programs in both theory and experiment, remains unquestioned. The two smaller laboratories (ATLAS and HRIBF), as well as the centers of excellence, are among the world-leaders in the study of nuclear structure and astrophysics with stable and radioactive ion beams. The COV finds

that the management of these facilities is first rate and they satisfy the criteria of uniqueness and impact. For example, RHIC is the world's first and only asymmetrical heavy ion collider for dense, hot "QCD" physics and the world's first and only collider of polarized protons for 'spin' physics. The committee also observed that the ONP research portfolio addresses the goals and milestones identified by the 2008 NSAC Report on Performance Measures.

Access to and partnerships with the international community continue to be healthy, as reflected by the user community and considerable investments by foreign countries (Japan, European Union, Russia, India, and China). International users constitute 30-45% of the users at U.S. facilities and U.S. scientists utilize leading international facilities (LHC, DESY, Mainz, TRIUMF, GANIL, ISOLDE, Jyvaskyla Cyclotron, and RIKEN) and international collaborations (e.g. JUSTIPEN, INT) to accomplish compelling physics studies. The laboratory and university programs also attract a strong international graduate student presence.

The COV observed that many of the investigators supported by the university grants program and the laboratory research programs are recognized international leaders in their field and often have positions of leadership within international collaborations. The research programs have provided an impressive array of scientific publications in the top peer-reviewed journals and in many cases document discoveries that impact ongoing efforts worldwide. The recent strategic use of topical collaborations in nuclear theory is expected to stimulate U.S. leadership in areas that advance jet and electromagnetic tomography of the extreme phases of matter, the theory of nuclear reactions with rare isotopes, and neutrinos and nucleosynthesis in hot and dense matter. New investments have also been made in the research areas of fundamental symmetries and nuclear structure/astrophysics. These elements add significant breadth to the portfolio.

Comments:

The COV concurs with the last COV report that the DOE project portfolio reflects the balance of leadership described above. The recent approval of the new FRIB facility is a new and important milestone for the nuclear structure/astrophysics community who will make very effective use of such a major new facility. During the evaluation process, the COV compiled information relevant to international participation in the ONP programs. This included both areas where the international community invests in the US laboratories and areas where the ONP supports participation of U.S. scientists in offshore projects. The COV notes that, while international participation appears to be healthy, it may be useful for the ONP to develop a more formal mechanism for tracking this kind of information as part of an annual assessment of the health of the program from an international perspective.

E. Progress made towards addressing action items from the previous COV review

Findings:

The response to the 2007 COV review was written on January 5, 2010, just before the 2010 COV convened. It reflected work that had gone on during the previous three years to address issues raised in the previous review. The 2007 COV recommendations (•) and the *status* of each are summarized below:

- While there is an Office of Science wide database, a common database of reviewers specifically for the ONP office is needed, one that can be shared among the program managers, particularly as there continues to be more crossover between the different subprograms.

There was no evidence that an ONP-wide database for reviewers was regularly used. The following is the ONP response to this recommendation.

“SC is in the process of acquiring new administrative systems software which will allow a unified approach across all SC programs. As part of this process, NP is working with SC Resource Management on the development and implementation of information technology resources to address this recommendation.”

- We recommend a more extensive database of the information contained in the university grants, to facilitate tracking of the overall health of the program. Statistical data such as action, the number of PI's per grant, average grant size, and time to notification of a proposal are among the statistics that would be valuable to track.

A comprehensive database of proposals has not yet been developed. This effort was delayed because of the development of an SC-wide system that is not yet ready. This remains undone and is the highest priority recommendation from the present COV.

- There is ample evidence of the need for the additional staff requested by ONP. We encourage the filling of the vacant positions as soon as possible, and strongly support use of detailees where appropriate. This is beneficial both to the office and to educating the scientific community about how decisions are made when detailees return to their home institutions.

The COV was very pleased to see that several key positions have been filled. Three searches are currently underway (Program Managers for NP National User Facilities, Research Isotopes, and Isotope Facilities).

- For the review process of the laboratory research groups, we recommend that there be a more direct mapping between the review criteria and the suggested list of materials to be included for the review. Examples are in the area of outreach activities and in workforce development. We recommend that the

hosting of graduate students and the mentoring of post-docs be incorporated as an assessment item in the review process.

The submission package for national laboratory group reviews now specifically asks for a statement on student education and training supported by the group. However, these items are not in the proposal-scoring matrix. It remains important that workforce development be part of the assessment of laboratory research groups.

- “Cost effectiveness” is a performance measure that is difficult to determine. We recommend that the program office continues to improve this measure for the laboratory research groups, and to develop a more uniform methodology to evaluate the cost effectiveness of the laboratory research programs

The ONP has implemented a “pre-formatted budget breakdown” to enable reviewers to better assess the “cost-effectiveness” of the laboratory research groups

- The ONP should seek opportunities to better educate the scientific community regarding the process, approach and constraints in the development of new initiatives into projects. This could, for example, include a primer posted on the ONP website and explanations during presentations at relevant national meetings.

The ONP wrote a document (available very recently on the web at www.sc.doe.gov/np/dev/projects/index.shtml) to explain the initiation of new projects, which depends on the size of the project and on where it originates.

- We recommend continued incremental improvements to the laboratory research reviews procedures with a specific goal of developing consistency between the 4-year review process and the research reviews during the annual site visits to facilities.

ONP has tried to reduce redundancy in its reviews, for example by removing theory from the FY 2009 S&T reviews since the laboratory nuclear theory research groups were reviewed in FY 2009. Continued improvements should be sought and are recommended by this COV.

- We recommend that the appropriate program manager visit each laboratory at least once during a 4-year cycle.

ONP response: “Program managers are visiting laboratories that have facilities with programs within their portfolio at least once per year. NP tracks site visits by program managers. Visits to laboratories not running a facility are subject to the availability of resources”

- Site visits, even informal ones, are extremely important for communicating project issues concerns and needs. As more staff are added to ONP, we encourage more frequent, but informal, visits (more than once per year) to

sites with projects in progress. The COV noted that all program managers already have significant travel obligations, so this recommendation depends strongly on filling the vacant positions within the office. While travel funds have increased since the last COV, additional funds will be needed in the ONP program management budget to accommodate the recommended more frequent site visits as well as address inflation of travel expenses.

ONP response: "ONP visits all national labs and university Centers of Excellence that have projects at least once per year. ONP will strive for an increased frequency of site visits as staffing and workload permit."

- We encourage the ONP to consider a fellowship program, working with other offices within DOE-SC, as an element of an expanded accelerator R&D effort.

DOE-SC has established both a new graduate fellowship program and the Early Career Research Program. These programs may include awards to accelerator physicists. The FY 2009 budget request included accelerator R&D.

- The COV encourages the use of retiring grants to fund new young investigators (whether through the OJI program or through the regular grants program).

Approximately 10% of the grants were to "new" PIs, including 10 OJI awards. A significant number of these were in theory. In addition to this, some new faculty are funded by joining already funded groups. This made it difficult to accurately determine the number of new young investigators added to the portfolio. In FY 2008 and FY 2009 NP solicited new grants with an early deadline so that they could compete directly with renewal grants. This approach will be continued in FY 2010, although without a solicitation.

Comments:

The COV finds it unacceptable that the response to the 2007 COV report and recommendations was not prepared until January 2010. While the committee was told that progress on the recommendations was taking place throughout the last three years, the committee notes that a formal acknowledgement of the report and plan for new procedures is an important first step to assure that the advice of the COV is fully utilized.

The COV requested information about visits by program managers to national labs. Although a list of all travel by NP staff was provided, it was hard to determine from that list how frequently projects were reviewed on site. It would be helpful to have a list of travel by ONP staff to laboratories, project sites, and universities in the form of a database or electronic spreadsheet that could be sorted to address specific questions.

Electronic tracking of proposals and personnel in an accessible database would make it easier to evaluate the progress on the recommendation to fund new young investigators.

Recommendations:

- The COV recommends that the ONP prepare a written response to the COV recommendations within three months of receiving them from NSAC. This response should contain a plan of action to address the recommendations in this report. A report card that details the progress on the COV recommendations should be sent to NSAC at the time of charging the next COV committee.

F. Suggestions regarding the COV process**Findings:**

The presentations by the NP staff were very informative and provided an excellent opportunity for the committee to understand the workings of the office. In general we found that the staff is extremely hardworking and dedicated to the goal of funding good science and providing effective stewardship of NP resources. The staff was forthcoming and worked hard to provide answers to all of our requests for information.

The NP staff was very helpful in responding to requests for information. However, the lack of a comprehensive database made retrieval of information difficult and time-consuming, and in some cases impossible during the three days of the COV review. Some data that were requested in advance of the COV were never made available to the committee.

While individual members of the committee had heard anecdotal data regarding impressions of some in the community about aspects of the operations of the ONP, there was no data or mechanism for the committee to address these questions in depth.

Comments:

The slides for the research presentations were uniform and well targeted to the task of the COV (research portfolio, international standing, workforce statistics, etc.). However, there was almost no time for breakout panels on the first day because the presentations took longer than planned. The committee had to come up to speed on the various programs and procedures in the office and had many questions. It would be helpful to have shorter presentations, with slides that can be reviewed ahead of time, and plenty of time for questions on the first day. Practice talks would be helpful in honing ONP's message and creating presentations that stay within the allotted time. Someone from the ONP should be assigned the task of timekeeper during the presentations by the ONP.

Continuity from one COV to the next would be helpful. There should be some representation from the previous COV on the next COV. If the chair of the COV

was not on the previous COV, then the chair should be provided with the COV book from the last COV at the time that he or she is asked to chair the committee.

Input from the community, collected in a systematic and thoughtful way, could provide information for the assessment of the ONP. Such a deliberate analysis could become an integral component of future COV reviews.

Recommendations:

- The COV review materials (COV book) should be made available electronically to the Committee two weeks prior to the visit. The ONP should work closely with the COV Chair to determine the contents of these review materials.
- As part of preparations for the next COV, the COV chair should solicit comments from the community regarding the operation of the ONP.

Appendix A: 2009 Charge to the Nuclear Science Advisory Committee

This letter requests that the Nuclear Science Advisory Committee (NSAC) assemble a Committee of Visitors (COV) to review the management processes of the Department of Energy (DOE) Office of Science's Office of Nuclear Physics program. The panel should provide an assessment of the processes used to solicit, review, recommend, and document proposal actions and monitor active projects and programs for both the DOE laboratory and university programs.

The panel should assess the operations of the Office's programs during the fiscal years 2007, 2008, and 2009. The panel may examine any files from this period for all actions administered by the program for the period under review, including funding at national laboratories, universities, and other activities handled by the program. The panel should consider and provide evaluation of the following major elements:

- (a) the efficacy and quality of the processes used to solicit, review, recommend, monitor, and document application, proposal, and award actions; and
- (b) the quality of the resulting portfolio, including its breadth and depth, and its national and international standing.

In addition to these findings, comments on observed strengths or deficiencies in any component or sub-component of the Office's portfolio and suggestions for improvement would be very valuable. Since the Isotope Development and Production for Research and Applications subprogram was transferred to the Office recently with the 2009 Appropriation, only management activities related to the transfer should be considered by this COV, and strengths and deficiencies in the subprogram should be a subject for future COV reviews. The panel should also comment upon what progress has been made towards addressing action items from the previous COV review. You should work with the Associate Director of Science for Nuclear Physics to establish the processes and procedures so as to enable the first COV meeting to take place before the end of the 2009 calendar year. The results of this assessment should be documented in a report with findings, comments, and recommendations clearly articulated; the report should be submitted to NSAC by February 28, 2010.

Appendix B: Office of Nuclear Physics Committee of Visitors 2010 Panel Members

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Appendix C: Agenda for COV

Committee of Visitors for Office of Nuclear Physics
DOE Headquarters, Germantown, MD
January 12-14, 2010

Tuesday, January 12, 2010

8:00 am	Meet in DOE Lobby																															
8:15 am	Executive session (E-401) COV charge, etc..., procedures																															
8:50 am	Welcome	Tim																														
Hallman																																
9:00 am	Office of Nuclear Physics Overview (20+10)	Tim																														
Hallman																																
9:30 am	Budget Process and Recovery Act (15+5) Joanne Wolfe																															
9:50 am	Physics Research Division Overview (20+10)	Gene																														
Henry																																
10:20 am	Facilities & Project Management Division Overview (20+10) Jehanne Gillo																															
10:50 am	Break																															
11:05 am	Program Managers Presentations: Research Division (12+8 min) each; Rai, Baktash, Fai, Tippens																															
12:25 pm	Working Lunch (E-401)																															
1:20 pm	Program Managers Presentations: Facilities & Project Management Division (12+8 min) each; Farkhondeh, Hawkins, Marsiske, Pantaleo																															
2:40 pm breakout	Committee Breakouts (Program Managers available for discussion with groups as requested)																															
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4:20 pm	Break (E-401)																															
4:35pm breakout	Committee Breakouts (Program Managers available for discussion with groups as requested)																															
5:40 pm information	Executive session (E-401) – Committee generates list of additional they would like to see on Wednesday.																															
6:30 pm	Adjourn																															
7:30 pm	Dinner																															

Wednesday, January 13, 2010

8:00 am Meet in DOE Lobby
8:15 am Executive session

9:30 am Committee Breakouts (Program Managers available for discussion with
breakout groups as requested)

<u>Grants 1</u>	<u>Grants 2</u>	<u>Lab Res.</u>	<u>Facility Ops</u>	<u>Projects</u>
(E-401)	(E-301)	(E-114)	(G-207)	(G—426)
Napolitano	Harris	Thoenensen	Jones	Freedman
Dodge	Alberg	McLaughlin	Moore	Haines
Erazmus	Lacey	Seestrom	Pardo	LaMarche
Howell	Piekarewicz		Freyberger	Redwine

10:30 am Break (E-401)

10:45 am Committee Breakouts (Program Managers available for discussion with
breakout groups as requested)

12:30 pm Lunch

1:15 pm Committee Breakouts (Program Managers available for discussion with
breakout groups as requested)

2:30 pm Executive session (E-401) Discuss initial findings

4:30 pm Committee work or Meet with program managers, assign homework

6:30 pm Adjourn

7:30 pm Dinner

Thursday, January 14, 2010

8:00 am Meet in DOE Lobby
8:30 am Report on Homework
9:30 am Executive session (E-401)
Preparation of report

12:00 pm Working Lunch

1:00 pm Preparation of report
3:00 pm Meet with the NP Director(s)
3:30 pm Closeout
4:00 pm Adjourn

Appendix D: Table of Content of the COV Book

Section I: - General COV Material

1. Charge letter to NSAC
2. Agenda
3. List of COV panel members
4. Subpanel assignments
5. FY 2010 Report template
6. FY 2007 COV report
7. NP response to the FY 2007 COV report

Section II: - General Office Material

8. Organization chart and responsibilities
9. FY 2010 Appropriation
10. NP Performance Measures
11. List of NSAC charge letters and reports
12. List of travel
13. Workforce survey
14. Review mechanisms and definitions
15. NP Budget Process
16. List of reviews FY 2007 – FY 2009

Section III: - Research Division Documentation

17. Research highlights
18. List of solicitations FY 2007 – FY 2009
19. Annual new grant notice
20. Conflict of Interest statement
21. Listing of grants and status
22. Listing of grant declinations
23. Listing of expired grants
24. Research grant statistics
25. Diversity statistics
26. List of laboratory research review documentation
27. List of project science review documentation
28. List of SciDAC Proposals 2007-2009
29. List of OJI Proposals 2007-2009

Section IV: - Facilities & Project Division Documentation

30. DOE Project Management Process
31. DOE Project Guidance Document
32. DOE Project Decision Matrix
33. Table of Critical Decision Actions
34. List of projects, ongoing or completed in FY 2007 – FY 2009
35. List of joint projects
36. Listing of project documentation
37. Listing of facility review documentation
38. List of solicitations FY 2007 – FY 2009
39. Listing of RIB University & RIB Lab Proposals
40. Listing of Small Business Innovative Research (SBIR) Applications
41. Listing of FOA 08-10 RIB Science Capabilities Applications/Proposals
42. Listing of FOA 09-13 Applications of Nuclear Science Applications/Proposals
43. Listing of FOA 09-14 R&D on Alternative Isotope Production Techniques Applications/Proposals

Section V

Presentations

Appendix E: Report Template For The FY 2010 NP Committee of Visitors

Based on the COV's study of proposal actions completed within the past three fiscal years, please provide concise findings, comments and recommendations on the following aspects of the programs' processes and management related to:

A. The effectiveness, efficiency and quality of the processes used to solicit, review, recommend, and document proposal actions.

Consider for example:

- Consistency with priorities and criteria stated in the program's solicitations, announcements, and guidelines
- Appropriateness of project initiation and selection and adequacy of project definition
- Appropriateness of review mechanism (panels, ad hoc reviews, site visits)
- Adequate number of reviewers for balanced review; use of reviewers having appropriate expertise/qualifications; use of a sufficiently broad pool of reviewers; avoidance of conflicts of interest
- Efficiency/time to decision
- Completeness of documentation making recommendations

Findings:

Comments:

Recommendations:

B. The monitoring of active projects and programs.

Consider for example:

- Grant progress reports
- Appropriateness and effectiveness of review mechanisms:
 - Annual Science and Technology reviews of National User Facilities
 - Program Reviews
 - Project Reviews
 - Other review mechanisms
- Program Manager briefings
- Contractors meetings
- Site Visits
- Interactions at topical, national and other meetings
- Effectiveness of monitoring project/program execution
- Completeness and quality of documentation

Findings:

Comments:

Recommendations:

C. Within the boundaries defined by DOE missions and available funding, how the award process has affected the breadth and depth of the Nuclear Physics portfolio elements.

Taking into account DOE and NP missions, the available funding, and information presented about the portfolio of funded science, comment on how the award process has affected the breadth and depth portfolio elements. Consider for example:

- The overall quality of science
- The appropriateness of award scope, size, and duration
- The evolution of the portfolio with respect to new investigators and science opportunities
- The balance of projects with respect to innovation, risk and interdisciplinary research
- Long term goals of the NP office (tracked by OMB)

Findings:

Comments:

Recommendations:

D. The national and international standing of the portfolio elements.

Taking into account DOE and NP missions, the available funding, and information presented about the portfolio of funded science, comment on how the award process has affected the national and international standing of the portfolio elements: Consider for example:

- The uniqueness, significance, and scientific impact of the portfolio;
- The stature of the portfolio principal investigators in their fields;
- The leadership position of the portfolio in the nation and the world.

Findings:

Comments:

Recommendations:

E. Progress made towards addressing action items from the previous COV review

Findings:

Comments:

Recommendations:

F. Suggestions regarding the COV process

This section is to be based on the COV's impression of the overall process used for this review and comment on which processes best enabled the committee to address its charge and suggestions on processes that could be implemented to improve future such reviews.

Findings:

Comments:

Recommendations: