

February 3, 2009

Professor Stewart Prager, Director  
Princeton Plasma Physics Laboratory  
P.O. Box 451  
Princeton, New Jersey 08543

Dear Professor Prager:

**SUBJECT: SUMMARY ASSESSMENT OF PRINCETON PLASMA PHYSICS  
LABORATORY (PPPL) FOR FISCAL YEAR( FY )2008**

Enclosed is the U.S. Department of Energy (DOE) FY 2008 Final Evaluation Report for the management and operation of PPPL by Princeton University. The evaluation is based on performance expectations found within each of the Office of Science (SC) Performance Objectives and Goals. The overall grade for the eight Goals, along with a short summary of the performance results, is provided. The evaluation process, implements a numeric scoring system (4.3-0.0), with corresponding grades (A+ to F). A score/grade of "B+" is awarded for performance results that fully meet the "expected" performance level for an objective. Therefore, scores/grades above a "B+" indicate a degree of performance that exceeds expectations. An overall grade for each of the Goals is determined based on the weighted sum of the scores associated with its individual Objectives. The table below indicates the scale utilized for assigning scores and letter grades:

<b>Final Grade</b>	<b>A+</b>	<b>A</b>	<b>A-</b>	<b>B+</b>	<b>B</b>	<b>B-</b>	<b>C+</b>	<b>C</b>	<b>C-</b>	<b>D</b>	<b>F</b>
<b>Total Score</b>	<b>4.3- 4.1</b>	<b>4.0- 3.8</b>	<b>3.7- 3.5</b>	<b>3.4- 3.1</b>	<b>3.0- 2.8</b>	<b>2.7- 2.5</b>	<b>2.4- 2.1</b>	<b>2.0- 1.8</b>	<b>1.7- 1.1</b>	<b>1.0- 0.8</b>	<b>0.7- 0.0</b>

The SC Senior Management Review concluded the PPPL's performance did meet expectations within the Science and Technology (S&T) (Goals 1.0-3.0), as evidenced by the evaluations provided by each of the DOE HQ Program Offices and other customers. PPPL's performance within the Management and Operation (M&O) Goals and their corresponding Objectives also met the Department's expectations in most areas. In addition, there are some areas where PPPL's performance has significantly exceeded expectations.

## **1.0 Provide for Efficient and Effective Mission Accomplishment**

### **Grade: A-**

- Princeton Plasma Physics Laboratory (PPPL) has had an excellent and productive year in the quality of research that has been performed on the National Spherical Torus Experiment (NSTX). They have been very supportive in addressing issues with regard to ITER design and operation. PPPL has been very supportive of the Office of Fusion Energy Sciences (OFES) stewardship role of the field plasma science. Ron Davidson was selected by the American Physical Society (APS) Division of Plasma Physics (DPP) for the 2008 Maxwell Prize for work done under OFES basic plasma science funding.
- The NSTX team had a very productive year in FY 2008 and completed all scientific milestones on time, including the major Joule milestone: "In FY 08, FES will evaluate the generation of plasma rotation and momentum transport, and assess the impact of plasma rotation on stability and confinement. Alcator C-Mod will investigate rotation without external momentum input, NSTX will examine very high rotation speeds, and DIII-D will vary rotation speeds with neutral beams. The results achieved at the major facilities will provide important new data for estimating the magnitude of and assessing the impact of rotation on ITER plasmas." The NSTX team achieved significant results in many other key areas of magnetic fusion science, such as turbulence and transport, wave plasma interaction, boundary physics, and non-inductive plasma start-up.

### **1.1 S &T Results Provide Meaningful Impact on the Field**

#### **Grade: A**

- The PPPL theory program met all expectations in this area. They are leaders in all areas of fusion research, transport, stability, energetic particles, radio frequency heating, and neutral beams, and they met all their milestones. Of special note is their work on momentum transport. They developed a new theory for one of the key remaining issues for tokamak physics, and it could be of vital importance to the successful operation of ITER.
- PPPL research contributions to the Center for Magnetic Self Organization (CMSO) were significant. The CMSO, which is a NSF Frontier Physics Center, was just successfully renewed for 5 more years by the NSF after a competition between 17 proposed NSF Frontier Physics Centers. Hantao Ji, (PPPL), the lead PPPL researcher, was just selected to be associate director of the CMSO.

## **1.2 Provide Quality Leadership in S &T**

### **Grade: A-**

- NSTX team members published or submitted for publication more than 50 papers in referred journals during the fiscal year, an important indicator of exciting, timely, and important research outputs from NSTX. The strong scientific results from the FY 2008 research campaign resulted in the NSTX team obtaining 6 oral presentations and 16 posters at the International Atomic Energy Agency (IAEA) Fusion Energy Conference in Geneva in October.
- Overall, PPPL publications and presentations at scientific meetings have been quite good. The NSTX team met all of its research milestones on or ahead of schedule, including the Joule milestone for the large facilities. The NSTX team communicated these results to the scientific community in a timely basis via publications in referred journals, invited talks, and reports.
- The PPPL theory program met all expectations in this area. They are leaders in all areas of fusion research, transport, stability, energetic particles, radio frequency heating, and neutral beams, and they met all their milestones. Of special note is their work on momentum transport. They developed a new theory for one of the key remaining issues for tokamak physics, and it could be of vital importance to the successful operation of ITER.

## **1.3 S & T Outputs that Advance Program Objective/Goals**

### **Grade: A-**

- PPPL research contributions to the Center for Magnetic Self Organization (CMSO) were significant. The CMSO, which is a NSF Frontier Physics Center, was just successfully renewed for 5 more years by the NSF after a competition between 17 proposed NSF Frontier Physics Centers. Hantao Ji, (PPPL), the lead PPPL researcher, was just selected to be associate director of the CMSO.

## **1.4 Delivery of Science and Technology**

### **Grade: A-**

- NSTX team members published or submitted for publication more than 50 papers in referred journals during the fiscal year, an important indicator of exciting, timely, and important research outputs from NSTX. The strong

scientific results from the FY 2008 research campaign resulted in the NSTX team obtaining 6 oral presentations and 16 posters at the International Atomic Energy Agency (IAEA) Fusion Energy Conference in Geneva in October.

- Overall, PPPL publications and presentations at scientific meetings have been quite good. The NSTX team met all of its research milestones on or ahead of schedule, including the Joule milestone for the large facilities. The NSTX team communicated these results to the scientific community in a timely basis via publications in referred journals, invited talks, and reports.

## **2.0 Design, Fabrication, Construction and Operations of Facilities**

### **Grade: B**

- On NSTX, PPPL operation was excellent and efficient. They contributed their part of an important Joule milestone. In addition, they slightly exceeded their proposed run weeks for the year and were very productive in the quality and quantity of the research performed. The NSTX team operated the NSTX facility safely and reliably during the past fiscal year, achieving 15.6 weeks of operation versus the milestone of 15 weeks. The Integrated Safety Management program helped to ensure personnel safety of the NSTX facility operations. The NSTX team received the Safety Excellence Award from the state of New Jersey for having gone seven consecutive years without an away from work lost time injury/illness case.

## **2.1 Facility Design(s) to Support Laboratory Program**

### **Grade: A**

- The NSTX team is carrying out world leading research on the spherical tokamak concept. In addition, the NSTX results contribute significantly to issues related to the design and construction of ITER. As an example, in FY 2008 they investigated the critical issue of mitigation of ELMs through the use of Resonant Magnetic Perturbations. The NSTX team is a fully integrated team made up of PPPL scientists and external collaborators. A peer review held in late July 2008 determined that the NSTX team was carrying out an excellent research program.

## **2.2 Construction of Facilities and/or Fabrication of Components**

### **Grade: C**

- The performance of the NCSX project team at PPPL has been good from a technical standpoint in procuring and fabricating various components for

the NCSX. While continuing production of numerous components, PPPL initiated final machine assembly. This was a very arduous task which required extensive resource commitment and their effort was quite commendable. However, due to consistent cost overruns, schedule delays, uncertainty with the inadequate, preliminary stage of some of the design work, and the lack of machine assembly experience, OFES cancelled the project. Princeton University became more involved in a very positive way when these problems started to appear in FY 2006 and their involvement continued to be strong through FY2008. The University brought in a more experienced project manager which proved helpful, but it could not overcome the significant technical challenges with their associated costs that were inherent in the project. Better communication early on by both the university and PPPL would have helped the situation.

### **2.3 Operation of Facilities**

**Grade: A-**

- A facility review carried out in conjunction with the 5-year plan review found that NSTX was being operated in an effective manner, which was confirmed by the fact that the facility has met all of its scientific milestones the last four years and is on schedule to meet the FY 2008 milestones. In addition, the review found that the performance of the staff and cost efficiency appear to be good.

### **2.4 Utilization of Facility to Grow/Support Research Base & External User Community**

**Grade: A-**

- PPPL scientists and engineers play an important role in both the US ITER project and in the overall ITER research planning effort. Their contributions as part of the US ITER project were accomplished on time and within assigned budget.

### **3.0 S & T Research Project/Program Management**

**Grade: B+**

- The NSTX team conducts annual research forums to ensure adequate input from the entire fusion community. In addition, the NSTX team members are active in the International Tokamak Physics Activity, which plans experiments to be carried out on the world's major fusion facilities and analyzes results to provide input to the ITER physics basis. The NSTX team is contributing to the design of next-step options, including the National High-power Advanced Torus Experiment and a fusion nuclear engineering science facility, which are

being designed to leverage the results for ITER and prepare for a demonstration power plant.

- The PPPL theory program provided strong programmatic leadership in critical areas of fusion theory and modeling--including plasma turbulence and transport, macroscopic stability, and the physics of energetic particles--and maintained strong core competencies in these areas. A PPPL-led simulation effort focusing on plasma confinement was selected by a community panel to be included in the list of the ten recent significant advancements in computational science enabled by Office of Science resources. In addition, PPPL theory program leaders have identified and articulated the importance of fusion simulation codes being able to fully exploit emerging high performance computing capabilities for scientific discovery.

### **3.1 Stewardship of Scientific Capabilities & Program Vision**

**Grade: A-**

- The NSTX team provides weekly reports to OFES, and immediately reports any significant events. The NSTX management participates in a quarterly status review and provides quarterly reports on their quarterly targets. These communication channels are well-defined, and the NSTX team has communicated in a timely manner throughout the fiscal year.

### **3.2 S & T Project/Program Planning and Management**

**Grade: B**

- The NCSX project team was very diligent in bringing in outside experts from the national and international fusion and construction fields for reviews and as advisors. This was an improvement over the prior years and resulted in better project performance and program management.

### **3.3 Communications and Responsiveness to Customer Needs**

**Grade: A-**

- During FY 2008, the NCSX project team made significant progress in communicating technical, cost and schedule issues in a more timely and accurate manner to OFES. This enabled OFES, the DOE Site Office and the rest of the NCSX project team to evaluate and address issues in a timelier manner.
- The NCSX project team was very diligent in bringing in outside experts from the national and international fusion and construction fields for reviews and as advisors. This was a substantial improvement over the

prior years and resulted in more efficient project performance and program management.

#### **4.0 Provide Sound and Competent Leadership and Stewardship of the Laboratory**

**Grade: B-**

- PPPL's senior leadership has a vision for the future that is generally consistent with DOE's long range priorities.

##### **4.1 Provide a Distinctive Vision for the Laboratory and an Effective Plan or Accomplishment of the Vision to Include Strong Partnerships required to carry out those plans**

**Grade: B-**

- Overall the vision is realistic, but NHTX has not gained wide acceptance in the fusion community as a compelling next step for the fusion program. Another concern is that the vision is PPPL-centric in that it addresses only facilities at PPPL and does not consider the possibility of PPPL's involvement in new national or international facilities not at PPPL.

##### **4.2 Provide for Responsive and Accountable Leadership throughout the Organization**

**Grade: C**

- PPPL's senior leadership has generally instilled a culture of accountability throughout the laboratory and the response of the senior leadership at PPPL to the NCSX cost and schedule problems during the past year demonstrated increased attention to accountability. Nevertheless, this year saw many of the problems of the previous years continue to negatively impact both the Office of Science and the laboratory; for example, the cost increases projects with NCSX project proved to be unaffordable and thus the project was terminated.

##### **4.3 Provide Efficient and Effective Corporate Office Support as appropriate**

**Grade: B+**

- This year the University leadership demonstrated improvement in its ability to engage with the laboratory programs.

## **5.0 Sustain Excellence and Enhance Effectiveness of Integrated Safety, Health and Environmental Protection**

**Grade: B+**

- PPPL met overall expectations for Section 5.0
- PPPL met expectations for the safety aspects of this ES&H grade and exceeded expectations for the environmental portions.
- There were no areas within this section where the Laboratory performance was such to have the potential to adversely impact to the mission of the Laboratory.

### **5.1 Sustain Excellence and Enhance Effectiveness of Integrated Safety, Health and Environmental Protection**

**Grade: B+**

- PPPL met the overall expectation for Section 5.2
- PPPL demonstrated an improving trend in the TRC and DART measurements.

### **5.2 Provide Efficient and Effective Implementation of Integrated Safety, Health, and Environmental Management**

**Grade: B+**

- PPPL met the overall expectations for Section 5.2
- PPPL implemented a number of safety initiatives in FY08, most notably the rollout of the DuPont STOP (Safety Training Observation Program) for Supervision which is a Behavior Based Safety Program. The objective of this program, which features frequent supervisor observations of workers and regular documented safety audits by supervisors, is to reinforce safe behaviors and correct unsafe behaviors.

### **5.3 Provide Efficient and Effective Waste Management, Minimization, and Pollution Prevention**

**Grade: A**

- PPPL exceeded expectations for Section 5.3.
- PPPL was successful in meeting 100% of the mutually-agreed upon environmental performance targets.

- PPPL was successful in implementing 96% (goal was 90%) of the planned environmental activities and projects to reduce the environmental legacy.
- PPPL was successful in reducing the Laboratory carbon footprint in FY2008.
- PPPL received an Office of Science “Pollution Prevention Noteworthy Practice Award” and a DOE “Pollution Prevention Star Honorable Mention Award” for its use of alternative fleet fuels.
- PPPL received the “2008 Federal Energy and Water Management Award for Fleet Management” for its use of alternative fleet fuels and outstanding fuel conservation efforts. PPPL was the only DOE site to receive a Federal Energy and Water Management award in 2008 and was one of 22 award recipients from nearly 150 nominees.

**6.0 Deliver Efficient Effective and Responsive Business Systems and Resources that Enable the Successful Achievement of Laboratory Mission(s)**

**Grade: A-**

- PPPL has achieved all expectation in Section 6.0 and has exceeded expectation in some areas.

**6.1 Provide an Efficient, Effective, and Responsive Financial Management System(s)**

**Grade: B+**

- Meets expectations of performance. No material findings identified in internal and external reviews.
- 6.1.2 PPPL has continuously worked to improve its system through self assessment and openly receiving input from PULOAC (PrUN internal audit function), DOE-CH, and other reviewing entities. The PPPL Accounting Division has worked with PULOAC to develop a matrix to track and address recommendations made with no findings to improve its internal control system. Through all actions, PPPL has worked to improve the reliability of its business systems to report accurate data. Both Accounting and Budget Divisions worked diligently to accomplish significant revisions to the

respective Policies and Procedures manuals, and worked with PSO to obtain approval for these document changes.

- 6.1.3 PPPL recently identified and quantified an issue involving the accruing, costing and reconciling Benefit costs. These costs were reported in error for a 10 year period and corrected through an accrual in FY07, and in total were significant, but not material, to the benefit costs incurred in FY07. All records of accruals and costs must be reconciled regularly to ensure accuracy that the right costs are reported in the year they were incurred.
- 6.1.4 PPPL works to ensure that all financial management processes and procedures are communicated to all applicable PPPL staff, and that training is established where needed.
- 6.1.5 PPPL effectively managed direct and indirect costs throughout the year. PPPL faced a three month continuing resolution as well as an uncertain budgeting future with the cancellation of the NCSX project, requiring close oversight of budgeting and spending throughout the laboratory, both direct spending as well as adjusting overhead costs as necessary. All variances were justified.

## **6.2 Provide an Efficient, Effective, and Responsive Acquisition and Property Management System(s)**

**Grade: A**

Acquisition Management:

- In recognition of its outstanding practices and procedures the PPPL Procurement Division received the “Achievement of Excellence in Procurement” Award from the National Purchasing Institute for the second year.
- In FY 2008, for the third consecutive year PPPL has surpassed DOE small business subcontracting goals.
- Procurement Division continued to enhance its outreach program to small business by entering into its second DOE-approved Mentor-Protégé Agreement.

## Property Management

- PPPL has been successful in achieving its property management goals and meeting target expectations to the established targets in the following areas:
- Inventory results for sensitive, capital and high risk property.
- Customer satisfaction ratings from PPPL and DOE customers both above 95%, ten points above the Balance Score Card target.
- All fleet vehicles met their established Local Use Objective (LUO) indicating that the fleet is effectively utilized.
- Alternative vehicle fuels represented 24% of total covered fuel use.
- Recycling over 113 tons of scrap metal and materials generating over \$40,000 in revenue for Laboratory operations.

### **6.3 Provide an Efficient, Effective, and Responsive Human Resources Management System and Diversity Program**

#### **Grade: B+**

- PPPL Human Resource Management has successfully met all expectations.
- 6.3.1 A New Employee survey was used to validate the effectiveness of the new hire orientation process. Overall, 93% of the respondents indicated that their transition to PPPL went well. A new Employee Guide for Hiring Managers was published to ensure that every new hire received the same resources and information from their department supervisors.
- 6.3.2 The Laboratory will identify critical skills and develop a systematic approach to workforce planning in order to strategically meet near term and long term critical skill needs.
- 6.3.3 Staff and visitors at PPPL are required to complete General Employee Training (GET) and pass an examination in order to obtain an identification badge. An updated web-based GET module was developed and implemented to facilitate training for new employees and streamline the required training renewal process for staff.

- 6.3.4 An examination of the applicant pool for FY08 revealed that of the applicants who self-identified their race and gender: 28% were minorities and 25% were women. Over the past seven years PPPL has experienced a steady increase of diversity. During the past two years, 30% of all PPPL new hires have been minorities and 27% have been women.

**6.4 Provide Efficient, Effective, and Responsive Management Systems for Internal Audit and Oversight; Quality, Information Management, Provide an Effective Communications and Public Affairs Program and Other Administrative Support Services as Appropriate**

**Grade: B+**

- PPPL has accomplished and meet all expectations for this section.
- 6.4.1 has no material findings identified in external and external reviews.
- 6.4.2 Corrective actions for reviews were completed in accordance with approved Correction Action Plans
- Continuously worked to improve its system through self assessment.
- 6.4.3 PPPL was successful in meeting Internal Audit oversight, quality, Information Management, and other administrative support services management goals and expectations.
- 6.4.4 PULOAC (PrUn internal audit cunction) has improved significantly over the last year in regards to the quality of audit performed. Further, during FY 2008, PULOAC experienced significant turnover in staff, including the Chief Officer of Internal Audit Position. However PULOAC needs to address the timeliness of audits performed. Of the audits sited by PPPL management in it's self assessment, two (2) were audits from the FY07 audit plan completed in FY08, two (2) were audits from the FY08 audit plan completed in FY08, one (1) was an audit from the FY08 audit plan started in FY08 with no audit report to date, and one (1) audit from the FY08 audit plan was not mentioned as it was not started until FY09 and is still in progress. Timeliness of audits is important in assessing the effectiveness of the financial management system.

- 6.4.5 PPPL was effective in carrying out a minimum of 100 events or activities involving the local community and stakeholders designed to educate about Laboratory/DOE program and activities and build relationships.
- 6.4.6 PPPL provided input to the SC Weekly Communications Report for 48 of the 52 weeks (92.3%).
- 6.4.7 PPPL has been successful in their leadership role in establishing a communications plan for the Fusion and PPPL programs.

### **6.5 Demonstrate Effective Transfer of Technology and Commercialization of Intellectual Assets**

**Grade: B+**

- PPPL has successfully met and achieved all expectations.
- 6.5.1 PPPL has reported ten Invention Disclosures to DOE in a timely manner.
- 6.5.2 PPPL has a comprehensive outreach and education program.
- 6.5.3 A comprehensive web site for the public outreach program is maintained on a current basis. All outreach documents, pictures, movie and information are maintained on the web.
- PPPL staff conducted more than 30 classroom visits showing plasmas to more than 1250 students.

### **7.0 Sustain Excellence in Operating, Maintaining, and Renewing the Facility and Infrastructure Portfolio to Meet Laboratory Needs.**

**Grade: A**

- PPPL continues to exceed expectations in this area.
- For the third year in a row, the Deferred Maintenance backlog was reduced through superior project planning and accomplishment. A 6% reduction was achieved in FY08.
- PPPL's exceptional Energy Management Program continues to reduce the Site's demand on fossil fuels while maintaining building conditions comfortable in both heating and cooling seasons. PPPL has exceeded the

energy intensity reduction goals of EO 13423 well ahead of schedule. PPPL Energy intensity has been reduced 38.6% versus the baseline year (FY03) usage.

- The Facilities Maintenance and Operations department continues to rise to the challenges faced in maintaining a safe, energy efficient, scientifically relevant National Laboratory with an average building age of 50 years. Innovative thinking, aggressive management, and flexibility allow this group to have a positive impact across the Laboratory on a regular basis.

### **7.1 Manage Facilities and Infrastructure in an Efficient and Effective Manner that Optimizes Usage and Minimizes Life Cycle Costs**

**Grade: A**

- PPPL has demonstrated an effective management system for planning for, delivering, and operations of Laboratory facilities and equipment needed to ensure required capabilities are present to meet today's and tomorrow's complex challenges. The efficient management of facilities and infrastructure and the Maintenance and Operations Division falls under three distinct lines: Plant Maintenance, Operations, and Construction Improvements, these areas have been significant over the last several years including FY08.
- 7.1.1 During FY08, PPPL eliminated \$542,056 of deferred maintenance (reducing the Deferred Maintenance backlog by 6%) using the increased maintenance funding coupled with judicious planning on GPP Projects.

The Maintenance Investment Index for FFY08 was 2.0%.

Maintenance renovated 22 offices, constructed a conference room in the New Engineering Building and replaced 9 fan-coil units in offices. This included replacing over 780 square feet of carpet, 600 square feet of vinyl composite tile and 430 gallons of paint. All products were environmentally preferred, on VOC and had maximum recycled content. These projects continue to improve the work environment at the laboratory and have a positive impact on morale. Additionally 4000 square feet of pothole repairs and 300 liner feet of damaged sidewalks were repaired or replaced eliminating areas identified as tripping zones and places where water would accumulate to form ice during winter months.

- 7.1.2 Maintenance continued to expand the use of the Building Automation System (BAS) connecting area lighting systems and HVAC systems. During the heating season the Central Steam Plan pressure was

lowered from 100 to 60 psig significantly reducing the consumption of Natural Gas and Fuel Oil. PPPL continues to look at innovative methods to reduce the energy intensity of the site in both the heating and cooling seasons to reduce utility bills without negatively impacting working conditions throughout the site.

The EO13423 goal is a 3% per year reduction from the FY2003 base year in FY2006 to FY2015. The FY2015 EUI shall be 30% less than FY2003. PPPL continues to utilize "HOUSE" energy as efficiently as possible. FY2008 has an estimated reduction of 38.58% vs. FY2003. PPPL reduced the "HOUSE" energy usage FY2008 vs. FY2007 by 2.71%.

A section entitled "infrastructure" was included in the Department of Energy Laboratory Plan for the Office of Science's Princeton Plasma Physics Laboratory. This section replaced the previously required Ten Year Site Plan. The PPPL Laboratory Plan included descriptions of how PPPL is meeting DOE Agency wide goals of the Secretarial Transformational Energy Action Management (TEAM) initiative and goals set forth in Executive Order 13423. The PPPL Lab Plan was submitted to the DOE Office of Science in April 2008, well in advance of the PEMP requirement date of September 2008.

- 7.1.3 There were no situations in FY08 that resulted in a building or facility being without critical services (or being unusable) during times the normal population for those buildings. The overall reliability index for FY08 was 100%.

## **7.2 Provide Planning for and Acquire the Facilities and Infrastructure Required to Support Future Laboratory Programs**

**Grade: A**

- The Maintenance and Operation Division developed and implemented an aggressive construction schedule this year, working on eight direct funded GPP projects, significantly impacting the overall readiness of the site's facilities and infrastructure. These projects ranged from the installation of a new Narrowband radio circuit to the replacement of over 150 old, inefficient window assemblies. PPPL continues to focus the capital funded projects to the areas that have the greatest impact on site readiness.
- 7.2.1 The FY08 GPP budget was \$1,987M an additional \$90K was added by M&ES for the installation of an alternate fuel pumping system

and \$400K was added by NSTX for the replacement of system electrical breakers. During this campaign, nearly \$1,966M was expended based upon a total GPP budget (including FY07 carryover) of \$2,477M for a program performance rate of 79.4%.

- 7.2.2 The FY08 GPP budget was \$2.477M and the Replacement Plant Value of \$252.251M for a Recapitalization Investment Index of 0.98%.
- 7.2.3 The PPPL Laboratory Plan was submitted to the Department of Energy in April 2008, as scheduled, in accordance with guidance provided by the DOE Office of Science.
- 7.2.4 A Strategic plan, as detailed in the Infrastructure section of the PPPL Annual Lab Plan, outlines the plans and funding of high leverage improvements and addresses objectives of the Energy Policy Act and the American Competitiveness Initiative. Consistent with guidance from the DOE Office of Science, the plan sets priorities for funding and scheduling based on the primary goal of attaining mission readiness of the most critical facilities. The Lab Plan outlines a vision for the future that phases-in new construction and modernization of existing facilities within realistic budget scenarios. Plans call for refurbishment of existing buildings to attain energy efficiency, reliability, and modernization of the buildings that are strategically linked to the support of current and planned R&D activities.

**8.0 Sustain and Enhance the Effectiveness of Integrated Safeguards and Security Management (ISSM) and Emergency Management Systems**  
**Grade: B+**

- PPPL has successfully met and achieved all expectations for Section 8.0.

**8.1 Provide an Efficient and Effective Emergency Management System**  
**Grade: B+**

- PPPL has successfully met or exceeded all quantitative measures in this section, thereby meeting the overall expectations for Section 8.1.

**8.2 Provide an Efficient and Effective System for Cyber-Security**  
**Grade: B+**

- An audit was conducted by Health, Safety & Security (HSS) during the months of June and July 2008. The final report was issued on November 17<sup>th</sup>; PPPL received a rating of “Yellow” (needs

Improvement) in all areas evaluated. It was noted that PPPL's unclassified cyber security program exhibited many positive features that facilitate the management and maintenance of the confidentiality, integrity, an availability of information and information systems and that PPPL has made numerous improvements in management, operational, and technical controls.

- The final report highlighted four (4) Site Specific findings that are being addressed in corrective action plans (CAP) which is in development at this time. It was noted that some problems were directly attributable to PPPL's incomplete implementation of corrective actions for deficiencies identified during the 2005 SAV. Other contributors to problems encountered at PPPL were linked to ineffective coordination between PPPL, SC, and the Office of the Chief Information Officer (OCIO), and the lack of effective guidance from SC (in the form of updated Program Cyber Security Plan (PCSP) and the OCIO (in the form of updated policies). The report also stated that PPPL faces significant challenges such as limited resources to implement the needed changes focused on in the report.

### **8.3 Provide an Efficient and Effective System for the Protection of Property**

**Grade: B+**

- The DOE Chicago Integrated Support Center conducted a Safeguards and Security Survey of PPPL September 17-18, 2008. The Site protection Division (SPD) effectively demonstrated its commitment to leading a strong Safeguards and Security (S&S) program for protection of PPPL property by receiving an overall composite rating of "Satisfactory" in all topical areas which included Program Management and Support, Protective Force, Physical Security and the Unclassified visits and assignments by Foreign Nationals. The survey identified only one (1) material finding and one (1) suggestion was noted. A corrective action plan was developed on the spot and the finding was cleared through the DOE Site Office, and the one suggestion has been incorporated by the SPD. A survey of the Nuclear Materials Control and Accountability Program was conducted separately on June 24, 2008 and was also rated "Satisfactory".

#### **8.4 Provide an Efficient and Effective System for the Protection of Sensitive Information**

**Grade: B+**

- Recently opened a dedicated Counterintelligence Office at PPPL to ensure all Personnel will not only have a place to seek assistance if necessary but will have a familiar face to contact regarding any counterintelligence concerns at the laboratory. Routine office hours have been established to conduct counterintelligence awareness briefings and debriefings to laboratory personnel which include persons traveling on official business to certain foreign countries, as well as to scientists serving as hosts to foreign visitors to the lab. This ensured the DOE and PPPL personnel and scientific assets, both physical and intellectual, are protected from intelligence collection by or on behalf of foreign entities as well as from international terrorism.

#### **SUMMARY**

In accordance with terms of the contract, between the Trustees of Princeton University and the U.S Department of Energy (DOE for the management and operation of the Princeton Plasma Physics Laboratory (PPPL), PPPL did earn its fee amount of \$100,000.00 for FY08.

The Princeton Site Office staff is available to support PPPL in its endeavor to achieve performance as measured by the Office of Science Goals and Objectives and we look forward to the continuing achievements and success of the laboratory.

Sincerely,

Jerry Wm Faul, Manager  
Princeton Site Office

cc: S. Eckstrand, SC-24, GTN, HQ  
J. Labarge, SC-32, FORS, HQ  
S. Smith, PrUn  
C. Eisgruber, PrUn  
J. DeLooper, PPPL