

**FY 2009**

*October 1, 2008 – September 30, 2009*

**Performance Evaluation  
of  
Jefferson Science Associates, LLC**

**for the  
Management and Operations of the  
Thomas Jefferson National Accelerator Facility (TJNAF)**

**Contract No. DE-AC05-06OR623177**

**TABLE LISTING**

<b>TABLE #</b>	<b>TITLE</b>	<b>PAGE</b>
Table 1	FY 2009 JSA Evaluation Score Calculation	3
Table 2	FY 2009 JSA Letter Grade Scale/Numeric Score Scale	3
Table 3	Final Percentage of Performance-Based Fee Earned Determination	3
Table 4	Goal 1.0 Performance Rating Development	14
Table 5	Goal 1.0 Final Letter Grade	14
Table 6	Goal 2.0 Performance Rating Development	23
Table 7	Goal 2.0 Final Letter Grade	23
Table 8	Goal 3.0 Performance Rating Development	29
Table 9	Goal 3.0 Final Letter Grade	30
Table 13	Goal 4.0 Performance Rating Development	49
Table 14	Goal 4.0 Final Letter Grade	49
Table 15	Goal 5.0 Performance Rating Development	59
Table 16	Goal 5.0 Final Letter Grade	60
Table 17	Goal 6.0 Performance Rating Development	79
Table 18	Goal 6.0 Final Letter Grade	79
Table 19	Goal 7.0 Performance Rating Development	84
Table 20	Goal 7.0 Final Letter Grade	85
Table 21	Goal 8.0 Performance Rating Development	94
Table 22	Goal 8.0 Final Letter Grade	94

**Table 1. FY 2009 JSA Evaluation Score Calculation**

S&T Performance Goal	Numerical Score	Letter Grade	Weight	Weighted Score	Total Score
1.0 Mission Accomplishment	3.96	A	40%	1.58	
2.0 Construction and Operations of User Research Facilities and Equipment	4.03	A	40%	1.61	
3.0 Science and Technology Research Project/Program Management	3.94	A	20%	0.79	
<b>Total Score</b>					<b>3.98</b>
M&O Performance Goal	Numerical Score	Letter Grade	Weight	Weighted Score	Total Score
4.0 Leadership and Stewardship of the Laboratory	3.83	A	20%	0.77	
5.0 Integrated Safety, Health, and Environmental Protection	3.84	A	30%	1.15	
6.0 Business Systems	3.72	A-	20%	0.74	
7.0 Operating, Maintaining, and Renewing Facility and Infrastructure Portfolio	3.74	A-	15%	0.56	
8.0 Integrated Safeguards and Security Management and Emergency Management Systems	3.64	A-	15%	0.55	
<b>Total Score</b>					<b>3.77</b>

**Table 2. FY 2009 JSA Letter Grade Scale/Numeric Score Scale**

Total Score	4.3-4.1	4.0-3.8	3.7-3.5	3.4-3.1	3.0-2.8	2.7-2.5	2.4-2.1	2.0-1.8	1.7-1.1	1.0-0.8	0.7-0
Final Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F

**Table 3. Final Percentage of Performance-Based Fee Earned Determination**

Overall Fee Determination	
Percent S&T Fee Earned from Table C	97%
M&O Fee Multiplier from Table C	X 100%
Overall Earned Percentage of Performance-Based Fee	97%

**GOAL 1.0 PROVIDE FOR EFFICIENT AND EFFECTIVE MISSION ACCOMPLISHMENT**
Goal Requirement:

The Contractor produces high-quality, original, and creative results that advance science and technology; demonstrates sustained scientific progress and impact; receives appropriate external recognition of accomplishments; and contributes to overall research and development goals of the Department and its customers.

**Objective 1.1 Science and Technology Results Provide Meaningful Impact on the Field**
Objective Requirement:

In determining the performance of the Objective the DOE evaluator(s) shall consider the following as measured by progress reports, peer reviews, Field Work Proposals (FWPs), Program Office reviews/oversight, etc.:

- The impact of publications on the field;
- Publication in journals outside the field indicating broad impact;
- Impact on DOE or other customer mission(s);
- Successful stewardship of mission-relevant research areas;
- Significant awards (R&D 100, FLC, Nobel Prizes, etc.);
- Invited talks, citations, making high-quality data available to the scientific community; and
- Development of tools and techniques that become standards or widely-used in the scientific community.

<b>Performance Level Achieved</b>	<b>Grade</b>	<b>Score</b>
Changes the way the research community thinks about a particular field; resolves critical questions and thus moves research areas forward; results generate huge interest/enthusiasm in the field.	A+	4.1

JSA Performance:

The primary source of performance evaluation data for Goals 1.0 – 3.0 is the annual Science and Technology Review which was held July 14 – 16, 2009. At the conclusion of the review, there were many positive observations made regarding our skilled, hard-working staff and the Lab's strong User community. Performance during FY09 indicates that JLab scientists have continued to produce high quality experiments that advanced science and technology and provided meaningful impacts on the field. The Lab's Director and several staff scientists were invited to give talks at various workshops and conferences during FY09. There were several significant awards received during this period and in addition, several new methods and techniques were developed as reported in JLab's Weekly Briefs. Included in this section and throughout the remaining S&T goals are findings and comments from the S&T Review committee's draft report; the final report was not available at the time of this submission. Following are some highlights of Lab's activities during this performance period.

EXPERIMENTAL PROGRAM

The S&T Review committee appreciated both the progress and planning of the Experimental Nuclear Physics Division for the completion of the 6 GeV program and the evolving 12 GeV program. There were no recommendations for the Experimental Program. Listed below are some additional findings and comments from the draft report; the final report was not available at the time of this self evaluation.

EXPERIMENTAL PROGRAM FINDINGS AND COMMENTS

In commenting on the 6 GeV experimental program of the past year, the reviewers noted that:

- Recent scientific and technical accomplishments, amongst others, include:

- Preliminary results of the ratio  $F_2^n / F_2^p$  up to  $x=0.8$ .
  - Results of the EMC-effect have been extracted from measurements on  $^3\text{He}$  and  $^4\text{He}$ . The effect is larger for  $^4\text{He}$  and three body calculations do not explain the  $^3\text{He}$  data.
  - Progress on the understanding of electromagnetic and electroweak form factors.
- The continued progress on measuring the nucleon elastic form factors, including the release of preliminary results on  $G_E^n$  up to  $3.5 \text{ GeV}^2$  and backward-angle results on the strange form factors from  $G_0$  (at  $0.6 \text{ GeV}^2$ ), now makes it possible to perform flavor separations that largely satisfy Hadronic Physics Milestone #4. The expanding knowledge of the nucleon form factors contributes significantly to the understanding of nucleon structure in terms of QCD degrees of freedom.

The cause for the reduced running of the planned polarized target experiments in Hall C early in FY09 was recognized:

- A polarized target magnet which was contributed by outside collaborators caused a rearrangement of the experimental run plan and cancellation of another experiment.

The reviewers appreciated the detailed planning for the completion of the 6 GeV program and the quality of the science to be mounted, noting that:

- The transition of the allocation of beam time from a situation of five years of backlog to finishing up the experimental program for the 6 GeV beam within three years has been accomplished in a transparent way including the PAC and extended discussions with the users.
- The PAC approves of the schedule developed by laboratory management for the finishing of the 6 GeV program.
- The plans for completing the 6 GeV program are appropriately aggressive and will require sufficient resources to complete, as well as the continued vigilance of laboratory management to ensure that the highest priority experiments are completed successfully.
- Two major experiments planned for the next three years, Qweak and PV e-scattering on Pb, promise to make a major impact in particle physics and nuclear physics, respectively. Qweak constrains new physics beyond two TeV, and the Pb n- radius experiment provides a fundamental check on nuclear theory by the discrimination of the various calculations of the equation of state. Both the Qweak and PV experiments have technical and schedule risks as they require beam and target parameters and e-polarization measurements that have yet to be demonstrated.

The continued effort to plan for the 12 GeV Upgrade science was also noted:

- The PAC approved 14 additional experiments for the 12 GeV program: The 12 GeV program around the planned base line equipment has been developed further by the new proposals.

Finally, the ongoing effort to develop technical resources permitting advanced experiments was recognized:

- The development of new instrumentation allowing new types of experiments continues. The BONUS set-up yields what one has hoped for and paves the way for experiments on “free” neutrons. The installation of HDice, a very difficult installation, started and offers unique measurements on polarized neutrons.

#### THEORETICAL PROGRAM

The S&T Review committee accredited the Theory group with continuing to *achieve at a high level* and noted that their *efforts expended in undergraduate and teacher training are commendable* and *the group's research topics are in close alignment with the JLab experimental program*. There were no recommendations for the Theoretical Program. Listed below are some additional findings and comments from the draft report; the final report was not available at the time of this self evaluation.

THEORETICAL PROGRAM FINDINGS AND COMMENTS

- The theory group presented their recent research on the  $N^*$  spectrum, hybrid meson photocouplings, GPD phenomenology, coupled channel model development, and the pion form factor.
- The Lattice Gauge Theory Group has performed computations on the  $N^*$  spectrum, octet baryon axial couplings, and anisotropic clover gauge configurations. The JLab Lattice Group does not see evidence of multi-hadron states in its  $N^*$  computation.
- EBAC continues its efforts to develop a coupled channel approach for analyzing meson electro- and photo-production data.
- The JLab Lattice Gauge Theory Group is continuing a strong research program. Its effort is well-integrated with the national and international efforts via USQCD, other collaborations, and conferences. It continues to offer substantial support to the USQCD initiative. The group should consider redirecting more effort into science computations. The new joint appointment to the group should greatly assist in achieving this.
- The lack of evidence for multi-hadron states raises the possibility that sea quark effects are not completely incorporated into the computation. The lattice group is encouraged to carefully investigate the issues associated with mixing valence and continuum states in their computation.
- GlueX will be collecting large amounts of photoproduction data once the upgrade is complete. The theory group is putting some effort into computing hybrid meson photocoupling with lattice gauge theory, which is commendable. The theory group also should consider initiating a research program in the phenomenology of meson photoproduction.
- The EBAC coupled-channel effort, while commendable and necessary, is a demanding task that is challenged with intrinsic ambiguities that makes it difficult to obtain community endorsement. In the future, EBAC should redouble their efforts to coordinate their approach with other international efforts and should attempt to establish standards by which coupled channel models should be compared to experiment.

As mentioned above, there were several new methods and techniques developed in FY09 and listed below are a few of those highlights. The results were all submitted to [lanl.arXiv.org](http://lanl.arXiv.org), an e-print service that provides open access to publications in the field of physics, mathematics, non-linear science, computer science, quantitative biology and statistics.

- Theory proposed a new method for extracting neutron structure functions from inclusive structure functions of nuclei <[arXiv:0809.4308 \[nucl-th\]](http://arXiv.org/abs/0809.4308)>. This method was applicable to both spin-averaged and spin-dependent structure functions and was able to reproduce known input functions of almost arbitrary shape to very good accuracy with only several litigations.
- Theory presented the first LQCD calculation of the light-hadron spectrum using two light and one strange flavor of dynamical fermions formulated on an anisotropic lattice <[arxiv:0810.3588 \[hep-lat\]](http://arxiv.org/abs/0810.3588)>. This is an important milestone in the program of lattice calculations of the hadron spectrum important for the  $N^*$  programs at both 6 and 12 GeV, and the GlueX experiment at 12 GeV; essential for the next stage of lattice calculations to be measured in the future GlueX experiment at JLab.
- JLab continues to play a major role in the exploration of strange quarks in the nucleon, providing a large part of the world's data on parity-violating electron scattering. A paper that was published during this period <[arXiv:0811.1779 \[hep-ph\]](http://arXiv.org/abs/0811.1779)> illustrated how state-of-the-art methods were used to establish that the strange and anti-strange quarks in the nucleon carry about 2.7% of the momentum of the nucleon, with an error which puts this result almost 5 standard deviations from zero.

- The LQCD group, in a big step towards the ultimate aim of computing GlueX hybrid photoproduction rates, developed new techniques to extract photon current matrix elements between excited and exotic hadron states. These techniques have been tested in the heavy-quark charmonium system, where they successfully reproduced a number of experimental radiative transition rates. The first QCD calculation <arXiv:0902.2241> indicates a large rate, one that if duplicated in the light-quark sector would signal huge production of exotics in GlueX.
- A novel method was successfully demonstrated for the first time to calculate the electric polarizabilities of charged hadrons with LQCD <arXiv:0904.1586 [hep-lat]>; the first in a series aimed at calculating the low-energy electromagnetic structure of hadrons, from pion and kaon polarizabilities to the nucleon (and hyperon) magnetic moments, polarizabilities and spin polarizabilities. A comparison between first-principles calculations of these quantities with the measured hadronic structure from low-energy Compton scattering experiments will then be possible, in particular a comparison to the anticipated results from COMPASS at CERN and HIGS at TUNL.
- A paper from the Excited Baryon Analysis Center demonstrated how the pion electroproduction data from the CEBAF CLAS can be used to extract the electromagnetic structure of nucleon resonances <arXiv:0904.1918 [nucl-th]>; paving the way for extracting nucleon resonance parameters by performing a dynamical coupled-channel analysis of one-pion and two-pion production data from CLAS.
- A new technique was developed <arXiv:0905.2160 [hep-lat]> for constructing quark operators in LQCD, allowing efficient calculation of a broad range of hadron correlation functions. The results will yield promising signals for meson, baryon and multi-meson systems on realistic lattice sizes with light dynamical quarks.

Several significant awards were received in FY09. The Lab's efforts in the development and testing of a probe for use in PET imaging received numerous accolades and recognition during this period. The Synergistic Idea Development Award was received from the Department of Defense's Congressionally Directed Medical Research Programs (CDMRP) FY09 Prostate Cancer Research Program (PCRP) in the amount of \$785,000 for developing a cutting-edge probe for prostate cancer. This collaboration between JLab and the University of Michigan was given a "thumbs-up" from the Department of Defense's U.S. Army Medical Research and Material Command. Funding for initial exploration of the technology was provided by JSA, the Commonwealth of Virginia, and DOE's Office of Biological and Environmental Research. Development and testing of the probe commenced in April 2009. JLab was also recognized for their unique contribution to the design and construction of the dedicated PET breast imager at West Virginia University (WVU) and their contribution to the development of a dual modality system that is currently being used in clinical trials at the University of Virginia (UVA). It was noted that in comparison to the systems available on the market, the PET imager was around twenty times more efficient. The first clinical trials that were conducted on five patients confirmed the superior performance of the WVU system. In addition, JLab will collaborate with Hampton University (HU) and the Eastern Virginia Medical School (EVMS) on a project to advance technology in the areas of breast cancer imaging and therapy research. The Department of Defense awarded a \$1.3M grant to HU; Jefferson Lab will contribute the advanced imaging technology.

#### **NOTEWORTHY ACCOMPLISHMENTS**

- 2009 Synergistic Idea Development Award
- 2009 Federal Laboratory Consortium Award for Excellence in Technology Transfer
- \$900,000 Basic Energy Sciences Grant
- 2009 PECASE Award winner
- 2009 OJI Award winner
- FEL 1 of 3 "Leading Lights" in the U.S.

JLab's Radiation Detector & Imaging Group received the 2009 Federal Laboratory Consortium (FLC) Award for Excellence in Technology Transfer for the development of a life-saving compact gamma camera used for the improved detection of breast cancer. This technology was licensed to a high-tech start-up company, Dilon Technologies, which led to the FLC award. About 60,000 women have taken the

test at units installed in 80 locations worldwide. Governor Kaine commended the group on “*this prestigious accomplishment*” and noted that “*this honor comes at the recommendations of industry leaders, academic and members of federal state and local governments, and singles out Jefferson Lab as a leader in the field of technology transfer*”. Additional details about the license are provided in Measure 6.2.2. In FY09 JLab was awarded its first Basic Energy Sciences grant in the amount of \$900,000 for the development and testing of advanced superconducting cavity designs in the FEL injector. The FEL also received high recognition in the May 7, 2009 edition of *Nature* magazine and was named as one of three “Leading Lights” (new light sources) in the United States.

JLab’s FEL division is participating in a \$777M federal effort to accelerate scientific breakthroughs. One of nine universities and six DOE labs collaborating with Carnegie Geophysical Institution of Washington, DC under an Energy Frontier Research Center award, the FEL will be used by researchers to study the behavior of materials relevant to novel energy production, and energy storage, distribution and utilization.

A Jefferson Lab scientist was one of twelve recipients from DOE, named by President Obama, to receive the Presidential Early Career Award for Scientists and Engineers (PECASE). PECASE is the highest honor bestowed by the U. S. government on young professionals in the early stages of their independent research career. Gianluigi Ciovati, a scientist in the SRF Institute, is also involved with the 12 GeV Upgrade program. He was one of 100 researchers selected for this year’s award. In addition, William Detmold, from the College of William & Mary and a scientist in the Theory Division, was one of three recipients of the Office of Nuclear Physics Outstanding Junior Investigator (OJI) award for his work titled “Multi-Meson Systems in Lattice QCD”. This award was given to support the development of individual research programs of outstanding scientists early in their careers.

JLab’s Director and other senior scientific leaders were invited to give talks at several conferences, colloquia, and workshops that were held throughout FY09 including: the International Joint Workshop on Physics and Methods in Meson Spectroscopy in Munich, Germany; SPIN2008 – The 18th International Symposium on Spin Physics in Charlottesville, VA; colloquia at Old Dominion University in Norfolk, VA; colloquia at the College of William and Mary in Williamsburg, VA; ECT2008 – European Centre for Theoretical Studies in Nuclear Physics and Related Areas in Trento, Italy; IN2P3 – Institut national de physique nucléaire et de physique des particules in Paris, France; INFN – Istituto Nazionale di Fisica Nucleare in Rome, Italy; NSTAR – Workshop on the Physics of Excited Nucleon in Beijing, China; Sendai International Symposium on “Strangeness in Nuclear and Hadronic Systems” in Sendai, Japan; DIS2009 – the XVII International Workshop on Deep-Inelastic Scattering and Related Subjects in Madrid, Spain; the American Physical Society (APS) Spring Meeting in Denver, CO; GHP 2009 – The 3rd Workshop of the APS Topical Group in Hadron Physics in Denver, CO; NUINT09 – 6th International Workshop on Neutrino-Nucleus Interactions in the Few-GeV Region in Sitges, Spain; ENC/EIC Workshop GSI in Darmstadt, Germany; and CIPANP2009 – Tenth Conference on the Intersections of Particle and Nuclear Physics in San Diego CA. These events were attended by hundreds of scientists from the U.S. and the international scientific community, providing high visibility and international recognition of the Lab’s theoretical program, experimental nuclear physics, accelerator operations and the free electron laser. JLab scientists served on the organizing committees, international advisory committees, and also served as chairs of various other committees.

The Director’s presentations included highlights on the first ten years of physics at JLab in addition to the Lab’s activities in nuclear and SPIN based physics. He discussed JLab’s role in upcoming major activities, specifically preparations for the 12 GeV Upgrade, the remaining 6 GeV program, the Electron Ion Collider (ELIC), SRF Technology, and the Fourth Generation Light Source (4GLS). The Director also presented invited talks at the SURF Board of Trustees meeting, the JSA Board meeting, the opening of ODU’s Center for Accelerator Science (CAS) Research Building, the SC Lab Planning meeting, and

the FEL Photon Science workshop. In addition, JLab was invited by DOE’s Office of Nuclear Physics to present a seminar on the “Latest Developments in Superconducting RF Accelerator Technology” at the Office of Science (SC) complex in Germantown, Maryland. This seminar was attended by a mixture of experts, non-experts, and program managers from different SC Program Offices. Bob Rimmer, Director of the Institute for SRF Science & Technology was selected as the presenter and gave an overview of the Lab’s current SRF R&D activities in addition to providing general information about world-wide SRF activities.

### **Objective 1.2 Provide Quality Leadership in Science and Technology**

#### Objective Requirement:

In determining the performance of the Objective the DOE evaluator(s) shall consider the following as measured by progress reports, peer reviews, Program Office reviews/oversight, etc.:

- Willingness to pursue novel approaches and/or demonstration of innovative solutions to problems;
- Willingness to take on high-risk/high payoff/long-term research problems, evidence that the Contractor “guessed right” in that previous risky decisions proved to be correct and are paying off;
- The uniqueness and challenge of science pursued, recognition for doing the best work in the field;
- Extent of collaborative efforts, quality of the scientists attracted and maintained at the Laboratory;
- Staff members visible in leadership position in the scientific community; and
- Effectiveness in driving the direction and setting the priorities of the community in a research field.

<b>Performance Level Achieved</b>	<b>Grade</b>	<b>Score</b>
Laboratory staff lead Academy or equivalent panels; laboratory’s work changes the direction of research fields; world-class scientists are attracted to the laboratory, laboratory is trend setter in a field.	A	4.0

#### JSA Performance:

##### **SCIENTIFIC AND TECHNICAL STAFF**

The Science and Technology Review committee acknowledged that the Lab’s *senior and junior experimental staff continue to have and gain high visibility in the physics community as exemplified by invited talks and many publications and the high efficiency in machine and detector operations, and many experimental results indicate a highly professional and technically capable experimental staff.* There were no recommendations for the Scientific and Technical staff. Listed below are some additional findings and comments from the draft report.

##### SCIENTIFIC AND TECHNICAL STAFF FINDINGS AND COMMENTS

- JLab employees and their students have received important awards in the past year, including APS fellow designations, a DOE PECASE and OJI award, and patents.
- Staff serve on the International Advisory Committees for many conferences, and have been or are involved in the planning of many meetings in 2009.
- Members of the theory group serve on advisory panels to major conferences; have an incoming OJI investigator; and eight fellows of the APS. Publications in PRL and Phys Lett continue at a pace of approximately 14 per annum, and in other journals at approximately 50 papers per year. The group has assisted in the education of nine graduate students and three undergraduates, helps organize the annual HUGS summer school, mentors high school students, and provides vital input to the PAC assessment process.

- The JLab scientific and technical staff have maintained a strong rate of publication in recent years.
- SRF and cryogenics staff are internationally recognized and playing leading roles in the development of projects important to the SC mission and abroad.
- The SRF R&D Program at Jefferson Lab is world-class and is widely viewed as the premier U.S. program in this technology.
- The work of the polarized source group is outstanding.

As noted in the S&T report, during FY09 JLab scientists have continued to have active roles in the scientific community by participating in high level committees and boards, international advisory committees, project reviews, and conference organization boards. The Lab's Chief Scientist & Associate Director for Theoretical and Computational Physics was named as one of the 15 world-leading scholars to receive an inaugural Australian Laureate Fellowship. He is the current chair of the IUPAP Working Group (WG.9) on International Cooperation in Nuclear Physics and has served in that capacity since its creation in 2005. He served as a member of the OECD Global Science Forum Working Group on Nuclear Physics, which released a roadmap for nuclear physics world-wide in 2008. The Chief Scientist is also a member of the Editorial Board for Journal of Physics G; the Hadron 2009 International Advisory Committee; the APS Topical Group in Hadronic Physics 3rd GHP Workshop 2009 International Advisory Committee; the International Advisory Committee for NSTAR2009; the International Advisory Committee for "21st European Conference on Few-Body Problems in Physics" and he served as a member the Helmholtz Association review panel that was charged with advising on the creation of a new Helmholtz Institute in Mainz.

JLab's Associate Director of Physics became Chair of the APS DNP Executive Committee, a member of the Program Committee, a member of the Service Award Committee, and also an APS ex-Officio member of the 2009 Nuclear Science Advisory Committee (NSAC) during this performance period. The 12 GeV Upgrade Deputy Project Manager is also a member of the 2009 NSAC Committee, the Michigan State University FRIB Project Management Oversight Group, the NSF DUSEL Project Review Committee, and the NSF S4 DUSEL Science Review Committee. The 12 GeV Project Manager and Manager of the Office of Project Management & Integration is currently a member of the Machine Advisory Committees for HERA, the Large Hadron Collider (LHC), and the International Liner Collider (ILC). The Associate Director of Accelerators is a member of the European Particle Accelerator Conference Scientific Advisory Board (EPAC), LANCE Review and ATLAS Review Advisory Boards, and the LINAC08 International Organizing Committee. The Associate Director for the FEL Division has been a Board Member of the International Executive Committee on Free Electron Lasers since 1993 and is also currently a member of the International Advisory Board of the IEEE IR and Millimeter Wave Conference. In addition, five JLab scientists were selected as 2009 Fellows of the American Physical Society:

**NOTEWORTHY ACCOMPLISHMENTS**

Five JLab Scientists Selected 2009 Fellows of the American Physical Society.

- Jian-Ping Chen. Nominated by Hadronic Physics (GHP) for his contributions to understanding the spin structure of the neutron, through the use of a polarized Helium-3 target.
- Peter Kneisel. Nominated by Physics of Beams (DPB) for pioneering contributions to superconducting rf science and technology through a wide range of research and development advances.
- Gerassimos Petratos. Nominated by Nuclear Physics (DNP) for numerous contributions to high energy electromagnetic physics, including the SLAC nucleon spin physics program, and the SLAC and Jefferson Lab few-body physics programs.
- Charles Horowitz. Nominated by Nuclear Physics (DNP) for seminal and sustained contributions to relativistic descriptions of nuclei, nuclear reactions, and dense matter.

- Daniel Phillips. Nominated by Few-Body Systems & Multiparticle Dynamics (GFB) for his research on effective hadronic theories of few-nucleon systems, especially on the role of the Delta (1232) and the description of electromagnetic reactions on light nuclei, and their application in obtaining reliable information on neutron properties from experimental data.

As mentioned previously in Objective 1.1, an SRF scientist in the Accelerator Division was one of twelve DOE recipients of the 2009 PECASE Award and a scientist in the Theory Division is one of three recipients of the 2009 OJI Award. Additional staff recognition for doing the best work in their field includes Ya Li, a Hampton University graduate student and Hall C user, one of three recipients of the 2008 M. Hildred Blewett Scholarship award. This scholarship enables early-career women to return to physics research careers after taking time off for family reasons. Ya Li is using her scholarship to study nucleon structure using the precision electron beam probe at JLab. In addition, Patricia Solvignon, an ANL postdoctoral appointee and Hall C user received the 2009 JSA Postdoctoral Research Fellowship for her work involving the spin of the neutron and “how the nuclear force is working between protons and neutrons inside the nucleus”. Lastly, Guy Ron, a Ph.D. student at Tel Aviv University and Hall A user, was awarded the 2008 JSA Thesis Prize for his work on low-energy proton form factors. This annual award is for the best Ph.D. dissertation resulting from research performed at JLab.

Jefferson Lab is collaborating with every project in the DOE 20 year plan that needs SRF including the Facility for Rare Isotope Beams (FRIB) at Michigan State University (MSU), the Power Upgrade Project (PUP) at SNS, Project X at Fermilab, the 4th Generation Light Source (4GLS), and the FEL Facility at LBNL. As in previous fiscal years, several world class scientists have presented colloquiums and/or collaborated on various projects or experiments at the Lab in FY09. Visitors during this period include Dr. Konrad Gelbke, Director of the National Superconducting Cyclotron Laboratory (NSCL) at MSU. Dr. Gelbke is a recognized leader in the international nuclear science community and was onsite to present colloquia on the FRIB at MSU. Dr. Roger Falcone, Director of the Advance Light Source at LBNL and co-director of the Cal Teach Program at U.C. Berkeley and Dr. John Corlett, Center Head for the Center for Beam Physics at LBNL were onsite to present colloquia on the FEL at LBNL. In addition, Dr. Young-Keek Kim, Deputy Director of Fermilab and Dr. Steve Holmes, Associate Director of Accelerators at Fermilab were onsite to present colloquia on Project X. JLab is currently negotiating partnerships for the FRIB at MSU, Project X at Fermilab, and FEL at LBNL; these projects and the Lab’s participation will be based on SRF technology and cryogenics, backed by accelerator theory, diagnostics and in two cases, injectors. Funds are currently being received for partnerships with ILC, the Japan-USA Cooperation Agreement, PUP at SNS and APS at ANL. Another potential partnership is with the West African nation of Senegal. A special envoy was sent to JLab during FY09 to explore the possibility of a collaboration. Direct outcomes following the visit of Dr. Ndeye Arame Boye-Faye, Director of Research at the Ministry of Biofuels, Renewable Energy and Scientific Research, included the start of a nuclear physics Ph.D. thesis of a Senegalese student on JLab research in the fall of FY2010 and JLab co-sponsoring a Geant4 tutorial in Dakar. Discussions for the JLab staff and user community to be a part of the above-mentioned effort are ongoing.

The polarimetry groups of Halls A and C collaborated with Carnegie Mellon University to conduct test beam measurements at the High Intensity Gamma-Ray Source (HIγS) photon beam facility at the Duke Free Electron Laser Laboratory (DFELL), at Duke University in North Carolina. These gamma rays were used to characterize the polarimetry detectors for the PREx and Q-weak experiments and for the 12 GeV Upgrade. Highlights of other experimental collaborations in Halls A, B, and C are noted in Objective 2.4.

**Objective 1.3 Provide and Sustain Outputs that Advance Program Objectives and Goals**
Objective Requirement:

In determining the performance of the Objective the DOE evaluator(s) shall consider the following as measured through defined project products, progress reports, statements of work, program management plans, Program Office and/or other reviews/oversight, etc.:

- The quantity and quality of program/project (e.g., technical reports, policy papers, prototype demonstrations, tasks, etc.), output(s) be it policy, R&D, or implementation programs;
- The number of publications in peer-reviewed journals; and
- Demonstrated progress against peer reviewed recommendations, headquarters guidance, etc.

<b>Performance Level Achieved</b>	<b>Grade</b>	<b>Score</b>
Program offices, clients, end-users, independent experts and/or peers laud work results; output(s) exceeds the amount and/or quality typically expected for an excellent body of work.	A	3.8

JSA Performance:

Jefferson Lab's research has been widely publicized in FY09 as evidenced by the following publication statistics for Theory, Experimental Physics, and the Accelerator Division. As of September 11, 2009 the Theory Division has a total of fifty-five published articles in Journals, eighty-two Invited Talks, and fourteen Contributed Talks. Experimental Physics has thirty published articles in Journals, three Theses, sixty Invited Talks, and forty-eight Contributed Papers. As reported at the 2009 S&T Review, the Accelerator Division had fifteen Peer-Reviewed articles and sixty-one Conference and Workshop Proceedings.

Publications highlights include the results of an experiment conducted in Hall A that were published in the October 31, 2008 edition of Physical Review Letters. Experiment E01-012 Quark-Hadron Duality in Neutron (<sup>3</sup>He) Spin Structure was the first measurement of duality on the spin structure of the neutron. Patricia Solvignon, the lead author of this publication, worked on the experiment as a Ph.D. student from Temple University and as noted in Objective 1.2, she is currently a postdoctoral appointee at ANL and winner of the 2009 JSA Postdoctoral Research Fellowship. A new calculation published in the June 26, 2009 edition of Physical Review Letters, the Isovector EMC Effect and the NuTeV Anomaly, clarified the complicated relationship between protons and neutrons in the atomic nucleus and offered a fascinating resolution of the famous NuTeV Anomaly. This calculation was carried out by a collaboration of researchers from JLab, Tokai University and the University of Washington, and is featured in the September 2009 edition of the CERN Courier.

**Objective 1.4 Provide for Effective Delivery of Products**
Objective Requirement:

In determining the performance of the Objective the DOE evaluator(s) shall consider the following as measured by progress reports, peer reviews, Field Work Proposals (FWPs), Program Office reviews/oversight, etc.:

- Efficiency and effectiveness in meeting goals/milestones documented within FWPs and/or other such documents;
- Efficiency and effectiveness in delivering on promises and/or getting instruments to work as promised;
- Efficiency and effectiveness in transmitting results to the community and/or responding to DOE or other customer guidance.

<b>Performance Level Achieved</b>	<b>Grade</b>	<b>Score</b>
Program/project goals and/or milestones are met well ahead of schedule and/or well under budget; program/project and/or mission objective(s) are fully meet and results anticipate HQ guidance.	A	3.8

JSA Performance:

During FY09, JLab has demonstrated efficiency and effectiveness in meeting goals/milestones documented within FWPs or other documents; in delivering on promises and/or getting instruments to work as promised; and in transmitting results to the community and/or responding to DOE or other customer guidance. Evidence of these accomplishments are summarized below.

During the first quarter of this performance period, major progress in getting the FEL gun operational included developing a new krypton processing procedure that was successful in breaking through an emission whisker barrier that limited the FEL gun to below 270kV. This procedure quickly processed gas emission from the gun, saving many hours of conditioning time. In addition, great progress was made on an important study related to off-axis injection of the electron beam from the injector into the linac. Staff from the FEL division and the SRF Institute completed initial testing of a new cryounit during the first quarter; the cryounit reached a record maximum acceleration gradient of 32 MV/m in pulsed operation for one of the cavities. Successful completion of the “Load Shed Test” in the third quarter demonstrated the accelerator’s ability to reduce power consumption quickly and then recover; this was a power reduction effort to compensate for the rising utility costs. An additional test setup of the accelerator to deliver more than 6 GeV with 100 microamps was also successful.

There was continued progress toward the OMB Milestones for Hadronic Physics as reported at the 2009 S&T Review. JLab is addressing ten of the thirteen SC milestones; two are for the 12 GeV Upgrade, two are for Theory, and six are for the 6 GeV experimental program. During this performance period, there was one milestone due for the 6 GeV program → HP3: Complete the combined analysis of available data on single  $\pi$ ,  $\eta$  and K photo-production of nucleon resonances and incorporate the analysis of two-pion final states into the coupled-channel analysis of resonances. STATUS: Precise single  $\pi$  and  $\eta$  photoproduction cross section data from CLAS has been published. The Frozen Spin Target took data in FY08. CLAS/EBAC analysis is underway and analysis of 2-pion data is progressing. Another milestone that is not due until FY2010 could be declared complete → HP5: Characterize high-momentum components induced by correlations in the few-body nuclear wave functions via  $(e,e'N)$  and  $(e,e'NN)$  knock-out processes in nuclei and compare free proton and bound proton properties via measurement of polarization transfer in the reaction. STATUS: Excellent progress made. Multiple  $(e,e'N)$  and several  $(e,e'NN)$  results published; initial data and related DIS  $(e,e')$  both completed and published;  $^{12}\text{C}(e,e'NN)$  results completed and published in Science. Follow-on to higher  $Q^2$  scheduled for 2011.

Ten C50 Milestones were 100% completed in FY09 (CM#8, CM#9, Cavity Pair #9A, Cavity Pair 9B, Cavity Pair #9C, Cavity Pair #9D, Cavity Pair #10A, Cavity Pair #10B, Cavity Pair #10C, and Cavity Pair #10D), with one remaining for completion. There were three 12 GeV Milestones completed (Award First Superconducting Magnet Contract, Civil Construction Contract Award for P-I of the H-D Complex, and Award Initial Major Accelerator Contract). There were two TEDF Milestones completed (NEPA Document approved and DOE Approve CM/GC Solicitation) and five Qweak Milestones (Upstream Luminosity: design complete, prototype tested; Scintillator: assembly and testing complete; Scintillator: trigger counters delivered; Infrastructure: collimator and shielding design complete; and HDC construction complete) also completed in FY09.

**Table 4. Goal 1.0 Performance Rating Development**

ELEMENT	Letter Grade	Numerical Score	Objective Weight	Total Points	Total Points
<b>1.0 Efficient and Effective Mission Accomplishment</b>					
1.1 Impact	A+	4.1	35%	1.44	
1.2 Leadership	A	4.0	25%	1.00	
1.3 Output	A	3.8	25%	0.95	
1.4 Delivery	A	3.8	15%	0.57	
<b>Performance Goal 1.0 Total</b>					<b>3.96</b>

**Table 5. Goal 1.0 Final Letter Grade**

Total Score	4.3-4.1	4.0-3.8	3.7-3.5	3.4-3.1	3.0-2.8	2.7-2.5	2.4-2.1	2.0-1.8	1.7-1.1	1.0-0.8	0.7-0
Final Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F

**GOAL 2.0 PROVIDE FOR EFFICIENT AND EFFECTIVE DESIGN, FABRICATION, CONSTRUCTION AND OPERATION OF FACILITIES**
Goal Requirement:

The Contractor provides effective and efficient strategic planning; fabrication, construction and/or operations of Laboratory research facilities; and is responsive to the user community.

**Objective 2.1 Provide Effective Facility Design(s) as Required to Support Laboratory Programs (i.e., activities leading up to CD-2)**
Objective Requirement:

In determining the performance of the Objective the DOE evaluator(s) shall consider the following as measured by scientific/technical workshops developing pre-conceptual R&D, progress reports, Lehman reviews, Program/Staff Office reviews/oversight, etc.:

- Effectiveness of planning of preconceptual R&D and design for life-cycle efficiency;
- Leverage of existing facilities at the site;
- Delivery of accurate and timely information needed to carry out the critical decision and budget formulation process.; and
- Ability to meet the intent of DOE Order 413.3A, Program and Project Management for the Acquisition of Capital Assets.

Performance Level Achieved	Grade	Score
Objective 2.1 not applicable in this performance period per the FY2009 PEMP.	N/A	N/A

**Objective 2.2 Provide for the Effective and Efficient Construction of Facilities and/or Fabrication of Components (execution phase, Post CD-2 to CD-4)**
Objective Requirement:

In determining the performance of the Objective the DOE evaluator(s) shall consider the following as measured by progress reports, Lehman reviews, Program/Staff Office reviews/oversight, etc.:

- Adherence to DOE Order 413.3A Project Management for the Acquisition of Capital Assets;

- Successful fabrication of facility components;
- Effectiveness in meeting construction schedule and budget; and
- Quality of key staff overseeing the project(s).

Performance Level Achieved	Grade	Score
Laboratory has identified and implemented practices that would allow the project scope to be increased if such were desirable, without impact on baseline cost or schedule; Laboratory always provides exemplary project status reports on time to DOE and takes the initiative to communicate emerging problems or issues. There is high confidence throughout the execution phase that the project will meet its cost/schedule performance baseline; Reviews identify environment, safety and health practices to be exemplary.	A+	4.1

JSA Performance:

The primary sources of performance evaluation data for Objective 2.2 comes from the DOE SC OPA Independent Project Review of the 12 GeV CEBAF Upgrade Project (the Lehman Review) which is scheduled for September 22 – 24, 2009 and the 2009 Science and Technology Review which was conducted in July. The S&T committee noted that the *laboratory has received stimulus funding that will enable major procurements for the 12 GeV upgrade on an accelerated schedule.* Listed below is an additional comment from the S&T committee:

- The advancement of major procurements for the 12 GeV upgrade through ARRA funding should reduce some cost and schedule risks for the 12 GeV upgrade project. However, it should be noted that the mitigation of the risks involved with major procurements will require the attention of technical and non-technical staff earlier than originally anticipated and this may place some strain on laboratory resources.

During FY09, the 12 GeV Upgrade Project made excellent progress in PED with excellent overall Performance Indices at Level 1. The formal start of construction began in October 2008 and the official groundbreaking for the 12 GeV Upgrade was successfully conducted on April 14, 2009. The ceremony was attended by local, state, and national politicians, DOE SC and local representatives, local university representatives, former JLab directors, and current JLab staff and users.

There were a total of 44 major construction procurements (>\$500K) planned for FY09 and FY10. As of September 9, 2009, thirty-eight were being actively worked which includes sixteen contract awards plus three final vendor selections and an additional ten with bids received. These awarded contracts include: \$14.1 million for construction of the Lab’s fourth experimental Hall D (an 8,000 square foot facility) and supporting facilities (a 250-foot extension of the Lab’s underground accelerator tunnel and new roads and utilities to support the new experimental hall); \$1.5 million for construction of the Central Helium Liquefier (CHL) building addition; \$3.3 million for plastic scintillation fibers for a barrel calorimeter – the largest detector planned for Hall D; and \$200,000 for ultra-precise integrated time-to-digital converters needed to read signals from particles in the Hall D experiments. Listed

**FY09 STIMULUS FUNDING**

The 12 GeV project received \$65M in stimulus funding from the American Recovery and Reinvestment Act (ARRA) of 2009. A Work Authorization (WA) for advanced funding of the project was initiated on March 28, 2009 and it included a list of major milestones for the project. This WA was completed, incorporated into and funded by Contract Modification 074, later on April 28, 2009. The milestones were statused weekly per the guidance received for submission to the HQ Program Office and the SC Office of Budget as requested. In addition, weekly status reports for 12 GeV Procurements exceeding \$100K were submitted to the TJSO.

**NOTEWORTHY ACCOMPLISHMENT**

DOE concurs with Jefferson Lab’s mid-year performance evaluation that the 12 GeV Upgrade Project has been performing at an excellent performance level for this reporting period. It is also notable that the Jefferson Lab has worked closely with DOE to ensure the effective management, and accurate and timely reporting of the \$65M of ARRA funds that has been advanced funded to the 12 GeV Project. (DOE FY09 Mid-Year Performance Feedback)

below are additional highlights of the 12 GeV Upgrade Project during FY09.

- Jefferson Lab jointly sponsored an international workshop on Physics and Methods in Meson Spectroscopy held in Munich on October 22 – 24, 2008 with over 80 participants. The workshop encompassed meson spectroscopy with beams of protons and mesons (CERN-COMPASS), polarized photons (JLab-Hall D/GlueX) and antiprotons (GSI/FAIR-PANDA).
- The Directors Project Review of the 12 GeV Upgrade was conducted November 4 – 6, 2008. The charge was to present the full project plan to the reviewers, discuss known issues facing the project as it enters the construction phase, and evaluate the plans to address them. The review went well and the findings are under review now that the official report has been received.
- A review of the Hall D beamline and tagger area was conducted on November 19 – 20, 2008. The Hall D electron beamline design has been completed and simulations prove it to be robust, with flexible tuning and well-defined instrumentation and tuning knobs to verify beam performance.
- A review of the Hall C SHMS spectrometer moveable support carriage and shield house was conducted on December 3, 2008. The committee commended the team and expressed a high confidence level in the feasibility of the design. There were no recommendations, but a detailed list of observations was given as a punch list for completing the reference design for the procurement phase.
- A review of the reference design and coil trial winds of the horizontal bend (HB) magnet was held on February 10, 2009. This superconducting HB magnet allows for small-angle operation of Hall C's Super High Momentum Spectrometer. This design and R&D work was performed in collaboration with the National Superconducting Cyclotron Laboratory at Michigan State University. The review committee validated maturity of the reference design and pointed to items that would assist in the successful construction and operation of this critical magnet.
- A series of reviews of the plans for installation of 12 GeV equipment in all four experimental Halls were held in February and March. In preparation for this, Hall technical and scientific staff mapped the 12 GeV schedule activities and milestones into detailed installation plans typically used for Hall work coordination. The review committee checked timelines, logic of task sequence, and manpower requirements. Valuable recommendations were made to further streamline installation schedules, formalize involvement of support groups, and assign laydown spaces, amongst others.
- A review of the interim plans for installation of the accelerator equipment was held in June. The committee made valuable recommendations regarding schedule and resource optimization, as well as integration of the readiness review process.
- A total of 3200 km of SCSF-78M 1mm-diameter scintillating fibers were ordered for use in the Hall D barrel calorimeter detector. The fibers are made in rods of 4.1 m length. One hundred first-article fibers were received in February for evaluation of conformance with specifications. The fibers were tested at JLab and the University of Regina in Saskatchewan, Canada for light output and transparency. The fiber performance was measured to be uniform from fiber to fiber and in all cases exceeded specifications, as determined by measurements of the light output in response to a <sup>90</sup>Sr radioactive source.
- Ms. Dianne Napier, a former employee of JLab, joined the project team in February as the Integration Engineer. Mr. Phil Childress came to JLab as the 12 GeV Construction Safety Representative, and Mr. Paul Collins joined in June as the 12 GeV Safety Manager. Dr. Eugene

**NOTEWORTHY ACCOMPLISHMENT**

DOE concurs with Jefferson Lab's 3rd quarter performance evaluation that the 12 GeV Upgrade Project has accomplished numerous activities during this reporting period, including the successful grounding breaking ceremony celebrating the start of Project construction. Also, the Jefferson Lab continues to work closely with DOE to ensure the effective management, and accurate and timely reporting of the expenditure of the \$65 million of ARRA funds that have been advanced funded to the 12 GeV Upgrade Project. (DOE FY09 3rd Quarter Performance Feedback)

Chudakov, a Hall A Staff Scientist for more than 10 years, has assumed responsibility as the Hall D Group Leader and 12 GeV Assistant Project Manager. Dr. Glenn Young joined the staff on September 1st as the 12 GeV Associate Project Manager for Physics.

- The CHL Building Addition contractor, Ritchie-Curbow Construction, mobilized on site with an office trailer and “conex” box for temporary electrical material storage. With the approval of the erosion and sediment control plan and Phase I construction schedule and activity hazard analysis, the construction contractor was authorized to start work on Phase I.
- Approximately seventy (70) construction contractor personnel have attended Jefferson Lab’s construction safety orientation training course at mid-year. This course is a requirement for access on Jefferson Lab’s construction worksites.
- The \$65 million ARRA stimulus funding arrived April 29th; it will be applied to the 12 GeV Upgrade to advance the funding profile thereby reducing the cost and schedule risk. The project team successfully developed the plan to allocate \$42M for Accelerator scope and \$23M for Civil including all related tracking and reporting requirements. Since that time, weekly reports on the status of the ARRA-funded scope and milestones have been submitted to DOE.
- The 12 GeV Upgrade Project awarded a contract on May 29th for the 4-meter dipole magnets to be used in the arc 10 beamline and the beamline to Hall D. Another contract award was completed on June 30th for the conventional quadrupole magnets for the beam transport system. These contract awards used ARRA funds and met two of the defined ARRA milestones.
- Significant progress was made on the construction of the Building Addition for the Central Helium Liquefier. The electrical duct banks are complete. The column footings and foundation walls were 50% completed in June. Work has begun on the trench for the gas and cooling water pipes. Structural steel was delivered on June 30th. The concrete work is now complete and the structural steel work started with setting of the columns.
- On the Hall D Complex, tree clearing and initial site excavation are complete. The groundwater dewatering system is fully operational and the Hall D excavation is near the required depth of approximately 20 feet.
- The contract for the North and South Access Building Additions is being revised to incorporate the electrical utility upgrade work that was previously part of the North and South Access Utilities Upgrade (Low-Conductivity Water) contract. The contract is currently scheduled to be awarded in the first quarter of 2010, significantly ahead of the baseline schedule.
- Hall B has prepared Advanced Procurement Plans for its FY10 silicon sensor assemblies and forward time-of-flight photomultiplier tubes and high-voltage dividers. Halls B and D have started many detector-related construction activities, and Hall C is in the process of evaluating its shield house design to slightly decrease weight and allow easier use of commercial bearings.
- The first Superconducting Magnet contract (for the Hall C/SHMS Q1 magnet) was awarded July 10th thus completing an important milestone in the project plan.

#### PERFORMANCE CHALLENGE

DOE continues to pay close attention to JLab balancing resources while meeting all 12 GeV Upgrade Project performance expectations. There continues to be precursors that Project performance is being impacted by labor shortfalls and unachieved procurement award milestones, which in turn will require even greater labor resources than planned to make-up for the loss of project performance. Also, there continues to be great interest by DOE on the success of JLab filling the vacant Project leadership positions, one of which has been vacant for more than one year. The hiring of the 12 GeV Safety Manager during the quarter was a positive step forward in filling all of the Project leadership positions. (DOE FY09 3rd Quarter Feedback)

STATUS: As reported in the MidYear Evaluation report, a plan was developed to ramp up the staffing levels for 12 GeV construction at the rate of approximately four FTEs per month for the next several years. The 12 GeV Project Team continues to work with senior Lab management and representatives from the in-house support groups to identify and fill critical gaps through hiring and reassignment of personnel. Progress is being made. New Associate Project Manager Glenn Young joined JLab August 31, 2009. The Hall D Leader position was filled in August 2009 and the 12 GeV Associate Project Manager for Physics started on September 1st.

- Hall D held reviews of two of their subsystems. A review committee validated the tagger magnet final design and advised the team to finalize the detailing in-house rather than incorporating it into the construction contract award. A second review committee evaluated two readout choices of the Barrel Calorimeter detector. They felt the first readout option, with silicon photomultipliers, looked very promising, and recommended a test plan be developed for final certification and quality assurance of prototypes during the remainder of this calendar year. The more conventional backup option with fine-mesh photomultiplier readout was again found to be viable with a sufficiently detailed implementation plan if needed.
- The second 12 GeV Upgrade superconducting magnet contract was awarded in September for the Hall B Torus magnet. Components for the Hall B CLAS12 preshower calorimeter detector have arrived, and a test set-up is being fabricated.
- The Hall C project manager convened a peer review of the SHMS detector systems. The user provided detector designs received uniformly positive remarks, with no recommendations. Assembly of a first article construction module of a major Hall D GlueX detector, the Forward Drift Chamber, has begun here at JLab.
- The third ARRA-funded contract for fabrication of the septa magnets for the beam transport and extraction systems was awarded in August. JLab representatives visited the vendors for the beamline quadrupole magnets and for the klystron microwave sources. Good progress was seen at both vendors. The visit to the klystron vendor included a review of their preliminary design for the klystrons; the design was approved.
- A recommendation was made by the 2009 S&T review committee regarding the 12 GeV Upgrade project cryomodule subsystem. The committee suggested formulating a plan to mitigate risks associated with the lack of a full-scale cryomodule prototype to be presented at the upcoming DOE SC OPA Independent Project Review (IPR). Such a plan has been in place for several years and is re-assessed at least every six months as part of the overall project risk assessment updates. The plan was presented at the 2009 IPR.
- The DOE SC Office of Project Assessment will conduct an Independent Project Review of the 12 GeV Upgrade at Jefferson Lab on September 22 – 24, 2009. The JLab team met all deadlines to provide project briefing material in advance, and provided the committee with a comprehensive set of presentations including responses to all previous DOE review recommendations (120 now closed, 2 remain open).

### **Objective 2.3 Provide Efficient and Effective Operation of Facilities**

#### Objective Requirement:

In determining the performance of the Objective the DOE evaluator(s) shall consider the following as measured by progress reports, peer reviews, Program/Staff Office reviews/oversight, performance against benchmarks, Approved Financial Plans (AFPs), etc.:

- Availability, reliability, and efficiency of facility(ies);
- Degree the facility is optimally arranged to support community;
- Whether R&D is conducted to develop/expand the capabilities of the facility(ies);
- Effectiveness in balancing resources between facility R&D and user support; and
- Quality of the process used to allocate facility time to users.

<b>Performance Level Achieved</b>	<b>Grade</b>	<b>Score</b>
Performance of the facility exceeds expectations as defined before the start of the year in any of these categories: cost of operations, users served, availability, beam delivery, or luminosity, and this performance can be directly attributed to the efforts of the laboratory; and /or: the schedule and the costs associated with the ramp-up to steady state operations are less than planned and are acknowledged to be 'leadership caliber' by reviews; Data on ES&H continues to be exemplary and widely regarded as among the 'best in class'.	A	4.0

JSA Performance:

There were no recommendations from the S&T Review committee for Facility Operations or the Scientific User Community. Listed below are findings and comments from the draft report:

**FACILITY OPERATIONS FINDINGS AND COMMENTS**

- The FY2009 run will provide 34 weeks of high-energy operations with beam delivery to all 3 halls. CEBAF attained 6 GeV with an average multiplicity of 2.6 and the DOE defined beam availability of 91%.
- The major sources of lost time (>1%) in FY2009 were due to magnet power supplies that are showing their age (some are the original 4 GeV supplies), SRF including the failure of the Renaissance cryomodule, RF, cryogenics and vacuum.
- The November 2008 turn-on period took roughly four times longer than usual to achieve the availability goal for an entire week, ~ 35 days at 5 GeV.
- In FY 2008, the laboratory experienced an unexpected 40% increase in the fuel surcharge which increased the cost of operations. This increased fuel charge is no longer expected in FY 2009.
- The Accelerator Operations, Research & Development Division and the Experimental Nuclear Physics Division are congratulated for the excellent accelerator operation performance and the technical support of the experimental program. The availability metric is well above the required DOE performance goal. The machine has recovered from the aftermath of Hurricane Isabelle, and has finally reached 6 GeV.

**SCIENTIFIC USER COMMUNITY FINDINGS AND COMMENTS**

- The users express satisfaction with the manner in which the lab is dealing with the transition from 6 GeV to 12 GeV. Users are quite happy that the 12 GeV plan has been modified to ensure that maximum energy can be delivered to all halls simultaneously
- The users have concerns regarding whether the out-year budgets will fund needed capital equipment for approved 6 GeV experiments.
- The users are concerned with the lab's low level of effort on matters related to EIC. While they understand well that the 12 GeV upgrade has necessarily had much higher priority, they believe that considerable progress needs to be made before the next Long-Range-Planning exercise.
- Led by Zein-Eddine Meziani (the new UGBOD Chair), the user group board hopes to jumpstart more user involvement in EIC-related working groups and workshops.
- The user community is large, enthusiastic and very productive, as evidenced by new proposals, participation in user group meetings, and the number of publications.
- The lab is commended for the effort they have put into engaging the users in navigating the many difficult issues that have naturally come up during the 12 GeV upgrade.
- An increased community involvement to develop the scientific case for the MEIC is a necessity if the case is to be made prior to the next LRP.

Jefferson Lab's demonstrated progress against the expectations defined at the beginning of this performance period indicates that operations during FY09 exceeded performance expectations. The goal for Facilities Operations that was established by SC included delivering more than 3952 hours to meet the performance goal and delivering more than 4963 hours to exceed the goal. Through Q3 of FY09 a total of 4113 hours have been delivered with an achieved reliability of 91.5% (despite extended operation at 5.9 GeV), and it is anticipated that the goal for the year will be reached by the end of Q4.

The goal for the CEBAF detectors in FY09 that was established by SC includes achieving at least 80% of the integrated delivered beam used effectively for experimental research in Halls A, B, and C measured as a percentage of the scheduled delivered beam considered effective for each hall. The percentage of the scheduled delivered beam that was considered effective for this performance period as of Q3 is 78.3% in Hall A, 72.3% in Hall B, and 44.2% in Hall C (due to early failure of SANE Target provided by the UVA group; extensive repairs have been made and the experiment achieved most of its scientific goals). We anticipate that Halls A and B will comfortably meet their goals by the end of Q4, while Hall C performance, impacted by the target failure and the subsequent work needed to re-commission the experiment, will fall somewhat short.

Jefferson Lab currently has a total of 1,300 active users, the largest nuclear physics user base at any laboratory worldwide. The Lab produces around 30% of the U.S. Ph.D.s in Nuclear Physics annually, with a total of 318 completed as reported at the S&T Review. The Annual Users Group Workshop and Meeting that was held June 8 – 10, 2009 was attended by more than 200 scientists and included representatives from the international communities of China, Germany, India, Israel, Korea, Spain, and Switzerland. Graduate students were strongly encouraged to attend to find out more about the plans of DOE, NSF, and Jefferson Laboratory and their fees were covered by the JSA Initiatives Fund. In conjunction with the annual workshop and meeting, Women in Physics and Engineering, met for the first time to report on the activities of this newly formed committee. The goals of this committee are to improve support at JLab for women in physics and engineering and to encourage more girls and women to pursue a career in these fields. The group consists of JLab staff scientists and scientists that are part of the user community. The first Jefferson Lab workshop on Women in Science and Engineering is scheduled for November 16 – 17, 2009. Additional workshops and collaborations conducted in FY09 include the Hall B CLAS 12 Workshop and Collaboration October 29 – November 1, 2008; Hall A Analysis Workshop and Collaboration December 3 – 5, 2008; Hall D GlueX Collaboration January 29 – 31, 2009; Hall C Users Meeting January 30 – 31, 2009; and the Hall C Qweak Collaboration March 6 – 7, 2009. Each of these workshops and collaborations were attended by more than 65 users, including includes scientists from the international user community.

#### **Objective 2.4 Utilization of Facility to Grow and Support Lab's Research Base and External User Community**

##### Objective Requirement:

In determining the performance of the Objective the DOE evaluator(s) shall consider the following as

##### FY09 STIMULUS FUNDING

Accelerator Improvement Project (AIP) funding of \$2.76M was received as part of the stimulus funding from the American Recovery and Reinvestment Act (ARRA) of 2009.

##### NOTEWORTHY ACCOMPLISHMENT

JLab Women in Science and Engineering committee formed to improve support for women in physics and engineering at the lab and to encourage more girls and women to pursue a career in these fields.

##### NOTEWORTHY ACCOMPLISHMENT

**SRF Quality Improvement Initiatives (Leadership Training)** → Taking the initiative to become more efficient, the SRF division is developing a plan to systematically identify and eliminate non-value added activities and/or time with minimal impact to the existing workload. Fewer reworks, more centralized document control, and/or a tool location system are some of the ideas being considered that would eliminate non-value added time. The main objective is to be prepared for the upcoming increases in Cavity and Cryomodule work by July 1, 2010.

measured by peer reviews, participation in international design teams, Program/Staff Office reviews/oversight, etc.:

- The facility is being used to perform influential science;
- Contractor's efforts to take full advantage of the facility to strengthen the Laboratory's research base;
- Conversely the facility is strengthened by a resident research community that pushes the envelope of what the facility can do and/or are among the scientific leaders of the community;
- Contractor's ability to appropriately balance access by internal and external user communities; and
- There is a healthy program of outreach to the scientific community.

Performance Level Achieved	Grade	Score
Reviews document that multiple disciplines are using the facility in new and novel ways, that the facility is being used to pursue influential science, that full advantage has been taken of the facility to enhance external user access, and strengthen the laboratory's research base. A healthy outreach program is in place.	A	4.0

#### JSA Performance:

Scheduled weeks of operation for this performance period were 34; actual weeks of operation were 27.04 (as of 8/17th). JLab will run a total of 11 experiments in Halls A, B, and C during FY09 and install and commission one more in Hall C; all but 3 have been completed by 8/17. Brief summaries are listed below.

#### HALL A: SEVEN EXPERIMENTS

[E06-010](#) Measurement of Single-Spin Asymmetry in a Semi-Inclusive Reaction on a Transversely Polarized Helium-3 Target; [E07-013](#) Target Normal Single-Spin Asymmetry in Inclusive Deep-Inelastic Scattering with a Polarized Target; [E06-014](#) Measurement of the Neutron  $d_2$ : Towards the Electric  $\chi_E$  and Magnetic  $\chi_B$  Color Polarizabilities; [E05-015](#) Measurement of the Target Single-Spin Asymmetry in Quasi-Elastic  $^3\text{He}(e,e')$ ; [E08-005](#) Measurement of the Target Single-Spin Asymmetry,  $A_y$ , in the Quasi-Elastic  $^3\text{He}(e,e'n)$  Reaction; [E05-102](#) Measuring the Transverse Asymmetries in the  $^3\text{He}(e,e'd)$  Reaction; and Experiment [E05-109](#) A Measurement of Nucleon Strange Form Factors at High  $Q^2$

Experiment [E06-010](#) was submitted as a PAC 29 proposal and it was approved with the highest scientific rating of "A". The goal of this experiment was to provide the first measurement on the neutron transversity complementary to the HERMES measurement on proton and the COMPASS measurement on the deuteron; focusing on the valence quark region,  $x = 0.13 \sim 0.41$ , at  $Q^2 = 1.31 \sim 3.10 \text{ GeV}^2$ . Data from this experiment, when combined with HERMES proton data and COMPASS deuteron data, will provide powerful constraints on the transversity distribution and Sivers functions for both u-quark and d-quark in the valence region. Experiment [E07-013](#) ran concurrently E06-010 and took data that addressed a slightly different left-right asymmetry two orders of magnitudes smaller. Both experiments successfully completed their production run with a high reliability on February 5, 2009 (one day early) to start the transition to Experiment E06-014.

#### PERFORMANCE CHALLENGE

Beam performance in the first quarter was below par due to a combination of difficulties in delivering the scheduled higher energy beams reliably (at 5.9 GeV for the first time since Hurricane Isabel) resulting in Halls A and B getting ~85% of what was scheduled, and the quench problems with the SANE target that have resulted in Hall C receiving only about 1/10th of what was planned.

STATUS: Considerable manpower was dedicated to repairing the superconducting magnet and target refrigerator in a timely manner. As a consequence we were able to complete ~90% of the parallel kinematics planned and ~70% of the perpendicular kinematics for the SANE experiment (measuring the proton spin structure function over a broad range of  $x$  and  $Q^2$ ), but were unable to carry out the measurement of  $d_2^n$

Experiment [E06-014](#) measured the  $\sigma_0^{3\text{He}}$ , as well as, the parallel and perpendicular asymmetries ( $A_{\parallel}^{3\text{He}}$ ,  $A_{\perp}^{3\text{He}}$ ), in order to extract the  $g_2$  structure function. In this experiment, the neutron spin-dependent structure functions  $g_1$  and  $g_2$  are determined by measuring the scattering rate of longitudinally polarized electrons from a transversely and longitudinally polarized  $^3\text{He}$  target. The results will provide a benchmark test of LQCD and allow for meaningful comparisons with several other specific model predictions. This experiment ended its run on March 17, 2009 after accumulating over 80 percent of the scheduled production data.

Experiments [E05-015](#), [E08-005](#), and [E05-102](#) were quasi-elastic scattering experiments of polarized  $^3\text{He}$  and required a configuration opposite to the one used in the previous experiment, which included dismantling the Big Bite spectrometer. The spectrometer was successfully moved and commissioning for [E05-015](#) and [E08-005](#) was completed in April. The experiments ran unexpectedly well with 60% target polarization versus the 40% expected, and with all 4 spectrometer arms running well. Experiment [E05-109](#) started its run on August 22, 2009.

#### HALL B: TWO DVCS RUNS – 3 EXPERIMENTS

An important goal of JLab is to provide a detailed three-dimensional picture of the nucleon in terms of its quark and gluon constituents and to understand how this complex structure leads to its well known properties such as mass, spin and magnetic moment. In Hall B, there were two DVCS runs conducted during this performance period, [e1-DVCS](#) and [eg1-DVCS](#); the first comprehensive studies specifically focusing on this task using both a 6 GeV polarized electron beam and a polarized proton target.

The [e1-DVCS](#) run consists of one experiment, [E06-003](#) Deeply Virtual Compton Scattering with CLAS at 6 GeV. The goal was to more than double the statistics of the DVCS events in the same kinematical region with emphasis on extraction of helicity-dependent cross sections. The experiment required the construction of special large hardware devices, which were implemented in Hall B's CEBAF Large Acceptance Spectrometer (CLAS) to optimize the detector's performance for these measurements. The first part of the experiment was run in 2005 and initial results have begun to appear. The second part of this experiment which began in October 2008 was successfully completed on January 24, 2009.

The [eg1-DVCS](#) run consists of experiments [E05-113](#) Semi-Inclusive Pion Production with a Longitudinally Polarized Target at 6GeV and [E05-114](#) Deeply Virtual Compton Scattering at 6 GeV with Polarized Target and Polarized Beam using the CLAS Detector. As in the earlier [e1-DVCS](#) experiment, the experimental setup used the standard Hall B CLAS with the addition of a fine-grained calorimeter to detect forward-going photons. About one-third of the data taking for these experiments was completed on March 15, 2009 and the run was considered a success despite the lower-than-scheduled beam energy during the last four days. On August 21, 2009 the run commenced again and the experiments are running smoothly with the polarized target operating without problems. Lost time due to the mechanical damage of the target during the first week was partially recovered.

#### HALL C: ONE EXPERIMENT AND INSTALLATION AND COMMISSIONING AND INITIAL RUNNING OF A SECOND

[E07-003](#) Spin Asymmetries of the Nucleon Experiment (SANE). SANE used the highest-energy polarized electrons and photons produced by CEBAF to illuminate a target of polarized hydrogen nuclei, or protons, in frozen ammonia. Data was obtained with data with 4.7 and 5.9 GeV beams with the polarized target oriented both parallel and perpendicular to the beam. The experiment was completed on March 11, 2009 with over 70% of the proposed statistics for the more important perpendicular running and about 40% of the proposed statistics for the parallel orientation. Polarized target magnet problems were overcome and more than half of the scheduled running was salvaged, saving five PhD theses that were in progress. At the end of this performance period, installation work had been completed and

commissioning was underway for the next scheduled experiment [E05-115](#) Spectroscopic Investigation of  $\Lambda$  Hypernuclei in the Wide Mass Region Using the  $(e,e'K^+)$  Reaction.

PAC 34 was hosted at JLab January 26 – 30, 2009. It was the first 12 GeV PAC to consider new initiatives beyond the baseline equipment of the 12 GeV Upgrade Project and the committee reviewed and made recommendations for 19 Proposals and six Letters of Intent. Nine Proposals were approved, five conditionally approved, and five deferred. Additionally, the collaborators on five Letters of Intent were encouraged to go forward with developing their proposals. The committee also reviewed the Lab's proposal for the completion of running at 6 GeV and agreed that the proposed schedule was the best attempt to meet the approved physics goals for the program. PAC34 members included internationally known theoretical and experimental experts in the study of parton distributions and hadron fragmentation.

**Table 6. Goal 2.0 Performance Rating Development**

ELEMENT	Letter Grade	Numerical Score	Objective Weight	Total Points	Total Points
<b>2.0 Provide for Efficient and Effective Design, Fabrication, Construction and Operation of Facilities</b>					
2.1 Provide Effective Facility Design(s)	N/A	N/A	0%	N/A	
2.2 Provide for the Effective and Efficient Construction of Facilities and/or Fabrication of Components	A+	4.1	25%	1.03	
2.3 Provide Efficient and Effective Operation of Facilities	A-	3.7	60%	2.22	
2.4 Utilization of Facility to Grow and Support the Laboratory's Research Base and External User Community	A	4.0	15%	0.60	
<b>Performance Goal 2.0 Total</b>					<b>3.85</b>

**Table 7. Goal 2.0 Final Letter Grade**

Total Score	4.3-4.1	4.0-3.8	3.7-3.5	3.4-3.1	3.0-2.8	2.7-2.5	2.4-2.1	2.0-1.8	1.7-1.1	1.0-0.8	0.7-0
Final Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F

**GOAL 3.0 PROVIDE EFFECTIVE AND EFFICIENT SCIENCE AND TECHNOLOGY PROGRAM MANAGEMENT**

Goal Requirement:

The Contractor provides effective program vision and leadership; strategic planning and development of initiatives; recruits and retains a quality scientific workforce; and provides outstanding research processes, which improve research productivity.

**Objective 3.1 Provide Effective and Efficient Stewardship of Scientific Capabilities and Program Vision**
Objective Requirement:

In determining the performance of the Objective the DOE evaluator(s) shall consider the following as measured by peer reviews, existence and quality of strategic plans as determined by SC and scientific community review, Program Office reviews/oversight, etc.:

- Efficiency and Effectiveness of joint planning (e.g., workshops) with outside community;
- Articulation of scientific vision;
- Development of core competencies, ideas for new facilities and research programs; and
- Ability to attract and retain highly qualified staff.

<b>Performance Level Achieved</b>	<b>Grade</b>	<b>Score</b>
Providing strong programmatic vision that extends past the laboratory and for which the laboratory is a recognized leader within SC and in the broader research communities; development and maintenance of outstanding core competencies, including achieving superior scientific excellence in both exploratory, high-risk research and research that is vital to the DOE/SC missions; attraction and retention of world-leading scientists; recognition within the community as a world leader in the field.	A	4.0

JSA Performance:

JLab continues to collaborate with other scientific organizations to jointly plan workshops with the outside community as evidenced by the examples listed below:

- The Workshop on Sources of Polarized Electrons and High Brightness Electron Beams (PESP2008) was hosted by Jefferson Lab October 1 – 3, 2008 with more than 80 participants from around the world. Nearly every group using DC gun technology was in attendance, including major efforts at Cornell, Daresbury and KEK. Several side meetings were held jointly to advance common aspects of the technology for 500 kV guns.
- The 18th Internal Symposium on Spin Physics (SPIN2008) was held October 6 – 11, 2008 at the University of Virginia. In addition to Jefferson Lab, this workshop was sponsored jointly by several other scientific organizations including the International Spin Physics Committee, the International Union of Pure and Applied Physics (IUPAP), The University of Virginia (UVa), The Institute for Nuclear and Particle Physics at UVa, Brookhaven National Laboratory (BNL), RIKEN BNL Research Center, The European Physical Journal (EPJ), and Old Dominion University (ODU). There were more than 150 attendees, including 20 from the Lab.
- Jefferson Lab hosted the Electromagnetic N-N\* Transition Form Factors Workshop October 13 – 15, 2008. There were more than 40 attendees, including participation from the international communities of China, Japan, Germany, Switzerland
- Jefferson Lab provided funding and helped to organize the Strangeness Polarization in Semi-Inclusive and Exclusive Lambda Production (ECT 2008) workshop held in Trento, Italy October 27 – 30, 2008. Participants at this workshop included researchers from the ep (HERMES, COMPASS, JLab 12 GeV, EIC) and pp (RHIC, LHC, JPARC, GS FAIR) scattering communities.
- The Annual Muon Collider Design Workshop was hosted by JLab December 8 – 12, 2008 and there were over fifty participants from several labs, universities, and corporations. Presentations given by JLab scientists highlighted the Lab's continued efforts in research and development. Topics of discussion included Collider Scenarios, Proton Driver & RF, Cooling Simulations, Final Cooling, Acceleration, Interaction Region, and Experiments & Plans.

- The first CLAS 12 European Workshop was held in conjunction with the CLAS Collaboration Meeting, in Geneva, Italy February 25 – 28, 2009. The focus of the workshop was to provide an overview of the scientific program carried out in Hall B at Jefferson Lab with the new CLAS12 detector being designed to operate after the 12 GeV Upgrade. The workshop provided an opportunity for physicists from the broader nuclear and hadronic physics communities to learn about the capabilities offered by the CLAS12 facility and to explore possible ways to collaborate and contribute to the 12 GeV physics program at JLab. There were talks by representatives of the French and Italian funding agencies and the Nuclear Physics European Collaboration Committee (NuPECC). With more than 120 registered participants, attendance was beyond expectations. This workshop was jointly sponsored by JSA/JLab, Istituto Nazionale di Fisica Nucleare (INFN), Università di Genova, and CAEN.
- The Spin Structure at Long Distance workshop was hosted by JLab March 12 – 13, 2009. There were more than sixty participants at this workshop and the focus was to garner support from the community to ensure the successful completion of the remaining 6GeV Spin Physics program. This workshop was supported by the JSA Initiatives Fund, JLab, and the University of New Hampshire.
- The International Workshop on Positrons at Jefferson Lab (JPOS 09) conducted March 25 – 27, 2009 was jointly sponsored by JLab, the Idaho Accelerator Center and the Laboratory for Subatomic Physics and Cosmology, Grenoble. The purpose of the workshop was to explore the case for positron physics at JLab, specifically within the context of the laboratory’s energy upgrade to 12 GeV, and to discuss technical R&D issues to create and accelerate positrons at CEBAF.
- JLab was one of four institutions to jointly sponsor the XVII International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2009), held April 26 – 30, 2009 in Madrid, Spain. The Lab Director served on the International Advisory Committee and the Chief Scientist served as chair of one of the plenary sessions. JLab scientist also served as one of the conveners for “Future Facilities” workshop.
- JLab scientists actively participated in joint planning of the 3rd Annual Energy Recovery Linac Workshop (ERL09) conducted June 8 – 12, 2009 at Cornell University. The workshop was held to review world progress in the technology of recirculating high-current beams. Sixteen staff scientists attended the workshop and participation included serving on the Organizing Committee, the International Advisory Committee, the Program Committee, and facilitating working groups.

The Lab’s ability to attract and retain highly qualified staff and world leading scientists is evidenced in Objectives 1.1 and 1.2 by the efforts noted in the development of several new methods and techniques in FY09, the many collaborations, significant awards received, and the numerous invited talks and committee appointments for the Lab’s scientific staff. New facilities and research programs established in FY09 include the Nuclear and Particle Physics Research Facility at ODU headed by JLab user Gail Dodge and the Research Experience for Undergraduates (REU) program at ODU. More details on the REU program are listed under Measure 4.1.1. Jefferson Lab was invited to participate in an initiative to establish a new biennial summer school of physics in Africa during this period. The first edition of the School of Physics in Africa, is scheduled to take place August – September 2010 in South Africa and the three main topics that will form the backbone of the summer school are Theoretical Physics, Experimental Subatomic Physics, and Accelerators and Technologies. The Lab has also established a joint funded faculty appointment at Idaho State University, based at the Idaho Accelerator Center. The initial priority is the development of a 10 MeV positron source.

#### **NOTEWORTHY ACCOMPLISHMENT**

##### New Facilities and Research Programs:

- Nuclear and Particle Physics Research Facility
- Research Experience for Undergraduates at ODU (REU)
- New Biennial Summer School of Physics in Africa

**Objective 3.2 Provide Effective and Efficient Science and Technology Project/Program Planning and Management**

Objective Requirement:

In determining the performance of the Objective the DOE evaluator(s) shall consider the following as measured by peer reviews, existence and quality of strategic plans as determined by SC and scientific community review, Program Office and scientific community review/oversight, etc.:

- Quality of R&D and/or user facility strategic plans;
- Adequacy in considering technical risks;
- Success in identifying/avoiding technical problems;
- Effectiveness in leveraging (synergy with) other areas of research; and
- Demonstration of willingness to make tough decisions (i.e., cut programs with sub-critical mass of expertise, divert resources to more promising areas, etc.).

Performance Level Achieved	Grade	Score
Research plans are proactive, not reactive, as evidenced by making hard decisions and taking strong actions; plans are robust against budget fluctuations – multiple contingencies planned for; new initiatives are proposed and funded through reallocation of resources from less effective programs; plans are updated regularly to reflect changing scientific and fiscal conditions; plans include ways to reduce risk, duration of programs.	A	3.9

JSA Performance:

**MANAGEMENT**

The S&T Review Committee noted that JLab *management continues to pursue processes to improve efficiency and reduce costs and the lab has been successful in attracting ARRA funds for the 12 GeV project, infrastructure improvements and other efforts.* There was one recommendation noted for Management in the S&T Review draft report; Additional findings and comments from the draft report are listed below:

**PERFORMANCE CHALLENGE**

Prepare a laboratory staffing plan for all activities extending into the 12 GeV era that also includes the past staffing history since FY2004. This plan should be submitted to DOE Office of Nuclear Physics by October 1, 2009. (FY09 S&T Review Draft Report)

**MANAGEMENT FINDINGS AND COMMENTS**

- Planning for science includes input from the physics community, advisory committees, laboratory and internal sources. This information is used in developing a scientific plan for the Lab that is included in the Annual Lab Plan presented to DOE. The plan is edited to incorporate DOE comments and recommendations and made available to Lab staff for action.
- The planning process for infrastructure is focused on the mission of the Lab and prioritizes future infrastructure improvements on closing infrastructure gaps identified in the planning process. Input is obtained from the scientific and technical staff for projects and the prioritization of those projects. This information is rolled into the 10-Year-Site Plan and included in the Annual Lab Plan discussed above.
- The planning process for scientific direction seems robust and inclusive of the scientific community. It is multi-dimensional and includes input from the physics community, users and staff. The Director and his management team have focused the future scientific mission of the Lab on efforts that support the mission of DOE and enhance the core competencies of the Lab.
- The Lab’s move to a WBS structure has been a real cultural change for the Lab staff. The WBS process has been painful for some but has brought a level of transparency, accountability and responsibility to various levels of management. The web-based management system adds to the assurance capabilities of management and the oversight capabilities of the contractor and DOE.

- The Lab has met more than 25% of its energy reduction goals. It is moving toward implementing quality processes and it has initiated a project management training process to help investigators manage costs and risks.
- The significant increase in funding received in FY 2009 and subsequent level and diversity of activities will present a management challenge in ensuring that the priorities of the laboratory remain intact and that commitments are met.

**RECOVERY ACT PROJECTS:**

- The laboratory received \$10M of ARRA for five GPP projects, all of which they are planning to complete in one calendar year. This is approximately a factor of five more than the expected GPP yearly allocation.
- To meet the design, procurement, and construction schedule, the laboratory has hired several personnel for construction safety, procurement, and engineering. A project manager for each of the five ARRA projects has been identified and three of the projects are already out for bid. The remaining two projects are scheduled to be bid in the next month.
- The Accelerator Division received an ARRA Work Authorization for \$2.76M from the Office of Nuclear Physics (ONP) to build an 11 GeV RF separator to support 12 GeV capabilities. This investment boosts the nominal AIP base of \$1.2M.
- The balance of the proposed ARRA GPP projects between experimental and accelerator needs seems appropriate.
- The ARRA projects are well-defined and appropriate managements systems are in place to ensure that the projects are completed on cost and schedule.

**GENERAL PURPOSE PLANT PROJECTS:**

- The overall laboratory infrastructure vision includes ARRA GPP projects, programmatic GPP and SLI projects.
- The laboratory has a process in place by which they identify and prioritize programmatic GPP projects. This includes discussion with the scientific and technical staff in the setting of priorities.
- The reviewers endorse the involvement of laboratory scientific and technical staff in the identification and ranking of GPP projects as these investments compete with other laboratory needs. In light of proposed increased investments in GPP, increased communication with DOE NP regarding the justification of these projects is warranted.
- The laboratory does not have a formal written procedure describing how to identify and prioritize the GPP projects. A peer review of the laboratory's Mission Readiness procedure is planned in 2010 and the laboratory plans to document the prioritization procedure prior to the review. It would be beneficial to communicate this plan to ONP prior to the review.

The FEL restarted operations in FY09 after being down since May 2007. Tasks completed during that time included: major upgrades to safety and operational systems; a new optical transport system to the user labs; completion of a test stand for new guns in an enclosure separate from the main FEL; and installation of most of the components of the electron beam transport line for the UV-FEL. In March, as a result of these improvements that occurred during the shutdown, the team successfully operated the FEL at 0.93 microns for more than five hours. FEL is poised to open a new realm of discovery. The world's most powerful tunable laser in the infrared will soon become the world's most powerful tunable laser in the ultraviolet. The final piece has been installed in the FEL's new ultraviolet beamline, which will resulting the FEL being capable of delivering both infrared and ultraviolet laser light to its experimental areas.

JLab prepared a number of operating scenarios in FY09, each corresponding to a different estimate of total funding, but all starting with the assumption of a continuing resolution for the first six months. A 40% increase in the power rate effective July 1, 2008 caused a significant increase in the power bill. To minimize the impact of the increase, running that was planned for the six month CR period was shifted to the end of the period and the March-April down was shortened to the minimum compatible with the installation of the last of the upgraded cryomodules necessary to achieve 6 GeV by April. This strategy enabled us to deliver the full running of the accelerator and halls that was possible when the FY2009 budget was finally released in April at the President's request level. During this performance period, JLab also requested reallocation of funds that were set aside for the HDice program to be provided to UVA for the purchase of helium gas needed to continue target development activities. That reallocation was made and the helium is now being delivered through UVA at a reduced cost to the laboratory.

**PERFORMANCE CHALLENGE**

There is concern in the user community that the pressure of building the 12 GeV CEBAF Upgrade may limit research output from the 6 GeV program over the next few years. They are concerned about schedule constraints on the 6 GeV program due to budgetary pressure from starting the 12 GeV Upgrade. (DOE FY08 Performance Evaluation Report)

STATUS: Making efforts to maintain highest priority pieces and those pieces in which we have a large investment. The plan for running has been discussed extensively with the PAC, the JSA Science Council, and the User's Group. The S&T Review appreciated the process and noted that it had been "... accomplished in a transparent way..."

**Objective 3.3 Provide Efficient and Effective Communications & Responsiveness to Customer Needs**
Objective Requirement:

In determining the performance of the Objective the DOE evaluator(s) shall consider the following as measured by Program Office reviews/oversight, etc.:

- The quality, accuracy and timeliness of response to customer requests for information;
- The extent to which the Contractor keeps the customer informed of both positive and negative events at the Laboratory so that the customer can deal effectively with both internal and external constituencies; and
- The ease of determining the appropriate contact (who is on-point for what).

<b>Performance Level Achieved</b>	<b>Grade</b>	<b>Score</b>
Communication channels are well-defined and information is effectively conveyed; important or critical information is delivered in real time; responses to HQ requests for information from laboratory representatives are prompt, thorough, correct and succinct; laboratory representatives <i>always</i> initiate a communication with HQ on emerging issues.	A	3.9

JSA Performance:

In FY09 Jefferson Lab produced many deliverables and submitted numerous reports to DOE as scheduled and via ad hoc requests during this period; as an example, in October 2008 JLab submitted its annual Supplemental Information to the Office of Nuclear Physics (ONP). This package, including Awards, Conferences and Publications information, is a major work product requiring extensive coordination and preparation efforts in compiling data throughout the laboratory. JLab submitted the requested information on schedule, in keeping with its positive track record of responsiveness to customer requests. Additionally, the FY09 Supplemental Information is currently being prepared for early submission to ONP as requested.

Communication channels with the TJSO are well established and regular interactions include safety meetings every six weeks with the Lab Director, Chief Operating Officer and Associate Director of ES&H. JLab and TJSO participate in bi-weekly teleconferences with the Office of Nuclear Physics

(ONP) and conduct teleconferences on the 12 GeV Upgrade with FPD and ONP. The Lab also has representatives on the subordinate groups of the National Labs Directors Council (Chief Research Officer, Chief Operating Officer, and Chief Information Officer).

Requests for information from the ONP are responded to in a prompt and timely manner. During this period, the Associate Director of Physics submitted the Lab's first and second quarter FY2009 Performance Measure Management (PMM) milestone results as requested. The report noted that first and second quarter results and goals are based on the original 26 weeks planned running; but third and fourth quarter targets were adjusted after receiving the final budget at the FY2009 President's request level. The Lab anticipates running 34 weeks based on this budget and the Expected Delivered Hours has been adjusted to 4,963 to reflect those changes. The 12 GeV Upgrade Deputy Project Manager has also responded to several requests for information and during this period submitted quarterly status reports per the 12 GeV Master Acquisition Plan, the 12 GeV Project Data sheet, and input to the federal quarterly reports to the TJSO Federal Project Director for the 12 GeV Upgrade.

**NOTEWORTHY ACCOMPLISHMENT**

JLab invited TJSO personnel to serve as Program Deputy (PD) for CEBAF Operations. During this performance period, TJSO's Safety and Health Program Manager served as PD and had an opportunity to observe CEBAF operations when challenged by difficult issues; in this case there were hardware problems with the machine. The TJSO Site Manager noted *"the 'acting' tour is beneficial to both the Lab and Site Office in furthering building relationships, and for the Site Office personnel to have a much improved appreciation and understanding of both accelerator ops & physics experimental ops."* He also noted that previous Site Office PDs spoke highly of the opportunity and experience gained, in addition to noting how well the Lab *"runs its ship."*

Information on the status and progress of the 6 GeV nuclear physics experimental program is monitored for the Department of Nuclear Physics by Brad Tippens, Program Manager for Medium Energy Nuclear Physics and Larry Cardman, JLab's Associate Director of Physics has the responsibility of keeping him abreast of developments in that program and does so regularly. Important or critical information is delivered in real time. For example, NP was informed early about difficulties with the UVa polarized target needed for the SANE experiment and periodically updated as the status evolved and the target was ultimately brought back into operation, enabling a major fraction of the SANE run to be completed. Responses to HQ requests for information from laboratory representatives are prompt, thorough, correct and succinct. Recent examples include quarterly reporting of the accelerator and experimental operations metrics, and responses to questions about active users in China made by NP in preparation for a visit by Secretary Chu to China.

**Table 8. Goal 3.0 Performance Rating Development**

ELEMENT	Letter Grade	Numerical Score	Objective Weight	Total Points	Total Points
<b>3.0 Provide Effective and Efficient Science and Technology Program Management</b>					
3.1 Effective and Efficient Stewardship	A	4.0	40%	1.60	
3.2 Project/Program Planning and Management	A	3.9	40%	1.56	
3.3 Communications and Responsiveness	A	3.9	20%	0.78	
<b>Performance Goal 3.0 Total</b>					<b>3.94</b>

**Table 9. Goal 3.0 Final Letter Grade**

Total Score	4.3-4.1	4.0-3.8	3.7-3.5	3.4-3.1	3.0-2.8	2.7-2.5	2.4-2.1	2.0-1.8	1.7-1.1	1.0-0.8	0.7-0
Final Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F

**GOAL 4.0 PROVIDE SOUND AND COMPETENT LEADERSHIP AND STEWARDSHIP OF THE LABORATORY**
Goal Requirement:

The Contractor's Leadership effectively provides direction in strategic planning to meet the mission and vision of the overall Laboratory; is accountable and responsive to specific issues and needs when required; and corporate office leadership provides appropriate levels of resources and support necessary for the overall success of the Laboratory.

Note: Within Goal 4, the use of "JSA" refers to the laboratory management while the terms "JSA Board" and "Corporate Owners" refer to the corporate entities of SURA and CSC.

**Objective 4.1 Provide a Distinctive Vision for the Laboratory and an Effective Plan for Accomplishment of the Vision to Include Strong Partnerships Required to Carry Out those Plans**
Objective Requirement:

In measuring the performance of this Objective the DOE evaluator(s) shall consider the following:

- Quality of the Vision developed for the Laboratory and effectiveness in identifying its distinctive characteristics;
- Quality of Strategic/Work Plan for achieving the approved Laboratory vision;
- Quality of required Laboratory Business Plan;
- Ability to establish and maintain long-term partnerships/relationships that advance/expand ongoing Laboratory missions and/or provide new opportunities/capabilities; and
- Effectiveness in developing and implementing commercial research and development opportunities that leverage accomplishment of DOE goals and projects with other federal agencies that advance the utilization of Laboratory technologies and capabilities

Measure 4.1.1 Requirement: JSA's vision (20-year outlook) for the Laboratory addresses outstanding science questions of national priority to DOE. The vision informs and is aligned with that of the DOE Office of Science's and the NSAC long range plan. JSA monitors and reviews regularly its vision to ensure that critical elements (effective leadership, quality workforce, proper planning, outstanding research and operational processes, new initiative development) are in place to achieve the vision and to adapt to changes in plans that maximize the

**PERFORMANCE CHALLENGE**

"The Laboratory appears to be meeting expectations during this reporting period and is performing well. Concur with the Laboratory's self-assessment. As the relationship between TJSO and the JSA continues to evolve, the Site Office encourages JSA to continue to work to ensure that the JSA self-assessments reflect the most accurate representation of JSA performance and highlighting accomplishments and difficulties in a balanced fashion. It is recommended that in future evaluation reports JSA highlight its interactions with sister laboratories re business systems, ES&H, etc. Contract and PEMP reform initiatives are expected to affect the balance of FY 09 and well into FY 10. A close working relationship among all parties (i.e., TJSO, JLab, JSA Board, SURA, CSC, SC-HQ) is critical to a mutually acceptable and successful outcome." (FY09 DOE MidYear Feedback)

STATUS: The JSA Board, Committees, and Owners have provided the Lab leadership with timely guidance, oversight, and direction to ensure that the Lab delivers on the performance of its contract in an exemplary manner. These interactions, processes, and activities are addressed in our self assessment in a balanced and results-oriented fashion ensuring that single events, positive or negative, are fairly weighed against the end goal and results, and are then reflected in our grading.

JLab has shared the best business practices it has developed over the past several years with PPPL and SLAC. This sharing of information is continuing

**NOTEWORTHY ACCOMPLISHMENT**

"The Laboratory actively participating in strategic planning processes with other SC Laboratories helps to illustrate strong communications with other SC laboratories, and support of SC-corporate initiatives and challenges." (DOE 1st Quarter Report Feedback)

benefit to the Office of Science.

**TARGET:** JSA's strategic vision is appropriately developed with and reviewed by the JSA Board annually to ensure credibility and relevance and to ensure that it optimally advances DOE's scientific agenda. JSA provides advice on an effective relations strategy that supports the vision and promotes leadership from the user community to communicate the vision.

JSA Performance:

JLab has been working in concert with DOE Headquarters and the SC Program Office in restructuring the SC Laboratories' Strategic Planning process by participating in numerous exercises and HQ meetings (November 25 and December 19, 2008); the first stage of which was to identify and define the Lab's Core Capabilities and to categorize them under the SC's newly-formulated capabilities categories for its complex. See discussion under 4.2 regarding JSA Board involvement in Lab's strategic vision process.

JLab developed, submitted and presented its annual plan to the Office of Science during the third quarter. The plan, which covers a ten-year time frame, articulates the lab's vision, core capabilities, scientific initiatives, required resources and mission readiness to support the scientific mission. On April 29th, the plan was presented by the Director, the Chief Operating Officer and other lab leadership and it was favorably received by the SC leadership. Formal feedback is forthcoming. (4.1.1 and 4.1.2)

During this period, JSA goal owners and their TJSO counterparts worked closely together to develop "critical few outcome-oriented measures and targets" for the FY10 PEMP. JSA/JLab and TJSO participated in weekly teleconferences with SC, other Lab COOs, and Site Office managers. As requested, draft Goal 4 was developed and submitted to the group on June 5th. In addition, JSA/JLab volunteered to provide a model proposal for Goal 5 and it was also submitted to the same group for discussion at the weekly teleconference held on June 5th. The draft FY10 PEMP was submitted to TJSO on August 31st as scheduled.

Deputy Secretary Daniel Poneman, the number two ranking official at the Department of Energy, visited Jefferson Lab in FY09. He toured several lab facilities and attended a luncheon that included interactions with students, lab staff, researchers, and high school teachers that were onsite for the Lab's summer science school DOE Academies Creating Teacher Scientists (ACTS). Deputy Secretary Poneman expressed a huge interest in the Lab's technology transfer and in the FEL. He also indicated that he would work with Virginia Congressman Bobby Scott to restore the \$10M in funding that was cut from the House Energy and Water Appropriations budget for the Lab's 12 GeV Upgrade Project. Congressman Scott (D) along with Virginia Congressman Rob Wittman (R) recently discussed this issue on the floor of the House of Representatives. Congressman Scott noted that *"this important project received accelerated funding in the Recovery Act and is already providing an economic boost to the Hampton Roads region of Virginia. It is vital that this project receive the Administration's full request of \$22 million"*. Congressman Wittman noted that *"the Thomas Jefferson Lab is a world leader in nuclear physics research and education. The lab is currently in the midst of a major upgrade to their Continuous Electron Beam Accelerator Facility. The accelerator upgrade will significantly expand the facility's research potential and will lead to a greater understanding of atomic particles, the building blocks of all matter. Research at Jeff(erson) Lab will continue to expand our knowledge of nuclear physics that lead to many exciting scientific advances."* The Energy and Water Development Appropriations Subcommittee Acting Chairman Ed Pastor gave his personal commitment to *"going forward to see that this project receives the funding it needs and deserves"* in FY10. Virginia Congressman Glenn Nye (D) also submitted funding requests for the Lab's 12 GeV Upgrade project; the Lab's operating base *"to enable the optimal level of operations at 36 weeks per year, so that it can continue serving as a scientific and*

**NOTEWORTHY ACCOMPLISHMENT**

*"Deputy Secretary Poneman Visit to JLab went very well. Great Job (again)". (Jim Turi, TJSO Site Manager)*

*economic hub in the Hampton Roads region”; and funding for the TEDF building to “upgrade the infrastructure to accommodate next generation technologies...keeping Virginia and Hampton Roads on the forefront of scientific research and advancement”.*

Virginia Delegates Chris Jones, 76th District and Brenda Pogge, 96th District visited Jefferson Lab in FY09 to meet with management and tour the CEBAF control room and the FEL. They were given highlights about the medical imaging advancements that are currently being developed at the lab and they also toured the commercial operations of Dilon Technologies; a high-tech start-up company noted in Objective 1.1 as producing a device using gamma imaging technology that was developed at JLab and which led to the lab receiving the 2009 FLC award.

Based on the performance information that has been provided through August 31, 2009, we anticipate exceeding this measure by the end of the fiscal year.

**Measure 4.1.2 Requirement:** The Business Plan (5-year) establishes the management agenda and identifies the opportunities, risks and required resources needed to realize Laboratory goals. The business plan sets the framework to optimize scientific output in a cost effective manner. Integrally, JSA develops a 5 year budget plan as a mechanism by which the Laboratory can ensure its goals are met.

**TARGET:** JSA works actively with DOE to update the 5-year Business Plan within the established timelines. JSA engages with customers/stakeholders and appropriate outside experts to ensure its 5-year Business Plan, budget plan and site plan are realistic. JSA oversees the development of and monitors the Plan to ensure that Laboratory operations and systems foster program effectiveness.

**JSA Performance:**

In February 2009, DOE’s Office of Science directed JLab to develop a long range plan that articulates how the lab will provide sustained, world-leading scientific capabilities and contributions to the Department and the Nation in the future. DOE also requested the lab to identify infrastructure, operational and resource improvements required to sustain and/or expand the lab’s core capabilities. This year, the Office of Science will integrate long-range planning with the eight goals of the annual Performance Evaluation Measurement Plans (PEMPs) which provide the basis for the annual lab performance appraisal.

JLab leadership developed the long range plan per DOE/SC guidance and it was presented by the Lab Director and COO to SC leadership and Program Associate Directors in April; the feedback received has been very positive. Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

**Measure 4.1.3 Requirement:** The Laboratory has formalized vital collaborations and understandings within and among institutions in academe, users of the Laboratory, other national laboratories, and private sector entities for advancing priority issues in science, scientific workforce, and applications of science and technology.

**TARGET:** As a user facility, JSA optimizes opportunities to develop and promote effective collaborations such as formal scientific collaborations with other organizations to advance priority issues in science. JSA ensures a world-class scientific staff and associated personnel, including collaborations such as joint and bridged faculty appointments, graduate fellowship programs, and sabbatical programs, all of which contribute to furthering the science priority issues. JSA ensures inclusion of Laboratory initiatives in the NSAC Long Range Plan through active participation on its NSAC subcommittee. JSA monitors the Laboratory’s technology

transfer and commercialization initiatives, leveraging opportunities to advance Laboratory technologies and capabilities.

JSA Performance:

During this performance period, Jefferson Lab continued to formalize and strengthen vital collaborations with academe and users through the development of Memoranda of Understanding. Due primarily to the development of MOUs related to the 12 GeV upgrade, there has been a significant increase in FY09 in comparison to previous reporting periods, five MOU/MOAs in FY07 and seven MOU/MOAs in FY08. As of August 31st, there were a total of 26 MOU/MOAs signed in FY09, including three extensions and thirteen MOUs specifically for the 12 GeV upgrade. Following is a list of the documents, including their date and the duration of the agreement.

1. University Tecnica Federico Santa Maria October 25, 2008 (3 years) 12 GeV Collaboration
2. Amendment to Istituto Superior ed Sanita (Rome Group) November 10, 2008 (3 Year Extension)
3. Forschungszentrum Dresden – Rossendorf e. V. (FZD) November 22, 2008
4. Technological Education Institute of Athens November 26, 2008 (3 Years)
5. Case Western Reserve University January 5, 2009 (3 Years)
6. Rensselaer Polytechnic Institute January 5, 2009 (6 Years)
7. Rensselaer Polytechnic Institute January 5, 2009 (2 Years) 12 GeV Collaboration
8. University of Regina January 6, 2009 (5 years) 12 GeV Collaboration
9. Carnegie Mellon University January 6, 2009 (5 years) 12 GeV Collaboration
10. Forschungszentrum Juelich Nuclear Physics Institute January 23, 2009 (1 year extension)
11. University of Sydney February 28, 2009 (3 year extension)
12. West Virginia University March 17, 2009 (3 years)
13. National Superconducting Cyclotron Laboratory at Michigan State University April 21, 2009 (5 Years) 12 GeV Collaboration
14. University of Connecticut May 21, 2009 (5 Years) 12 GeV Collaboration
15. The Idaho Accelerator Center at Idaho State University June 11, 2009 (5 Years) 12 GeV Collaboration
16. Ohio University June 16, 2009 (5 Years) 12 GeV Collaboration
17. Indiana University June 22, 2009 (5 Years) 12 GeV Collaboration
18. CEA/DSM and CNRS/IN2P3 July 3, 2009 (4 Years)
19. The College of William and Mary July 7, 2009 (5 Years) 12 GeV Collaboration
20. TRIUMF June 26, 2009 July 21, 2009 (2 years)
21. DOE Laboratories and Site Offices July 17, 2009 (1 year)
22. École Nationale Supérieure de Physique de Strasbourg July 21, 2009 (5 years)
23. Fairfield University August 10, 2009 (5 years) 12 GeV Collaboration
24. University of Richmond August 11, 2009 (5 years) 12 GeV Collaboration
25. Christopher Newport University August 13, 2009 (Indefinite)
26. James Madison University August 19, 2009 (5 years) 12 GeV Collaboration

There were seventeen active Joint Faculty appointments during this period; five existed at HBCUs and 16 were affiliated with a SURA member university. These appointments included 16 nuclear physics positions and one materials science position. The Lab is currently negotiating with ODU to establish the Joint Faculty position for the Center for Accelerator Science. There were seven active Bridge appointments in FY09; two existed at HBCUs and four were affiliated with a SURA member university.

Progress continues on the collaboration with ODU to create a Center for Accelerator Science. JLab partnered with ODU, with the support of the NSF, to establish a Research Experience for Undergraduates (REU) program that provided research opportunities for college and university students in accelerator physics and nuclear physics. The ribbon-cutting ceremony was held April 21st for the formal opening of the new Nuclear and Particle Physics Research Facility. Excellent candidates have been identified for the position of Director of the Center and the Lab is in final negotiations with the top candidate. The goals of this program were to expose students to the sense of excitement and accomplishment that accompanies independent research and to provide information and contacts that can improve their chances of remaining in physics. Student researchers operated with well-guided independence to contribute usefully to advances in superconducting RF structures, novel accelerator design, and particle detectors. In some cases students co-authored on resulting publications. The program was held May 2009 – July 2009. The students worked on their research projects at the Lab under the guidance of ODU faculty and JLab staff scientists, and had ample time to interact with each other, the ODU faculty, graduate students and Jefferson Lab staff scientists (mentors). There were a total of 11 experiments conducted; summaries can be found at <http://www.jlab.org/accel/reu/research.html>.

**NOTEWORTHY ACCOMPLISHMENT**

In collaboration with ODU, JLab has created the Center for Accelerator Science and is actively searching for a Director (Joint Appointment). Funding has been received from the National Science Foundation (NSF) REU for undergraduate research opportunities and the first students are already on site. JLab will teach on campus; ODU will have access to JLab equipment, subatomic and nuclear physics technology worth billions of dollars. JLab has also established the first ever joint appointment in accelerator physics at Idaho State University. Dr. Giulio Stancari was initially selected, but he received another offer; the search is ongoing for his replacement. The initial priority is the development of a 10 MeV positron source.

Expertise from SURA's business development office was provided to the Lab's Technology Review Committee (TRC). During first quarter, the SURA's general counsel joined the TRC, bringing prior experience and training on intellectual property matters, and along with JLab in-house counsel, legal and policy advice on patents and copyrights. See discussion under Objective 4.3 regarding specific corporate involvement during first quarter.

**NOTEWORTHY ACCOMPLISHMENT**

"Performance meets or exceeds expectations, in particular with respect to the strategic plan, outreach, science education, and multiple collaborations, including the Energy Frontier Research Center." (DOE 3rd Quarter Performance Feedback)

During second quarter, the owner's corporate staff continued to serve as members of the Lab's Technology Review Committee which is responsible for managing the Lab's intellectual property portfolio, including the prosecution of patents, identification of CRADA relationships to further develop JLab innovations, and the licensing of JLab patents. See discussion under Objective 4.3 regarding specific corporate involvement during second quarter. See discussion under Objective 4.3 regarding corporate involvement to date.

**NOTEWORTHY ACCOMPLISHMENT**

"Performance meets or exceeds expectations, in particular with respect to owner support of the laboratory's technology transfer and commercialization function, intellectual property maintenance and issues, intellectual property review, servicing the IP database and invention disclosure systems, and participation in review of safety performance" (DOE 3rd Quarter Performance Feedback)

Based on this performance assessment through August 31, 2009 we will continue to exceed target for this measure at the end of the fiscal year.

**Measure 4.1.4 Requirement:** JSA promotes and supports the Laboratory's corporate citizenship programs that encourage community support of the Laboratory and that draw on Laboratory competencies and meet community needs. These corporate citizenship efforts include public outreach and improved scientific literacy. The Laboratory also has an outreach program to the broader scientific community to increase the awareness and scientific community support of the Laboratory and its accomplishments.

TARGET: JSA promotes and supports the Laboratory's high level of awareness with the public, the scientific community and DOE and implements a high level of science education programs to improve scientific literacy. Activities such as a biennial facilities open house for the public; a broad portfolio of science education programs; hosting of high school and middle school science bowls; internships, thesis and poster awards for undergrad and grad students; open lectures on a wide-range of scientific topics; submissions of scientific articles in local, regional, and national news media; and showcasing of experimental results at meetings contribute to a high level of public awareness of the Laboratory, its programs, and science in general.

#### JSA Performance:

The Lab Director is a member of VRTAC and attended two meetings during this performance period. In addition, he and the Lab's COO participated in the Newport News Economic Summit that was held on March 9, 2009. The Lab's Director Emeritus continues to represent the Lab in various Hampton Roads agencies including the Hampton Roads Partnership and the Greater Peninsula NOW).

Science Education metrics for this reporting period include interactions with 11,658 students (35,000 contact hours) and 1,053 teachers (6,931 contact hours). Additional Science Education performance highlights are listed below:

- Hosted the Virginia Regional High School Science Bowl on February 7, 2009. Twenty-two high schools participated. Science Education prepared a design and engineering challenge dubbed the "Stay All Day Contest" for Teams that did not advance to the afternoon Double Elimination rounds. The teams were presented with three very different activities where they had to analyze problems, develop working prototypes with specific materials and make projections based on a model's performance.
- Hosted the Virginia Regional Middle School Science Bowl on March 7, 2009. Twenty-three middle school teams participated, which was JLab's largest group to date. Nine of the middle school teams were coached by current or past participants in the Lab's summer and/or after school teacher programs. The winner of this contest, Northern Virginia Homeschoolers, competed at the National Science Bowl in Washington, D.C.
- JLab co-sponsored the 58th Tidewater Science Fair held at Old Dominion University on March 28, 2009. A total of 258 students prepared 219 projects for this competition. The high school Grand Prize winners advanced to the International Science and Engineering Fair to be held in Reno, NV May 10 – 16, 2009. Two sponsoring teachers of the 1st and 2nd place overall Middle School winners are both "JLab Teachers"; one is a three-time participant in the DOE-Academies Creating Teachers Scientists (ACTS) program and the other is a two-time participant in the JLab Science Activities for Teachers (JSAT) program.
- With support from the JSA Initiatives Fund, JLab hosted the Second Annual Science Teacher Night on April 15th. This annual event supports upper elementary and middle school physical science teachers. Thirty-five 6th and 8th grade JSAT teachers shared activities and materials with the 100 teachers in attendance. In addition, the Tidewater Association of Chemistry Teachers gave a special presentation for the attendees. JSAT is also funded by the JSA Initiatives Fund.
- Science Education staff provided support for DOE's National Science Bowl in Washington, DC April 30 – May 4, 2009, where 67 high school teams and 36 middle school teams competed for the national titles.
- JLab's Science Education Manager is a member of the Science Advisory Board for the National Science Bowl. Science Education provided technical support in the planning and administration for the middle school academic competition, in addition to conducting a physical science workshop for the 36 coaches of middle school teams.

- JLab hosted several summer programs for students and teachers: 18 DOE-ACTS (Academies Creating Teacher Scientists) teachers spent 4 weeks at Jefferson Lab enhancing their teaching methods and increasing their content knowledge, 3 DOE-ACTS teachers spent 6 weeks at Jefferson Lab working on projects with JLab Scientists, 24 undergraduate students spent 10 weeks working on research projects with JLab scientists and engineers (16 were funded by DOE WDTS, 8 were funded by NSF), and 8 high school students spent seven weeks working alongside JLab technical staff on science and engineering projects.

Science Series lectures conducted this period include “The Next Generation Air Transportation System” on November 18, 2008; “The Science of Art Conservation” held on March 10, 2009; and “Hurricane Hunting – by Remote Control” held on April 14, 2009. All events were free and open to the public.

See discussion under Objective 4.3 regarding JSA fellowships and sabbaticals.

Based on this performance assessment through August 31, 2009 we will continue to exceed target for this measure at the end of the fiscal year.

Measure 4.1.5 Requirement: Manage the cost of doing business.

**TARGET:** Submit by December 1, 2008 a Cost of Doing Business report that summarizes JLAB actions in FY08 to improve Lab efficiencies and maximize scientific output. Provide also the process and method to track and report on the cost of doing business in FY09 as a means to identify and implement cost efficiencies.

**NOTEWORTHY ACCOMPLISHMENT**

The COO presented JLab’s Cost of Doing Business program and lead a discussion with the other COOs from SC Labs. The presentation was well received and has resulted in several follow-up inquiries regarding JLab’s program and supporting systems and processes.

JSA Performance:

A white paper titled “Jefferson Lab Strategy to Balance Resources and Achieve More Science” was submitted on October 27, 2008. This report documented the strategy to balance the Lab’s resources and achieve more science. It was oriented around multiple initiatives being championed by the DOE Office of Science Chief Operating Officer (COO) and it:

- Highlighted financial management performance in FY08 under a constrained budget and extended continuing resolution.
- Outlined the strategy to increase the Lab’s investment in infrastructure while minimizing increases to the Cost of Doing Business.
- Provided a description of how the Cost of Doing Business baseline and associated reports helped to identify and implement cost efficiencies at the Lab and reported FY08 year end Cost of Doing Business data.
- Discussed the impacts of increasing requirements on the Lab’s business programs that consume efficiencies gained.
- Explained how the use of the Lab’s Work Breakdown Structure (WBS) and Annual Work Plan (AWP) contributes to optimizing scientific output while at the same time controlling cost and continuing to improve the Lab’s infrastructure.
- The white paper was also presented at the S&T Review with very positive results.

The Cost of Doing Business section of the “Financial” tab on JLab Insight has been enhanced by providing a real-time automated tool for JLab managers to track and report operational efficiencies and unfunded mandates, two important drivers of the Cost of Doing Business, throughout the year. The biannual CODB meeting with TJSO was held April 30, 2009.

Based on the performance information that has been provided through August 31, 2009 we anticipate

exceeding this measure by the end of the fiscal year.

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

##### Objective Requirement:

In measuring the performance of this Objective the DOE evaluator(s) shall consider the following:

- Leadership's, to include Corporate Office Leadership's, ability to instill responsibility and accountability down and through the entire organization; and
- The effectiveness and efficiency of Leadership, to include Corporate Office Leadership, in identifying and/or responding to Laboratory issues or opportunities for continuous improvement.

Measure 4.2.1 Requirement: JSA's Board of Directors and its corporate owners assure effective leadership of the Laboratory and provide timely and effective policy guidance and oversight; offer subject matter expertise; facilitate corporate reach back; and provide entrée to vital, external resources for support of science and the programs of the Laboratory.

TARGET: The JSA Board and its Committees provide responsible leadership and hold the Laboratory accountable for performance as measured by: reviews of JLab leadership on an annual basis; succession planning for key positions; identification and resolution of strategic issues that can impact the overall performance of the Laboratory; timely response to Laboratory issues and guidance for implementation of effective actions; cognizance of significant issues and monitoring of status of corrective actions; effective process to hold the laboratory management accountable for performance, including an effective and comprehensive self-assessment process; formulation of a safety strategy that is incorporated into management evaluations; effective communication with Laboratory stakeholders to garner support for the initiatives in the DOE Strategic Plan and other initiatives of the Laboratory; satisfactory implementation of Contractor Assurance System and an effective and integrated Quality Assurance program.

JSA Performance: The JSA Board and its Committees continue to provide responsible leadership direction and hold the Lab accountable for performance. Board and Committee interactions that occurred during this period include:

- The JLab Director submitted monthly reports to the Board apprising of current Lab status, plans, and any potential issues. Additionally, the Lab Director has direct access to members of the Board at all times and stays in close contact with the Board Vice Chairs on any potential issues that warrant corporate or Board attention.
- JSA provided an in-depth analysis and review of the effect of new IRS regulations before the final decision to transfer the Lab's pension plans from a 403(b) to a 401(k). Corporate participation included legal, financial, and administrative guidance to the JLab staff and resulted in a smooth transition. Both SURA and JSA Boards are pleased with the exemplary manner in which the JLab staff carried out the transition, including a solid communication plan along with a very efficient administrative process.
- The SURA Board of Trustees held its semi-annual meeting at the Jefferson Lab, affording an opportunity for the Lab to showcase its facility and research program to the majority partner of JSA. The Lab was hosted by SURA to an evening reception at which the Lab presented the work of many of its young scientists in a poster session. Over 40 presenters showcased their work in such

##### **NOTEWORTHY ACCOMPLISHMENT**

“Performance meets or exceeds expectations, in particular with respect to JSA Board engagement with a breadth of laboratory activities.” (DOE 3rd Quarter Performance Feedback)

topics as 6 GeV research activities and results, SRF, Theory and Lattice QCD and Scientific Computing. The TJSO spoke to the Board in its plenary session.

- During second quarter, the JLab Director continued to submit monthly reports to the Board apprising of current Lab status, plans, and any potential issues. Additionally, the Lab Director has direct access to members of the Board at all times and stays in close contact with the Board Vice Chairs on any potential issues that warrant corporate or Board attention.
- During second quarter, the owner's Chief of Strategic Services, who serves as the JSA board and corporate liaison, continued to meet regularly with the Site Office deputy manager to keep the TJSO apprised of the progress on the activities and proceedings of the Board and its Committees. In these monthly meetings, information regarding the status of Initiatives Fund activities, relations support, and other contractor contributions; board activities; and committee activities has been shared and discussed.
- During first and second quarters, the corporate owners and members of the Board held several discussions with the Lab leadership regarding future opportunities at the Lab and how they might fit appropriately into an overall strategic vision that ensures credibility and relevance and the optimal advancement of DOE's scientific agenda. To this end, discussions between the corporate owners and Lab leadership have included potential future opportunities that will likely enlarge the footprint of the lab campus. JSA Board Director Jerry Draayer met with the TJSO to keep the office apprised of potential opportunities with the FEL and fourth generation light sources, and the Electron Ion Collider project. The owner's relations and outreach program continues to advise and support an effective relations strategy as these opportunities develop.
- The JSA Board and its Committees continue to provide responsible leadership and hold the lab accountable for performance. The JSA Compensation Committee reviewed the Laboratory Director's performance appraisals of key personnel and approved the recommendations for salary adjustments following the decision to implement raises and promotions for FY2009. The JSA Compensation Committee and the JSA Board reviewed and approved the Lab Director's succession planning for key leadership positions. Members of the JSA Compensation Committee have assisted and provided guidance in the recruitment and selection of key personnel for leadership positions such as the deputy director and theory group leader.
- The JSA Programs Committee reviewed the status of JSA's activities in its relations program, Initiatives Fund Program, SURA Residence Facility, and PEMP Goal 4. The Committee also discussed with Lab staff the completion of the 6-GeV program, and the FEL and fourth generation light sources; and with the Users Group board chair on its activities and concerns.
- The Science Council heard reports from lab representatives on the accelerator science program, theoretical physics efforts, and the FEL program. The Council discussed the Lab's efforts in srf development and potential additional projects and funding, the plans for leadership in the theoretical physics group with the upcoming departure of the Chief Scientist, and the Lab's response to the Council's earlier request for a broad comprehensive strategy for the future of photon science at the Lab. With regard to the latter, the Council commended the Lab for solidifying the immediate future and for developing a proposal to establish photon science at the Lab, and reiterated the importance of an external committee of experts to move forward with the proposal.
- The JSA Board held its semi-annual meeting during third quarter, at which time the directors heard reports from each of its committee chairs, and discussed status of committee responsibilities, update

**NOTEWORTHY ACCOMPLISHMENT**

The owner's Chief of Strategic Services periodic meetings with Site Office Deputy Manager continues to provide an opportunity for valuable exchange of information. JSA Board of Directors meeting (April 9) with Site Office Manager was a productive exchange and future dialogues are highly encouraged." (DOE MidYear Performance Feedback)

on opportunities at the Lab, financial status of JSA, the Lab's science program, 12-GeV upgrade project, FEL and SRF technology and plan for the future, PEMP results, FY09 budget (omnibus) and stimulus funding, and EH&S performance. The TJSO Manager joined the board at its meeting to discuss the function of the DOE site offices and expectations for site offices and contractors.

- In its continuous review and fine-tuning of its provision of effective leadership guidance to the Laboratory, the seven JSA Committees are in process of reviewing the responsibilities of each to: ensure currency and sufficiency with the Lab's management and operational practices, and to better align and facilitate the necessary corporate reach back, providing appropriate entrée to vital, external resources for support of the science and technology programs of the Lab. Committee charters will be reviewed by the JSA Board at its meeting on September 30 and enacted thereafter.

Based on this performance assessment through August 31, 2009 we will continue to exceed target for this measure at the end of the fiscal year.

Measure 4.2.2 Requirement: Laboratory Leadership is Committed to Effective Contract Management

**TARGET**: Contract Implementation Plans reflect timely implementation of DOE directives and other requirements, and implementation plans are completed on time.

JSA Performance:

During FY09, JSA reported completion for implementation of all contract directives consistent with approved Implementation Plans, except for the six remaining as noted below which are on schedule. The plans were all completed within the specified timeframe:

- DOE O 414.1C Quality Assurance
- DOE O 420.1B Facility Safety
- DOE O 430.2B Departmental Energy, Renewable Energy and Transportation Management
- DOE M 435.1-1 Change 1 Radioactive Waste Management Manual
- DOE O 435.1 Change 1 Radioactive Waste Management
- DOE O 5400.5 Change 2 Radiation Protection of the Public and the Environment (Contract Mod. M045)

Extensions were approved during this period for DOE O 435.1 Radioactive Waste Management, DOE M 435.1-1 Radioactive Waste Management Manual, and DOE O 414.1C Quality Assurance. Based on the performance information that has been provided through August 31, 2009 we anticipate meeting this measure by the end of the fiscal year.

Measure 4.2.3 Requirement: Lab Leadership establishes clear roles, responsibilities, authority, and accountability (R2A2) and identifies and ensures resolution of issues that can impact the overall performance of the Laboratory.

**TARGET**: Lab Leadership establishes R2A2 through job descriptions, performance appraisals and the Annual Work Planning process that ties budget with performance goals and establishes accountability for each project at the Lab. Lab Leadership operates effectively utilizing a performance based management approach that allows for timely identification and review of significant, self-identified issues, potential concerns or opportunities for improvement that are addressed collaboratively to provide assurance that the performance of work is accomplished in a manner that meets the terms and conditions of the contract. This includes a graded-approach to applying the five phases of Project Management to all Lab activities.

JSA Performance:

During this performance period, JLab produced the FY09 Annual Work Plan for a “most likely” budget scenario. This included updating of over 300 Work Plans from across JLab’s Work Breakdown Structure. Each Work Plan contains the required resources/budget to execute that activity/project and includes specific goals, milestones, Key Performance Indicators, etc. Every Work Plan is assigned to a dedicated Project Manager who is responsible and held accountable for executing the work on budget and on schedule. In addition, another Lab employee became PMP certified during this period bringing the total number of staff with PMP certification to seven: Mike Dallas, Claus Rode, Lyn Wells, Dennis Miner, Warren Funk, Kelly Krug, and Keith Royston. JLab Project Management training was also provided during this period as the Lab continues to apply the Project Management discipline in a graded-approach across the Lab’s activities. To date, 32 staff members have earned JLab Project Management Qualification (JPMQ) certification and nine have completed the on-line training and are awaiting the final integration class to become certified.

Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

**Objective 4.3 Provide Efficient and Effective Corporate Office Support as Appropriate**Objective Requirement:

In measuring the performance of this Objective the DOE evaluator(s) shall consider the following:

- Corporate Office involvement in and support of business and other infrastructure process and procedure improvements;
- The willingness to enter into and effectiveness of joint appointments when appropriate; and
- Where appropriate, the willingness to develop and work with the Department in implementing innovative financing agreements and/or provide private investments into the Laboratory.

Measure 4.3.1 Requirement: The JSA Board provides corporate expertise and reach back to demonstrate its commitment to the success of the Laboratory in its provision of effective leadership and management, business support processes, and infrastructure needs. The JSA Board and its Committees are comprised of experts and leaders in science, education, and industry, who bring to bear tangible and intellectual resources to carry out the primary responsibility to manage and operate the Laboratory in accordance with the JSA/DOE contract and in support of the DOE scientific agenda.

**TARGET:** The JSA Board and Committees meet regularly to monitor and ensure that the Laboratory’s performance meets or exceeds DOE expectations. The Board and Committees also convene in special meetings to address management and operational issues as they arise and to provide timely guidance to effectively resolve issues. Provides necessary additional resources including reach back through its owners and Board and Committee members to ensure that the necessary leadership and management team, business support processes, and infrastructure needs are addressed appropriately and in support of the Laboratory’s vision and business plan. Monitors scientific and operational reviews of the Laboratory and addresses findings in a timely and effective manner mutually acceptable to JSA and DOE. The Board and Committees assess best management practices approaches and systems utilized at the Laboratory to ensure cost effective and efficient support of the Laboratory’s mission, and implement corrective actions and/or improvements when warranted or determined necessary to maintain effective support.

JSA Performance:

- The Science Council met the last week of FY08 at which time the Lab’s Chief Scientist provided the scientific overview and update on the electron ion collider project, the Lab’s AD for experimental nuclear physics reported on the 6 GeV science program and the status of the transition to 12 GeV, the Lab’s project manager reported on the status of the 12 GeV project, and the Lab’s FEL leaders reported on 21<sup>st</sup> century FEL’s and the planned science program for the JLab FEL. The Council noted that the Lab had satisfactorily met the challenge of conducting the 6 GeV science program in parallel with the 12 GeV upgrade with efforts in place to maximize the science output and ensure the conduct of the excellent science that remains to be done prior to the upgrade under a variety of budgetary scenarios. The Council noted the approval of CD-3 for the 12 GeV project in mid-September to be a significant achievement and advised the Lab to stay abreast of the potential effects of the uncertain economic climate and the constraints on the contingency of the project. As reported in the FY2008 PEMP self assessment, the addition of a Council member provided expertise in the field of free electron laser science to address the Lab’s current and potential future plans with regard to the FEL. To this end, the Council recommended the development of a broad comprehensive strategy for the future of photon science at JLab that should include the guidance of experts to address the experimental potential of the FEL, including its potential applications in such fields as materials science, biology, medicine, chemistry, magnetic materials, properties in high magnetic fields, photo-effects and fast transitions, geology, high density, engineering, etc. Based on this study, JLab and JSA will confer to determine next steps.
- The JSA Programs Committee met during the first quarter and discussed the progress of the Lab Director transition, the status of the FY2008 contractor commitments and agreements and the additional resources provided to the Lab, JLab Users Group report, and report on the SURA Residence Facility. The Committee completed its evaluation of 28 proposals under consideration for support from the FY2009 JSA Initiatives Fund. In response to prior year feedback from the TJSO, the Committee engaged both JLab and Users Group representation in the evaluation process. Feedback from participants indicates satisfaction with both the improvements in the evaluation process as well as the management of the program. The Committee reviewed the SURA Residence Facility reserve study and proposed renovation and upgrade plan to address the aging infrastructure and proposed rate adjustments, and recommended the approval of both proposals to the SURA Board.
- During second quarter, the JSA Board and its Committees continued to provide responsible leadership and hold the Lab accountable for performance. Board and Committee interactions that occurred during the second quarter include: meeting of the Operations, Safety and Risk Management, and Finance and Audit Committees at which JSA discussed with Lab presenters the Lab overview and priorities, operational status including PEMP performance, SLI projects, GPP, FEL, cyber security, tech transfer, HR, safety goals and performance, construction safety plan, and FY09 budgets and impacts, including stimulus funding. JSA will be leading a review committee to assess the Lab’s integrated safety management system and processes in Summer 2009.
- Members of the JSA Board, its owners, and members of the seven JSA Committees have continuous interactions and discussions with DOE HQ and program officials to address issues of interest to the DOE that affect the department’s science program in general and the Lab’s science program in particular. Topics being discussed include: potential for stand-alone power generation capability for the Lab; M&O contract reform issues related to the principles of GOCO model for the DOE labs, assumption of appropriate performance and operational risk, increased flexibility in employment practices, partnership formation, and technology transfer.

**NOTEWORTHY ACCOMPLISHMENT**

“Science Committee engagement with FEL and photon science is a very positive initiative and similar engagements are encouraged.”  
(DOE 1st Quarter Performance Feedback)

- Members of the JSA Board, its owners, and members of the seven JSA Committees continuously promote the Lab and its capabilities within the larger science community, and including members from other federal agencies. During this fiscal year for example, discussions have been held with the NSF, NOAA, NASA, and DHS, in which both formal and informal presentations have been made to promote and advocate for the Lab's programs in science and technology.

Based on this performance assessment through August 2009 we will continue to exceed target for this measure at the end of the fiscal year.

Measure 4.3.2 Requirement: The JSA Board proactively pursues opportunities that strengthen and facilitate the Laboratory's ties to academe and to the user community, both by improving upon current programs and initiatives, and by evaluating newly proposed programs and initiatives that enhance the basic science and research programs of the Laboratory.

**TARGET:** Monitors current programs that strengthen the Laboratory/academic connection and the Laboratory/user community to ensure continued relevance and implements programs enhancements as appropriate. Evaluates new proposals that further the Laboratory's science and technology programs and supports the vision and DOE's scientific agenda.

JSA Performance:

- During the first quarter, the owner continued to provide support in the Lab's technology transfer and commercialization function (also mentioned under Objective 4.1). Specific activities during this period included: participation in a DOE conference call on new non-proprietary user and proprietary user class waivers and agreements at DOE labs; assistance in identifying workshop training for the Lab with the focus on Small Business Technology Transfer programs with the intent to expand public/private partnerships among hi-tech businesses and JLab; guidance on the term sheet license agreement with Fal Sar Imaging for the Lab's PET and Optical Tissue Imaging technology; guidance regarding the industrial materials evaluation for jointly-owned Boron Nitride intellectual property; provision of the Inteum software used to automate the intellectual property and invention disclosure process (the owner provides the annual licensing fee, hosts on its server, and provides for program maintenance and update); assistance and database support and management, including the creation of automatic reporting to satisfy various DOE and Lab reporting requirements; and, promotion of the Lab's FEL program and specifically terahertz technology at the Fall 2008 Mid-Atlantic Innovation Showcase.
- During second quarter, the owner continued to provide support to the Lab's technology transfer and commercialization function (also mentioned under Objective 4.1). Specific activities during second quarter included: promoting the Lab's terahertz and FEL technology at the Southeast Venture Conference and Global Venture Challenge; organizing and moderating a session at the World's Best Technology Showcase with the Lab's Associate Director of Accelerators as a featured panelist; and the award to 25 Lab inventors for fifteen new patents.
- The 6th annual *SURA Terahertz Applications Symposium* held in third quarter provided opportunities to showcase the Lab's terahertz technology and a venue for interactions with experts from academe, government, and industry that may potentially develop into programs and collaborations in the field. During third quarter, the owner continued to support the Lab's technology transfer and commercialization function, participating in the Lab's monthly TRC meetings, advising on intellectual property maintenance and issues, facilitating intellectual property review, and servicing the IP database and invention disclosure systems.

- The owner’s general counsel continues to provide support for the Lab’s tech transfer function, including legal and intellectual property guidance to the Lab Technology Review Committee and other Lab leaders, including most recently, the analysis on the application of copyright law to Lab ideas.
- Members of the JSA Board, its owners, and committee members met with the Lab’s CTO and CFO to hear the Lab’s presentation of the status of its tech transfer and commercialization program. This was a step toward the development of a strategic approach in which JSA could leverage the opportunities in the Lab to achieve Secretary Chu’s goal to better integrate the national lab, university, and industry research and build research networks in support of the DOE’s tech transfer and commercialization program.
- The owner (SURA) is engaged in discussions with other labs and private industry to explore opportunities to promote tech transfer activities at JLab, including discussions with Savannah River National Lab and Raytheon.

Based on this performance assessment through August 2009, we will continue to exceed target for this measure at the end of the fiscal year.

**Measure 4.3.3 Requirement:** The JSA Board provides non-DOE resources (personnel and/or funds) through its owners, other organizations, and private sources to support programs, initiatives, and activities that promote and/or enhance the basic science and research programs of the Laboratory, and that support the Laboratory’s extended user community.

**TARGET:** Commit to Initiatives Fund to support programs, initiatives, and activities that strengthen the Laboratory’s scientific outreach and users programs and provide for new programs and program enhancement. Provides the relations and outreach support that underpins a successful strategy to acquire other funds and resources (land, personnel) that support Laboratory programs and facilities.

**JSA Performance:**

In first quarter, JSA announced the award of projects to be funded by the FY2009 Initiatives Fund (IF) Program. After evaluating 28 proposals, the JSA owners accepted the Programs Committee’s recommendations to awarded support for 24 projects: Director’s Discretionary Fund; JSA/JLab Graduate Fellowship Program; Nathan Isgur Senior Post Doctoral Fellowship; Handheld Gamma Camera for Cancer Surgery; JSA/JLab Sabbatical/Research Leave Support Program; JLab Science Activities for Teachers (JSAT); Advanced Concepts for Energy Recovery in an FEL; Limits to SRF Cavity Performance; Users Group Awards and JSA PostDoctoral Research Fellowship; Users Group Junior Scientist Travel Support; JLab Patent Awards Program; Transverse Parton Structure of Hadrons Meeting Support; International Conference on Hadron Spectroscopy Support; CLAS 12 GeV European Workshop Support; JLab Cooperative Education Program; Hampton Roads Partnership Membership; Users Group Annual Meeting Support; JLab Women in Physics Initiatives Workshop; Development of an Experiment to Conduct a Precision Measurement of the Weak Mixing Angle ... Meeting Support; Scattering with a 11 GeV Beam Meeting Support; Development of LAS for PVDIS Studies with 11 GeV Beam Meeting

**NOTEWORTHY ACCOMPLISHMENT**

The JSA Owners provide the resources, management and support for the Initiatives Fund Program and for the relations and outreach program for JLab.

Since inception, the JSA Initiatives Fund Program has provided \$1.7 M for over three dozen individual projects in support of the Lab’s programs that further the scientific outreach and promote the science and technology of the Lab, including projects that support the Lab’s extended user community.

**NOTEWORTHY ACCOMPLISHMENT**

“The JSA Program Committee continued in the process of selecting activities to fund from the JSA Initiatives Fund. The committee evaluated 28 proposals with 24 being selected for funding during this reporting period. The JSA Initiatives Fund appears to be used effectively to further the lab’s missions. JSA continues to establish productive relationships with non-DOE funding sources.” (DOE MidYear Performance Feedback)

Support; Users Group Satellite Meeting Support; Spin Structure at Long Distance Meeting Support; Users Group Graduate Student Activities; Users Group Student Tour Program. A quarterly report will be provided to the TJSO with details regarding the status of all projects under the JSA Initiatives Fund Program. Individual project details will be provided in the mid-year assessment.

Second Quarter Initiatives Fund (IF) Program status. Seven projects were carried over from the FY2008 IF Program (project completion dates crossed fiscal years). In addition to these projects, the following are projects funded in the FY2009 IF Program. As discussed in FY2008, a full description of these projects and an accounting is provided to the TJSO.

As agreed upon with the TJSO, an accounting of the projects in the FY2009 Initiatives Fund Program, along with full description of individual projects, will be provided by the end of October.

*JSA/JLab Graduate Fellowship Program.* Seventeen applications for research at the Jefferson Lab have been evaluated. This program provides a stipend of up-to-half of a normal academic year research assistant stipend, plus \$2K, and additional research-related travel support. Awards are planned in third quarter for the FY2009-2010 term. During third quarter, following the review of 17 applications, JSA awarded eight graduate fellowships for research related to the science program at the Lab for the 2009-2010 academic year. Each fellowship is comprised of one-half of an academic year research assistant stipend, plus a \$2,000 supplement, and support for travel related to the research.

*JSA/JLab Sabbatical/Research Leave Support Program.* One application has been evaluated. This program provides living expense support for researchers to relocate to the Lab from their home institutions during their sabbaticals. Up to twelve months of support is available during an approved leave. Award is planned in third quarter for the FY2009-2010 term. During third quarter, JSA awarded sabbatical support to a researcher from the University of Richmond who will be spending his sabbatical at the Lab collaborating with Hall B scientists on the proposal to measure the neutron magnetic form factor with CLAS and CLAS12.

*Director's Discretionary Fund.* The Director's Discretionary Fund provides the Lab Director with resources for activities that include: employee morale initiatives, user and guest support, community and corporate citizen initiatives, educational outreach support, miscellaneous review, workshop, and meeting costs. These ancillary activities that cannot be or are not supported by contract funds, factor into the overall quality and effectiveness of the primary activity for which these funds are used.

*Nathan Isgur Senior Post Doctoral Fellowship.* The Nathan Isgur Fellow, a member of the Lab's Theoretical & Computational Physics Division, is currently in a three-year appointment at the Lab. This fellowship provides for up to \$50K matching funds stipend support.

*Users Group Thesis Prizes and Poster Awards.* Following review of three theses, the Users Group selected the awardee, who will receive a \$2,000 stipend and an invitation to speak at the annual Users Group meeting. Three poster awards (first, second, third) will be made following the poster session at the annual meeting in third quarter. See also project reference under Objective 1.2.

*Users Group Annual Meeting Support.* Support is provided to encourage the attendance of young graduate and postdoctoral students at the annual Users Group meeting in third quarter through waived registration fees, travel assistance, etc. Travel support is provided to the thesis prize awardee and the JSA postdoctoral fellowship recipient who are invited to present their research at the annual meeting. See also project reference under Objective 2.3.

*Student Tour Guide Program.* Support is provided for a group of graduate students, under the guidance and direction of the Lab's public affairs staff, to assist with tours of the Lab. Student participants benefit from the training and experience of speaking and making presentations to the general public about the Lab.

*JSA Postdoctoral Fellowship.* The Users Group Board selected an Argonne post doc as the JSA Postdoctoral Fellowship recipient. Research grant will go toward the purchase of a stainless steel vacuum glove box for handling calcium-48 as part of a Hall A research proposal on the structure of nuclei, the EMC effect and short range correlations. See also project reference under Objectives 1.2 and 1.3.

*Users Group Support for Satellite Meetings.* Support is provided to offset meeting room (audio-visual equipment) costs to enable the satellite participation at two APS meetings to be held in Denver, CO in May, and in Waikoloa, HI in October.

*Users Group Conference Travel Support.* Travel support is provided to graduate students and post docs to present their research results at national and international conferences and workshops, enabling young scientists to receive the recognition for their hard work and helping them to improve their presentation skills and reputation as they further their careers in the field.

*Graduate Student Activities.* Support is provided for several activities of the JLab Graduate Student Association such as lunchtime seminars and graduate student workshops.

*Meeting: CLAS 12 GeV European Workshop.* This first European workshop on the physics program and detector components of the Jefferson Lab CLAS12 experiment was held February 25-28, 2009 in Genova, Italy, drawing over a hundred participants. See also project reference under Objective 3.1.

*Meeting: LAS for PVDIS Studies.* Support is provided for workshop and/or topical working meetings to encourage and facilitate the development of the scientific, technical and international collaboration necessary to eventually conduct a broad program of parity-violation measurements in the 12 GeV era of JLab.

*Meeting: Transverse Parton Structure of Hadrons.* Support is provided for an international conference to be held in third quarter at the Yerevan Physics Institute, Armenia. Focus of program will be on understanding the interesting transverse momentum, spin and position structure of hadrons.

*Meeting: Spin Structure at Long Distance.* Support was provided for meeting held at Jefferson Lab, March 12-13, 2009 to discuss the spin structure functions of the nucleon and its effect with the anticipated 12-GeV upgrade, and to ensure the successful completion of the remaining 6-GeV spin physics program. See also project reference under Objective 3.1.

*Meeting: HADRON 2009.* This international conference to be held at Florida State University, November 29 – December 4, 2009 aims to review the status and progress in hadron spectroscopy and the related aspects of hadron dynamics.

*Meeting: Weak Mixing Angle in Moller Scattering.* Support is provided for workshop and/or topical working meetings with the goal of refining the proposal and subsequently addressing the key technical challenges in anticipation of developing the design sufficiently to support a technical review of the project.

*Jefferson Lab Science Activities for Teachers (JSAT) Program.* JSAT provides teachers in the surrounding public school systems with essential knowledge in math and science and effective teaching methodologies. The program is based on the Lab's Academies Creating Teacher Scientists (ACTS) program. JSAT allows reach to an additional (to the ACTS program) 40 teachers each year, which will positively impact an additional 4,000 students every year.

*Meeting: JLab Women in Physics Initiatives.* Support is provided for attendance at an APS Gender Equity Workshop and for experts and speakers to interact with JLab scientists, post docs, and students to develop strategies for success in increasing the representation of women in physics. See also project reference under Objective 2.3.

*JLab Cooperative Education Program.* Support is provided to assist with housing expenses for five undergraduate students who spend a semester as part of their educational pursuits working at the Lab in a co-op program.

*Handheld Gamma Camera for Cancer Surgery.* With leveraged funds and support from the University of Virginia, this project is for a prototype hand held gamma camera to aid surgeons in treatment of cancer. See also reference under Objective 1.1.

*Advanced Concepts for Energy Recovery in an FEL.* Support is provided for assistance to leverage the synergy with the existing JLab FEL program (both DC gun and SRF) and utilize existing advanced software tools. The development of effective energy recovery for the injector and dump would be a major technological step in the evolution of energy recovery linacs.

*Limits to SRF Cavity Performance.* Support is provided for elements of a project relating to the enhancement of core SRF technologies that will directly impact the future design of high purity niobium SRF cavities.

*Hampton Roads Partnership Membership.* Annual membership in this public-private organization provides a seat on the Board for the Lab Director. The organization, representing the cities and counties surrounding the Lab, is a forum for looking at strategic regional approaches to address competitiveness of the Hampton Roads area, of which the Lab is a part, in the global economy.

*Patent Awards Program.* In March 2009, an awards program was held at the Lab to recognize the 25 inventors of fifteen different inventions. Recipients received monetary awards and a plaque for his/her invention, and the Lab displays a plaque of each invention. See also project reference under Measure 6.6.1.

A call for FY2010 Initiatives Fund proposals, issued in June, resulted in the submission of 30 proposals. The Initiatives Fund Evaluation Committee, comprised of representatives from the JSA Programs Committee, JLab users group, and JLab, is in process of reviewing these proposals, along with five historical projects in the Initiatives Fund Program. The Evaluation Committee's report will be forwarded to the JSA Programs Committee in October for final review, before forwarding recommendations for award to the JSA owners.

During first quarter, JSA continued to establish its relationship with the Lab's non-DOE funding sources, including relations-building with various Commonwealth of Virginia legislative and executive offices, as well as its continued relations building in the federal arena. Specific activities during first quarter in the relations and outreach program included: a new federal relations firm that brings with it significant experience and contact with key committee leaders and which will support JSA in developing its relations strategy with the new Administration and legislative bodies; meetings and visits with state delegates to influence the retention of the \$6M Commonwealth of Virginia funding for the 12-GeV project as well as the level of general appropriations; participation as a member of the Task Force for the Future of American Innovation (TFFAI), in a meeting with key transition officials with the new Administration, at which more than fifty high-tech leaders engaged with the team on the high-tech industry's policy agenda; early engagement both through the new relations firm and as a member of TFFAI to influence policy and funding decisions and the beginning of work on an economic stimulus package that promotes science and adequate funding for DOE and specifically for JLab.

During second quarter, several positive results accrued from the corporate owner's long-term relations and outreach program. Concentrated efforts with the state legislature which included meetings with state legislators and finance committee members were successful in retaining the \$6 Million funds for the 12-GeV upgrade project in spite of the State's severe budget shortfall. This funding was part of the \$7.5 Million state funding for the project, \$1.5 Million of which was received in FY2008.

The Lab will be receiving \$82.9 Million in stimulus funding for FY09/10, part of the \$1.6 Billion for the DOE Office of Science. The groundwork that was laid in preparation for the American Recovery and Reinvestment Act involved the efforts of key coalitions pushing science into the economic stimulus picture. The corporate owner's work with the Task Force for the Future of American Innovation, the Energy Science Coalition, and the Alliance for Science & Technology Research in America included regular meetings with congressional leaders, hosting sessions with science policy advisors from both presidential campaigns before the election and with the members of the Science, Technology, and Innovation Transition Task Force. These meetings led to the formation of a list of "shovel ready" projects in the national labs that could be front-loaded in a stimulus package. Support was also expressed in a coalition-wide letter to the House before its deliberation and passing of ARRA legislation in late January and enactment by the President in February.

**NOTEWORTHY ACCOMPLISHMENT**

The owner's relations and outreach program laid the groundwork for the funds from the ARRA (stimulus bill), the positive outcome of the Omnibus Appropriations, and the retention of the State support for the 12-GeV upgrade project.

The FY2009 Omnibus bill provides funding for the Lab at the President's Budget level. Relations efforts, including preparation of information and meetings with congressional offices, have been underway to support the FY2010 funding requests. The corporate owner participated in the TFFAI meeting with the Associate Director of Policy for OSTP to discuss research funding in FY2010 and beyond for all the funding agencies including the DOE Office of Science.

Following JSA's successful relations efforts as reported in the mid-year assessment resulting in a positive funding profile for the Lab, JSA's relations program for third quarter has focused on meetings and interactions with congressional appropriations committee staffers in support of nuclear physics and FEL funding and follow-up regarding stimulus funding. JSA continues to work through its relationship with the various Commonwealth of Virginia legislative and executive offices to monitor and influence state support through its general appropriations as well as the state's stimulus funding.

Members of the JSA Relations and Outreach Committee have been active facilitators in engaging nuclear physics leaders to influence the science budget both in the near term and in the long term. As a result of these interactions, the directors of FRIB, JLab, and RHIC plan to meet at the fall DNP meeting to discuss a relations strategy to address budget concerns. As part of this endeavor, Committee members are engaging with the Congressional representatives from Michigan, Virginia, and New York to urge the key decision makers to reflect the President's Budget Request for nuclear physics funding.

Committee members and the owner's Relations Director are addressing the House Appropriations Subcommittee's unexpected language in the FY2010 Appropriations bill which cuts \$10M in 12-GeV construction money. A colloquy, coordinated through the owner's relations program, was entered in the Congressional Record documenting the Chair's support for restoring full funding of \$22M per the President's budget request for the Upgrade in conference.

Committee members and the owner's relations director are strategizing to sustain funding support from the Commonwealth of Virginia for the 12 GeV upgrade project as well as base support for the Lab in light of the severe state budget cuts for all agencies. Meetings are planned with key staffers in the Virginia Department of Planning and Budget to discuss and influence the state's continued support for the Lab in the next biennial budget.

The House Defense Appropriations Subcommittee has included \$1M for the Free Electron Laser (FEL). The owner's relations program has been instrumental with the Senate Armed Services Committee and the offices of the Virginia congressional delegation to maintain this funding.

During first quarter, the owner provided support for the fiscal activities related to workshops and conferences held at the Lab, including the deposit of collected registration fees and other revenues, and payment of invoices for meeting expenditures. Per the recommendations of the Oak Ridge review of conference management, the owner is working with the Lab to transfer the control of conference management and banking to JSA.

During first quarter, the SURA Board approved the implementation of a six-year renovation and upgrade program to address the aging infrastructure of the SURA Residence Facility, as well as a moderate increase in its rate structure (effective April 1) that continues to be competitive with the local market.

During second quarter, the corporate owner provided the conference facilities and support for the JLab Director and the Brookhaven National Lab Director to host the Electron Ion Collider Advisory Committee and other participants and observers to discuss and address questions about the EIC science program.

During second quarter, the corporate owner hosted and organized a workshop at Louisiana State University focused on special symmetries overarching the "Universe" of nuclear physics that advances multi-faceted ab initio nuclear structure approaches and related studies of quarks/gluon dynamics, nucleon-nucleon interactions, effective nuclear interactions, few-body systems, and many-nucleon correlations. The workshop encouraged the participation of young nuclear physics students many of whom had the opportunity to share their work and present talks. See <http://www.phys.lsu.edu/lsunpw/> for program.

During fourth quarter, the owner's general counsel and the owner's external counsel provided legal assistance to the Lab regarding an employee issue, the resolution of which has been reached.

The owner continued to make available the 42-room SURA Residence Facility, owned, managed and operated by the owner, for on-site accommodations for Lab researchers, guests, collaborators, and vendors. With a staff of five FTE's and additional seasonal staff to meet peak demands and outsourced service support, the objective is to manage this operation on a break-even basis. However, in order to maintain an affordable and competitive rate schedule, the owner has historically, and again in this performance period, subsidized the operations. The SURA Residence Facility is the preferred choice of many Lab visitors, both short- and long-term. Feedback continues to substantiate that Lab users consider the location and services of the Facility to be part of their entire Lab experience.

Access to the CSC "Learning Place" using the Skillport portal continues to be a useful and popular part of JSA's training and professional development programs, with 446 courses completed by 75 different people. JLab has a total of 169 active seats. Thirty-five employees have used CSC LP to earn their JLab Project Management Qualification (JPMQ) and the ten-person Procurement Office has taken almost 60 Skillport courses to support their professional development. In addition, nine Skillport courses have been incorporated into JLab's Management Development Curriculum.

The Procurement Manager at CSC's Applied Technology Group contacted the JSA CFO/Business Operations Office on September 10, 2009, to coordinate CSC's continuing commitment to provide SkillSoft training support at JLab. A review of the current seat requirements to be carried over and any additional requirements by the JSA Training Coordinator were considered. This resulted in a requirement for 200 seats to begin the new fiscal year. Any additional seat requirements as may be required by the JSA Training Department during the year will be added by CSC to the Agreement with SkillSoft.

Based on this performance assessment through August 2009, we will continue to exceed target for this measure at the end of the fiscal year.

**Table 13. Goal 4.0 Performance Rating Development**

ELEMENT	Letter Grade	Numerical Score	Objective Weight	Total Points	Total Points
<b>4.0 Provide Sound and Competent Leadership and Stewardship of the Laboratory</b>					
4.1 Provide a Distinctive Vision for the Laboratory and an Effective Plan for Accomplishment of the Vision to include Strong Partnerships Required to Carry Out those Plans.	A	3.9	30%	1.17	
4.2 Provide for Responsive and Accountable Leadership throughout the Organization	A	3.8	35%	1.33	
4.3 Provide Efficient and Effective Corporate Support	A	3.8	35%	1.33	
<b>Performance Goal 4.0 Total</b>					<b>3.83</b>

**Table 14. Goal 4.0 Final Letter Grade**

Total Score	4.3-4.1	4.0-3.8	3.7-3.5	3.4-3.1	3.0-2.8	2.7-2.5	2.4-2.1	2.0-1.8	1.7-1.1	1.0-0.8	0.7-0
Final Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F

**GOAL 5 SUSTAIN EXCELLENCE AND ENHANCE EFFECTIVENESS OF INTEGRATED SAFETY, HEALTH, AND ENVIRONMENTAL PROTECTION**
Goal Requirement:

The Contractor shall sustain excellence and enhance effectiveness of integrated safety, health, and environmental protection. (The goal shall measure the Contractor's overall success in preventing worker injury and illness; implement ISM down through and across the organization; and provide effective and efficient waste management, minimization, and pollution prevention.)

**Objective 5.1 Provide a Work Environment that Protects Workers and the Environment**

Measure 5.1.1 Requirement: The Contractor's progress in achieving and maintaining "best-in-class" ES&H program performance as measured by the day away, restricted or transferred (DART) case rate. DART cases and man-hours will include all JLab staff, Users, and subcontractors, regardless of company size.

TARGET: DART Rate = 0.25.

JSA Performance:

Jefferson Lab's safety performance has continued to demonstrate a safe working environment since the start of the JSA contract in FY06. Overall, the injury rates have been driven down by many factors including effective communications, feedback from safety observations, closing CATS items,

**NOTEWORTHY ACCOMPLISHMENT**

The Laboratory has sustained solid performance for DART and TRC measures. Keep up the good work. (DOE FY09 3rd Quarter Performance Feedback)

planning team work, and sharing Lessons Learned lab wide. As of August 31, 2009, there have been no recordable injuries requiring work restrictions or time away from work. The DART Rate is 0.00, and there have been 355 days since the last Lost Work Day accident. Final FY09 numbers will not be available until the end of the fiscal year; we do not anticipate any significant changes.

During this performance period, in February 2009, JSA received the 2008 National Safety Council Perfect Record Award for safe operations during the period November 11, 2006 to September 10, 2008. As reported previously, this equates to 2,740,858 hours worked by employees, users, and subcontractors without an occupational injury or illness involving days away from work or death.

Laboratory management continues to emphasize an open reporting culture and the need to report all injuries. This emphasis appears to be bearing fruit as a number of minor injuries have been reported. Interviews with the injured employees indicate that the recent push to report and investigate all injuries was the impetus. As a result of this push, reports of first aid injuries have increased 400% over a similar period in FY08. Specifically, the number of reported events increased from seven to 27 over the same time span. Since the majority of these reported events were categorized as hand and finger injuries, ESH&Q assigned a liaison to each Division Safety Officer (DSO), with the intent of providing tailored solutions to prevent future similar issues. This information was shared with the Director's Safety Council and at the September 2009 Post SAD Shutdown. Additionally, these issues are being tracked in CATS. Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

Measure 5.1.2 Requirement: The Contractor's progress in achieving and maintaining "best-in-class" ES&H program performance as measured by the total reportable case rate (TRCR). TRC cases and man-hours will include all JLab staff, Users, and subcontractors, regardless of company size.

TARGET: TRCR Rate = 0.65.

JSA Performance:

As of August 31, 2009 the TRC Rate = 0.43. Final numbers will not be available until September 30, 2009; we do not anticipate any significant changes. According to JLab timekeeping estimates, the Lab could have one additional recordable case through September 30th and still meet the FY09 PEMP goal of 0.65. Based on this performance information, we anticipate exceeding this measure and attribute the activities discussed in Measure 5.1.1 for our success.

FY09 reportable cases include:

- Subcontractor employee received a first degree burn to her hand during kitchen work and received a prescription cream from an offsite medical provider. Jefferson Lab has begun to require subcontractor employees to report their injuries to the Occupational Medicine Department.
- Employee was stung by a wasp and received a prescription. This employee did not understand that insect stings and bites were considered occupational and required reporting to the Occupational Medicine Department. Site-wide information was sent out through Insight, and at the morning work planning

**PERFORMANCE CHALLENGE**

“While incremental improvements are acknowledged, the timeliness of reporting and data transparency (for TJSO) associated with employee, User, and subcontractor quarterly man-hours submissions warrants some additional effort to satisfy SC milestone dates, and CAIRS submission requirements (posted by 10th day following end of previous quarter). Structuring the quarterly reporting information into a consistent process, should improve the likelihood of both on-time submission, and also data quality. Arranging on-site CAIRS training in the FY should also improve overall understanding of requirements and practical experience with the data entry tools/features.” (DOE FY09 1st Quarter Feedback)

STATUS: This comment was based upon an injury that occurred during the 2<sup>nd</sup> quarter to a subcontractor employee which prior to this FY would not be considered recordable. A new category was required to be set up in CAIRS. THE ESH&Q Reporting Officer notified the DOE CAIRS Coordinator in a timely manner, but the category was not created in time to meet the reporting deadline established by DOE. The category has now been established and no further difficulties are envisioned.

meetings.

- Employee was struck in the eye by an insect exoskeleton; the exoskeleton adhered to his eye and required removal by an offsite physician.

Each case involved off-site medical care. All employees returned to work with no restrictions. It is likely that if the first two cases cited above had reported to the Occupational Medicine Department they would have remained first-aid only cases. In that case the TRC would have been 0.14.

As noted, JSA is a 2009 recipient of the Occupational Excellence Achievement Award.

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

#### Objective Requirement:

In measuring the performance of this objective the DOE evaluator(s) shall consider the following:

- The maintenance and appropriate utilization of hazard identification, prevention, and control processes/activities; and
- An open reporting culture is maintained at the Laboratory while appropriately responding to ESH&Q incidents/emergencies
- Identification of root causes to ES&H non-compliances and implementation of corrective actions
- Extent of the Laboratory's participation in working with other SC Laboratories or other entities/organizations outside SC in both giving and receiving external safety program audits as to advance staff skills and facilitate the sharing of lessons learned.

#### JSA Performance:

Jefferson Lab continues to emphasize its Integrated Safety Management Systems as its vehicle for assuring employees are able to work safely. A review of our ISMS was conducted in July 2009, using peers from other DOE facilities. The Chief Operations Officer from PPPL, who had assisted the lab in 2007 to prepare for the HSS review, served as the lead. He was assisted by the Safety Manager from the Strategic Petroleum Reserve facility in New Orleans, LA, and the ESH&Q Environmental Program Manager; much progress was noted. The team encouraged JLab to continue to see ways to make its work planning process consistent across the Laboratory. This is important should the Lab increase in size or programs. On a side note, the review team lead has asked for a webinar demonstration of our Employee Job Task Analysis for his staff, and he was impressed by this endeavor.

A number of benchmarking activities were conducted in FY09 to identify opportunities for improvements. These included:

- The Michigan State University's Industrial Safety Officer paid a visit to discuss our ISM and how he can integrate ES&H into the FRIB project. A similar visit was conducted by the radiation safety manager from NIF.

#### NOTEWORTHY ACCOMPLISHMENT

JSA is a 2009 recipient of the Occupational Excellence Achievement Award. This award recognizes participants that have reported injuries and illnesses that involved days away from work, equal to or less than 50% of the BLS rate for their 6-digit NAICS Code, and have had no fatalities during a calendar year.

#### PERFORMANCE CHALLENGE

“While the Laboratory's performance on sharing lessons learned internally and externally is considered exceptional, the response to the Site Office's comment on the 1st Quarter PEMP evaluation would profit from further thought and analysis on how to measure the effectiveness of the lessons learned program. It strikes us that simply installing a counter to track how many times a lesson learned record is accessed doesn't translate into a measure of when work plans are influenced by lessons learned. A more concrete example would be tracking how many Atlis work tasks in a given time period are tagged with a link to a specific Jefferson Lab COE item or DOE LL item. It would then be a reasonable presumption that LL information is immediately available to the staff performing the work (i.e., pre-job briefing tool.” (FY09 DOE MidYear Performance Feedback)

STATUS: The JLab hit counter was intended as an intermediary step; ESH&Q and MIS have been collaborating on an automated application that displays actual lessons viewed and then used for each work plan entry. The initial plan is complete; beta testing and implementation is expected by March 2010.

- The Environmental Program manager conducted a communications benchmarking study with NASA, the U.S. Army Armament Research, Development and Engineering Center (ARDEC), the Naval Safety Center, the International Brotherhood of Teamsters, and the U.S. Department of Labor, Mine Safety and Health Administration. This was performed to identify improvements in how we communicate ESH&Q information. Recommendations under implementation included routine meetings with Safety Wardens and ESH&Q management, increased use of the Worker Safety Committee, and changes to all the committee charters to include the review of lessons learned and to promote increased two-way communication of both written and verbal information with their specific technical communities.
- The Site Occupational Medicine Director was performed a review of SLAC’s occupational Medicine program. That review confirmed the effectiveness and efficiency of our operations.
- An ESH&Q Safety Engineer was requested by CERN to co-chair an External Advisory Committee for the Task Force on Safety of Personnel in the LHC Areas in May 2009. This was a follow-up to the incident September 19, 2008.
- The ESH&Q Associate Director participated in the DOE Contractor panel that developed the DOE Notice on nanosafety.
- The ESH&Q Associate Director participates in a monthly teleconference with her peers within the other DOE research laboratories (SC and beyond) to discuss issues and conduct impromptu benchmarking activities such as incentive programs, PEMP measures, ES&H Manual revision frequency, and casual analysis tools.

Jefferson Lab’s ES&H programs are recognized internationally as well. The Lab’s Radiation Control Manager was invited to teach at the International School for Radiation Damage and Protection in Erice-Sicily in May 2009. His subject was Operational Radiation Protection for Accelerators. One of our ES&H professionals was asked by CERN to lead a group in May 2009 to review the planned corrective actions in response to their magnet incident to assure actions were effective and addressed the root cause. As mentioned in Objective 1.1, Vladimir Popov received an Award for Excellence in Technology Transfer by the Federal Laboratory Consortium, including a congratulation letter for Dr. Steven Chu, Secretary of the Department of Energy. Pavel Degtiarenko was awarded a patent for a “Method and Apparatus for Measuring Properties of Particle Beams using Thermo-Resistive Material Properties”.

Laboratory management continues to emphasize an open reporting culture. In addition to the increase in reporting of first aid injuries, mentioned in Measure 5.1.1 above, the number of Notable Events has increased as well. There were 18 Notable Events reported in the 12-month time span of July 1, 2007 – June 30, 2008. There were 25 Notable Events reported July 1, 2008 – June 30, 2009. Each of the events were reported, investigated, and subjected to an analysis to

#### NOTEWORTHY ACCOMPLISHMENT

Planned improvements have resulted from an ESH&Q Customer Service Review conducted during this performance period. Key ESH&Q staff conducted interviews across the Lab and carefully analyzed responses. Two examples of recommendations that have been selected for implementation include: 1) Simplify the ES&H and QA Manuals to include the use of better visual aids; and 2) Focus on better avenues of communications and improving site wide tools so they are more “user” friendly.

#### PERFORMANCE CHALLENGE

“The Laboratory’s response to TJSO’s first quarter comments regarding performance expectations on timely reporting and post-event follow-up warrants continued management attention. Additional instances of inconsistent and delayed reporting, and inefficient event investigations have occurred, prompting the Site Office to transmit an e-mail (Neilson to Logue, 4-2-09) citing these concerns. The Site Office does acknowledge the Laboratory’s efforts to raise the awareness level in the workforce on the importance of timely reporting and case management; however, specific challenges remain for the Laboratory in this area, and include: 1) Reducing the delay between events/conditions and notification of the Laboratory’s ES&H Reporting Manager for consistent processing. 2) Convening post-event fact finding meetings as soon as practical (versus performing an initial internal session, and a later (separate) session for ES&H Reporting Manager and TJSO attendance). 3) Providing initial (and any subsequent) ORPS determinations to the Site Office in writing, consistent with timeline in the DOE ES&H Reporting Directive.” (FY09 DOE MidYear Performance Feedback)

STATUS: As noted in the 3rd quarter report, due to the increased emphasis on reporting, there has been a 70% increase in the number of incidents reported. ESH&Q conducted an analysis of events reports by employees thus far this year. In the first three quarters of the FY, 12 events occurred which were classified as “Notable Events.” Only one event was not reported to ESH&Q in an appropriate time period. In this instance the event was not reported to ESH&Q until it was determined that the cut cable was indeed “live.” This did not allow for the ESH&Q participation in and TJSO observation of the fact finding meeting. The employees were counseled on the need to notify ESH&Q much earlier so that any other reporting decisions can be made in an acceptable time frame.

determine basic causes and explore extent of conditions. Plans in FY10 are to continue this emphasis on reporting, training additional ESH&Q employees in the TapRoot Causal Analysis system, and providing training to selected groups on what DOE requires to be reported.

A post scheduled accelerator down (SAD) Lessons Learned session was held on November 12, 2008 and again on September 2, 2009 after the conclusion of two SAD periods. Each session was attended by approximately 250 personnel that were involved in the planning or conduct of SAD; Lessons Learned from each of the Halls, Engineering, Accelerator Division, and ESH&Q were presented to capture feedback for safety and efficiency improvements for the next SAD. The presenters at the second Lessons Learned session acknowledged better planning and coordination for the FY09 down and identified issues to be addressed such as a consistent set of LOTO tags.

During FY09, three JLab personnel attended 2 DOE Accelerator Safety Topical Group meetings at Brookhaven National Laboratory. At the first meeting, each SC lab with an accelerator presented information about their facility, along with concerns and recommendations for DOE 420.2B, Accelerator Safety Order, and its guidance document. The Laboratory Director has been asked by SC to serve on a panel that is currently reviewing the ASO and making recommendations for reducing redundant requirements.

With the start of the 12 GeV civil construction activities, along with GPP and ARRA funded construction projects, construction safety has become a higher priority with Jefferson Lab management. An assessment of the Lab's construction safety program was conducted to determine whether a 10 CFR 851 compliant program was in place.

Both the 12 GeV Project and the Facilities Management & Logistics (FM&L) organizations have hired additional construction safety professionals to assist the SOTRs in overseeing the subcontractors' compliance with their contractual ESH&Q commitments. To assure that the communications are consistent across all the construction projects, the FM&L Manager has instituted a monthly meeting with the SOTRs, the construction safety staff, and ESH&Q to answer questions, discuss issues, and clarify requirements. In addition, the Site Occupational Medicine Director has initiated a process to work with subcontractors to assure subcontractor employees are receiving the appropriate medical surveillance.

In FY09, JLab initiated a stop-work order for a U-tube separation that occurred during Cryomodule testing. Contradictory professional opinions concerning the robustness of the corrective actions led to the issuance of the stop-work order and after discussion and evaluation, a satisfactory solution was reached and a notable event report is in progress. An SC4 ORPS was submitted to DOE (SC-TJSO-JSA-TJNAF-2009-0001).

The Laboratory is beginning to make better use of the ESH&Q data it collects. Data from CATS, the Safety Observation database, the Safety Warden Database, and Work Orders are analyzed each quarter to identify trends and issues that require management attention. This data is presented to the Director's Safety Council out of which has arisen several actions. The identification of hand/finger injuries is one,

#### PERFORMANCE CHALLENGE

“The Site Office’s mid-year comments on timely notifications following off-normal event, event critiques, and transparent classifications remain a continuous improvement opportunity for the Laboratory. For the most part, there has been prompt notification between the Laboratory’s ES&H Reporting Manager and the Site Office following such events; however, the Site Office believes the Laboratory will benefit from monitoring the duration between event occurrence (or discovery) and notification to the ES&H Reporting Manager. The Site Office has historically seen, and continues to see occasions when these notification durations are less than prompt. By tracking event notification timelines the Laboratory would be able to determine if and when performance declines occur.” (FY09 DOE 3rd Quarter Performance Feedback)

STATUS: Over the past year, JLab reporting levels have increased almost 400% due to a focused reporting emphasis campaign. JLab prefers to maintain attention on the inculcation of appropriate levels and quality of site reporting, allowing us to better focus on a primary objective, the identification of trends and prevention of safety issues. Additionally, DOE data on TJNAF CAIRS and ORPS data quality and timeliness have been measured at 100%. Also, an evaluation of the events reported to ESH&Q indicates that, although there are a few outliers, on the whole reporting has been timely. FY10 plans include providing the MCC Operators training and job aids on reporting requirements

and a sitewide sweep of entrances for non-skid flooring solutions is another. We expect this activity to gain momentum as we become more familiar with the data. ESH&Q prepared a lessons learned on the finger/hand injury which was used by DOE in the Operating Experience publication.

Several JLab employees received recognition in-house for their ES&H contributions which included developing ergonomic handling fixtures for cryomodule disassembly activities, HKS Installation modifications, and creating/developing an Injector Group safety device, oil spill containment, and discovering and correcting a webstock loophole that in chemical purchases.

Based on the information that has been provided, we anticipate exceeding this objective by the end of the fiscal year.

Measure 5.2.1 Requirement: Utilize and contribute to the DOE Lessons Learned database.

**TARGET:** Work planning activities conducted by the major Laboratory Divisions (Engineering, Physics, Accelerator, FEL, and Facilities Management) periodically include a review of lessons learned through the Laboratory's Corporate Operating Expense (COE) process and tools. Entries to the DOE Lessons Learned system from notable events, injuries, or near-miss conditions during FY09, will be submitted in accordance with the Laboratory's COE processes.

#### JSA Performance:

During FY09, Jefferson Lab developed 38 lessons learned from its internal activities; nine have been entered into the DOE Lessons Learned database as of September 8, 2009. One such lesson learned, involving increased reporting of minor injuries so as to better trend and address issues, was incorporated into the DOE Operating Experience. In addition, 30 DOE lessons learned were distributed to the appropriate lab population.

Use of the database for work planning purposes is increasing; in FY09 there were 1,713 Jefferson Lab database hits. An independent effectiveness review of the program was conducted in July 2009 and the program was found to be effective in sharing lessons learned. Interviews with the divisional lessons learned coordinators and users of the database indicate that searches of the database are conducted as part of work planning and that the users find the information of value. The review identified no findings, four noteworthy practices (including targeted dissemination of information and incorporation of lessons learned into work planning), and eleven opportunities for improvement ranging from more robust documentation of JLab COE actual practices into procedures to better incorporation of Divisional Coordinators into the COE process. Jefferson Lab is currently reviewing these recommendations for implementation.

Recognition of Jefferson Lab efforts in standing up this new program have been received from TJSO and the DOE Office of Health, Safety, and Security (HSS). Bob Compton, DOE-HSS reviewed the program as part of the 2008 HSS Independent Assessment. He complimented the Lab on analyzing their data and

#### NOTEWORTHY ACCOMPLISHMENT

A limited scope peer review of JLab's Radiological Control (RadCon) Program was conducted November 5 – 7, 2008. Review team findings note that "the JLab RADCON Organization is conducting its work in a high quality manner. It is effective in implementing an adequate, appropriate, and effective level of radiation protection to employees, users and members of the public in the vicinity of the JLab site. Of considerable importance, the morale of this team was found to be good despite the heavy workloads and limited staffing for this important activity found at JLab..." In addition there were seven noteworthy practices:

- N.1 Metals Recycling Suspension Documentation
- N.2 Sealed Source ALARA Efforts
- N.3 Registration of All Sealed Sources
- N.4 JLab Program Support
- N.5 Assessment of 12 GeV Upgrade Radiation Protection Implications
- N.6 Radiation Budget System
- N.7 Use of Calibration Manager™

#### NOTEWORTHY ACCOMPLISHMENT

The Lead QA/Safety Engineer in the ES&H Division was recognized by TJSO for demonstrating leadership in sharing Lessons Learned on the monthly OPEX conference calls with the DOE complex. "Thanks for demonstrating leadership in sharing LL'd on the conference calls." Steve Neilson, TJSO Safety & Occupational Health Manager

developing and sharing the lessons learned on reporting injuries. Jeannine Boyle, the DOE Lessons Learned coordinator, reiterated to TJSO her sincere appreciation for Jefferson Lab's regular contributions to the OPEX conference call discussions, specifically noting that Steve Smith's level of participation is remarkable considering the size of the Lab.

Future planned improvements for JLab's COE program include the incorporation of View and Use counters for individual work plans in ATLis and similar databases; implementation of these improvements is expected by March, 2010.

A JLab HSS report on ORPS and CAIRS data entry quality that was released to the DOE Complex received the maximum overall score of 100%. The criteria used for scoring included timeliness and coding and corrective actions. There have been five ORPS submissions and three CAIRS reportable events during FY09. As of September 14, 2009, JLab has made nine FY09 contributions to the DOE database. Based on this performance information, we anticipate exceeding this measure.

Measure 5.2.2 Requirement: Number of work observations on average per week and observations conducted are documented.

**TARGET:** Conduct at least three work observations on average per week during the scheduled accelerator down (SAD) and at least one work observation per week on average for each major division (Accelerator, FEL, Engineering, Physics, and Facilities). FEL, due to its smaller size, will average at least one observation per week. Trend analysis incorporates the results of the observations and is presented to the Director's Safety Council for discussion and disposition. These observations can be performed by supervisor or designee.

JSA Performance:

Although final Q409 figures are not available due to the requested timing of this submission, work observations conducted during this reporting period have exceeded the number required for major divisions. The cumulative goal for work observations in FY09 was 300 for major divisions (Accelerator, Engineering, Physics, and Facilities Management) and 51 for the FEL. These numbers are based on 12 weeks of SAD, one week lab shutdown, and 39 weeks of running. The actual number of work observations that have been conducted as of August 31, 2009:

- Accelerator Division. 107 Observations, 19 Observers
- Engineering. 159 Observations, 34 Observers
- Physics Division. 338 Observations, 13 Observers
- Facilities Management. 158 Observation, 27 Observers
- FEL. 43 Observations, 15 Observers

In FY09, we began analyzing the observation data every quarter as part of the trending analysis process that was introduced this year. Trend analysis of observations is presented to the Director's Safety Council for discussion, as well as the Workers Safety Committee and Safety Wardens. For example, the data indicated PPE was identified in 38 of the 148 "unsafe" observations. As this tied in with the hand and finger first aid injuries being reported to the Medical Department, ESH&Q has been working with each organization to address this concern.

Compared to the same time period in FY08, the number of observations

**PERFORMANCE CHALLENGE**

"The Laboratory is expected to more explicitly tie performance to each of the Objective measures (i.e., minimally in a bulleted synopsis). For example, while performance figures were shared independently, this quarterly self assessment fails to furnish data relevant to Measures 5.2.2, and 5.2.3. Furthermore, balance information would be appreciated, such as areas needing additional attention identified through the Contractor Assurance System process." (FY09 DOE 3rd Quarter Feedback)

**STATUS:** This Fiscal Year, the ESH&Q Division initiated meetings with the SMEs in TJSO to review our ongoing performance against this PEMP. The purpose of the meetings has been to provide them detail above and beyond this report, answer questions, and discuss any issues. TJSO's need for more detail was never mentioned, but we believe we have provided sufficient detail in the FY09 4Q write-up.

has decreased, but the large number from FY08 is attributed to HSS assessment preparations. Of more importance is that the number of employees making observations has remained constant (130 in FY08 vs. 135 in FY09). This indicates that participation is constant, even among those organizations that are not part of the PEMP metric (12 GeV for example). Plans for FY10 include training of new supervisors and possible retraining for current observers.

Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

**Measure 5.2.3 Requirement:** Generate corrective action plans from assessment and events.

**TARGET:** Corrective Action Plans that are generated in response to DOE Surveillance Findings (P1 or P2) will be based on information obtained from JLab's processes to determine extent of condition and causal factors. The corresponding extent of condition reviews and causal factor analysis records will be maintained in a transparent manner.

**JSA Performance:**

Each formal DOE surveillance that included P2 Findings (there were no P1 Findings) underwent an analysis to determine the basic causes. This was performed to assure the planned corrective action would be effective. The analysis was led by ESH&Q and included those involved with the particular finding. TJSO was invited and attended most of these sessions. Those reports have been posted with the assessment report and the corrective actions plan on the ESH&Q website. Details are provided below:

<b><u>Q109</u></b>	<b><u>CATS Numbers</u></b>
Fall Protection Surveillance (8 P2's)	IA-2008-77 (P2s only)
<b><u>Q209</u></b>	<b><u>CATS Numbers</u></b>
Environmental/Hazardous Waste Joint Review (3P2's)	IA-2008-82
<b><u>Q309</u></b>	<b><u>CATS Numbers</u></b>
Quality Assurance Program Review (4 P2's)	IA-2009-27
Environmental Management System (EMS) Audit (2 P2's)	IA-2009-36

The CATS database was modified to notify TJSO when the corrective action plan associated with their Surveillance findings (as well as inspection findings) has been completed. This allows TJSO to perform

**PERFORMANCE CHALLENGE**

“The Laboratory has not supplied evidence supporting their attainment of performance on this measure. Please ensure the mid-year and final PEMP self-assessment includes ample documented evidence to receive credit for any action taken on corrective action planning, causal analysis and extent of condition reviews.” (DOE FY09 1st Quarter Feedback)

**STATUS:** TJSO was provided this information in February for the 1st quarter; however not before this comment was written. TJSO was provided the information for the 2nd quarter in April 2009.

**PERFORMANCE CHALLENGE**

JLab's recently completed annual LO/TO inspection identified various types of tag problems which could lead to unintended LO/TO violations. The most common thread between these tag issues involved older tag variations.

**STATUS:** In the coming weeks, ESH&Q will contact the appropriate personnel for identification and collection of old stockpiles of tags, as well as quantities of any active older tags. Replacement tags, specifically the current Maintenance and Administrative versions, will be supplied prior to any removals. All division will get the current tags within the same time frame. Communication regarding this effort has already been established via a JLab Lesson Learned (COE 280) and lab-wide announcement email from Mike Dallas.

Specific actions to complete the plan include:

- Notice from ESH&Q to Division Managers explaining what is required.
- New tags ordered and supplied to stockroom, and Division Managers notified when supplies are in place.
- Division Management acquires new tags and administers a sweep through all LO/TO supplies and tags in use; older versions of tags are replaced with new.
- Follow-up on the completeness of the sweep will be noted through future safety warden and management observations, as well as the next annual LO/TO inspection scheduled for May 2010.

their verification activities in a timely manner. In addition, the CATS database has been improved to allow users to enter Facilities Work Orders at the same time as when they enter CATS items. This improvement was implemented as a result of site feedback from the CATS user group to save time for CATS users. ESH&Q continues to meet with the CATS users to identify issues and improvement actions.

Based on the performance information that has been provided through August 31, 2009, we anticipate meeting this measure by the end of the fiscal year.

**Measure 5.2.4 Requirement:** Implement Corrective Action Plan (CAP) in response to findings identified in the June 2008 HS ES&H inspection review.

**TARGET:** On-time completion of FY09 deliverables as cited in the approved CAP.

**NOTE:** TJSO will close-out TJNAF corrective actions entered into the DOE Corrective Action Tracking System.

**JSA Performance:**

The CAP deliverables included Causal Analysis for the five identified findings, developed using cross-functional teams from across the site. A Corrective Action Plan (CAP) was implemented in response to findings that were identified in the June 2008 HSS ES&H Inspection Review and all items were entered into CATS. Sixteen actions were planned for FY09 and all actions have been completed on time; the final two actions that were scheduled for completion in the fourth quarter were actually completed in the third quarter, three months ahead of schedule. There are a number of FY10 actions that are ahead of schedule as well. Plans are underway to complete the effectiveness review for Finding C-1 in the first quarter of FY10.

Based on the performance information that has been provided through August 31, 2009, we anticipate exceeding this measure by the end of the fiscal year.

**Measure 5.2.5 Requirement:** Develop and execute action plans in response to Opportunities for Improvement (OFI) identified in the June 2008 HS ES&H inspection review.

**TARGET:** A disposition record will be generated for all OFIs by December 31, 2008 and any associated actions will be tracked within the Laboratory's CATS. 80% of OFIs are completed on schedule.

**JSA Performance:**

Thirteen disposition records were generated for Opportunities for Improvement (OFI) identified in the June 2008 HSS ES&H Inspection Review before December 31, 2008; eight were listed for completion in FY09 and the remaining five will be completed in FY10. As of August 31, 2009, 100% of the OFIs that were due in FY09 have been completed; 88% (7 of 8) were completed ahead of schedule, including one OFI that was completed six months ahead of schedule. The remaining OFI was completed on schedule. The details are listed in the table below. All of these records have been entered into CATS and can be accessed at the following hyperlink [https://mis.jlab.org/ehs/tracking/finding\\_search\\_list.php?search\\_type=all&return=findings&keywords=IA-2008-35](https://mis.jlab.org/ehs/tracking/finding_search_list.php?search_type=all&return=findings&keywords=IA-2008-35).

**PERFORMANCE CHALLENGE**

“Since the details for this measure include reference to percent of on-time completion, for the mid-term and final PEMP self-assessment, please present the performance evidence for this measure in a manner that includes showing the overall percentage of OFI actions completed, and the accumulated percent completed on-time. It would also be useful to include a hyperlink to the CATS thread that these OFI's are entered under.” (FY08 DOE Performance Evaluation Report)

**STATUS:** Write up in this mid-year self-evaluation was modified to address this feedback. Monthly meetings are held to provide the status of HSS corrective actions. In addition, ESH&Q met with TJSO in April 2009 and provided them with the information requested.

Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

CATS EVENT #	SCHEDULED COMPLETION	ACTUAL COMPLETION
MOA-2009-59-01	March 31, 2010	On schedule
IA-2008-35-02	February 20, 2009	February 20, 2009
IA-2008-35-04	April 25, 2009	April 23, 2009
IA-2008-35-06	April 25, 2009	April 23, 2009
IA-2008-35-10	February 27, 2009	January 20, 2009
IA-2008-35-11	February 27, 2009	February 17, 2009
IA-2008-35-12	June 30, 2009	January 7, 2009
IA-2008-35-13	March 31, 2009	February 23, 2009
IA-2008-45-02	July 23, 2009	July 14, 2009
IA-2008-45-03	October 9, 2009	On schedule
IA-2008-45-05	February 19, 2010	On schedule
IA-2008-46-02	October 23, 2009	On schedule
IA-2008-47-05	November 6, 2009	On schedule

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

Measure 5.3.1: EMS scorecard self-evaluation is Grade C or better in majority of categories (D is best grade).

**TARGET:** Six of eight responses of grade C or better and no responses of “A”. This target will include DOE Site Office validation of the score and evidence of direct correlation to effective waste management, minimization and pollution prevention.

#### JSA Performance:

EMS SCORECARD METICS	FY09 PERFORMANCE
Environmental Aspects	C
Goals, Objectives and Targets	C
Operational Controls	D
Environmental Training	C
Contracts	D
EMS Audit/Evaluation Procedures	D
Management Review	D

Opportunities for improvement noted in the EMS Validation Audit conducted in April 2009, as well as those subsequently identified by both the CAP Development Team and the EMS Committee, have been implemented through an overarching EMS improvement initiative. Five specific corrective actions were developed in response to the two P2 and one P3 finding of the audit.

For the first of these five actions JSA prepared an implementation plan (IP) identifying specific program documents that needed to be revised to reflect the ISO 14001 framework. This IP outlined a three phase

#### **PERFORMANCE CHALLENGE**

The EMS Validation Audit conducted in April 2009 noted inconsistent and inappropriate results from the EMS processes designed to identify significant environmental aspects, EMS objectives and targets.

**STATUS:** JSA took immediate actions to address the concerns noted in the EMS Validation Audit report:

- Conducting causal analysis and submittal of a Corrective Action Plan less than 10 working days of receipt of the report
- Completion of all 5 corrective actions by September 25, 2009
- Organizing JSA’s main environmental resources into a stand-alone department with a manager reporting directly to the AD ESH&Q

approach: (1) benchmarking of similar EMS<sup>2</sup>; (2) re-planning of the aspect/objective/target process with the EMS Committee, and (3) document revision. All three of these phases were completed in accordance with the IP schedule and have led to a clearer understanding of the EMS planning process and outputs that will foster better management of the Lab's significant environmental aspects.

As part of the EMS Validation Audit CAP, JSA also developed a communications and training plan designed to provide information on the value and processes associated with the EMS to the various audiences at the Lab. This CTP outlines 11 additional actions to be completed in FY10. Other completed CAP actions included the selection and use of an EMS deliverable tracking tool and revision of the EMS Committee Charter to better reflect its critical role in this important process.

Improvement of EMS-related process controls also occurred throughout FY09. These improvements were aimed at better communicating JSA expectations and aligning work practices with new/changing DOE requirements (specifically DOE O 450.1A). The following manual chapters were reviewed and revised: 6770 Waste Minimization and Pollution Prevention Program, 3110 ES&H Assessments of New Facility Plans; 3410: ESH&Q Aspects of Materials Acquisition; 3420 ESH&Q Aspects of Procured Services & Construction has been eliminated and combined with 3410; 6710 Environmental Protection Program; 6711 Environmental Monitoring; 6730 Water Quality Management; 6731 Groundwater Protection, and 6733 Storm Water Management Program.

Successful waste minimization / pollution prevention activities continued throughout the Lab in 2009:

- Approved EPEAT Target Implementation Plan in December 2008
- Revision to the SOP for Hazardous Waste Management completed in November 2008
- Tracking of EPEAT purchases
- Implementation of the Executable Plan in response to E.O. 12423
- On-going analysis aimed at remaining a RCRA Small Quantity Generator despite increased production activity at SRF
- Continued efforts at Hall D to minimize the generation of hazardous waste from the ground water treatment system
- Investigation of H2 fuel cell technology for JLab data center

Based on the performance information that has been provided through August 31, 2009, we anticipate exceeding this measure by the end of the fiscal year.

**Table 15. Goal 5.0 Performance Rating Development**

<b>ELEMENT</b>	<b>Letter Grade</b>	<b>Numerical Score</b>	<b>Objective Weight</b>	<b>Total Points</b>	<b>Total Points</b>
<b>5.0 Sustain Excellence and Enhance Effectiveness of Integrated Safety, Health, and Environmental Protection</b>					
5.1 Provide a Work Environment that Protects Workers and the Environment	A+	4.1	20%	0.82	
5.2 Provide Efficient and Effective Implementation of Integrated Safety, Health and Environment Management	A	3.8	70%	2.66	

ELEMENT	Letter Grade	Numerical Score	Objective Weight	Total Points	Total Points
5.3 Provide Efficient and Effective Waste Management, Minimization, and Pollution Prevention	A-	3.6	10%	0.36	
<b>Performance Goal 5.0 Total</b>					<b>3.84</b>

**Table 16. Goal 5.0 Final Letter Grade**

Total Score	4.3-4.1	4.0-3.8	3.7-3.5	3.4-3.1	3.0-2.8	2.7-2.5	2.4-2.1	2.0-1.8	1.7-1.1	1.0-0.8	0.7-0
Final Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F

**GOAL 6.0 DELIVER EFFICIENT, EFFECTIVE, AND RESPONSIVE BUSINESS SYSTEMS AND RESOURCES THAT ENABLE THE SUCCESSFUL ACHIEVEMENT OF THE LABORATORY MISSION(S)**
Goal Requirement:

The Contractor sustains and enhances core business systems that provide efficient and effective support to Laboratory programs and its mission(s).

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

Measure 6.1.1 Requirement: Effectively track costs against budgets to ensure cost performance.

**TARGET:** Perform monthly variance analysis at WBS level 3 and report on JLab Insight. Develop monthly Estimates at Completion (EACs). Costs and commitments do not exceed available funding in the contract at the cost level of the Program Parent/Control Point in the financial plan at any point during the fiscal year. Monitor JSA Overhead spending and provide information as may be requested to facilitate DOE's lab-wide study of Overhead spending. Routine accounting and budget reports are accurate, timely and complete in accordance with requirements for key activities/deliverables. Budget formulation actions are completed in accordance with guidance and schedules provided.

**NOTEWORTHY ACCOMPLISHMENT**

“JLab sharing financial and performance business system practices with other SC Labs is noted. Also noted is the Lab's timely responsiveness to data calls and request for information. ARRA funding and reporting requirements will be another challenge to meet in the second half of FY 2009.” (DOE Mid Year Performance Feedback)

JSA Performance:

JSA continues to effectively track costs against budgets to ensure cost performance by performing monthly variance analysis and developing monthly Estimates at Completion (EAC). During this performance period, the Lab performed monthly analysis of overhead pools and rate forecasting. Additional activities include submitting the Annual DOE Uncosted Balance Report; distributing continuing resolution budgets to WBSs; loading budgets into AWP; and monitoring Direct and Overhead costs and commitments on a daily basis.

In response to the annual SC Budget Call, the CFO and Budget Office worked with the JSA leadership to prepare the company's presentation and budget spreadsheets to the SC leadership for FY2011. The CFO and

**NOTEWORTHY ACCOMPLISHMENT**

During this performance period, JLab shared several best business practices from numerous aspects of the Lab's business systems with other SC Labs. This included providing data on the JLab Insight (specifically the “Performance” and “Financial” tabs as well as the actual system architecture) and financial management system components including the WBS, AWP and automated system, financial reports, Cost of Doing Business process, etc. The Labs/sites we worked with during this period included PPPL, SLAC, and FNAL as well as INL.

Budget Officer participated in the presentations on February 24, 2009 and follow-up actions from the presentations. Further, the Budget Office has completed the ORO Budget Call to include preparing responses for Information Technology and Safeguards and Security, which were separate activities.

It was also during this period that the CFO Organization assisted in data calls for American Recovery and Reinvestment Act of 2009 (ARRA) initiatives for funding requests to 12 GeV, GPP, AIP, Cyber, SRF and LQCD projects, potentially totaling in excess of \$84 million in advanced and additional funding obligations to JLab in FY09 and FY10. Data calls also included coordination with various representatives from TJSO and ORO as required to assure that financial systems, resources and contract provisions were consistent with ARRA guidance provided from various sources included the DOE OIG.

During this performance period, JSA implemented Electronic Funds Transfer (EFT) in the P-Card billing process. This action is a direct result of the Purchase Card Policies and Procedures audit conducted October 1 – December 31, 2008. Activities conducted to ensure cost performance during the third quarter include: 1) Daily monitoring of Direct and Overhead Costs and Commitments; 2) New projects established to monitor \$80.63M of ARRA funding; 3) Received and processed 8 contract modifications from TJSO; 4) Completed several reports in accordance with guidance received and submitted them to DOE on schedule → Round 1 of Exhibit 53 and Exhibit 300, the FY2011 S&S budget review, and the FY2010 WFO Report.

ARRA reports for 12 GeV, GPP, LQCD and AIP were submitted on time weekly to TJSO. During this period, the Lab supported submission of Field Work Proposals (FWPs) in response to Nuclear Physics Funding Opportunity Announcement (FOA) Number 09-13 for Application of Nuclear Science and Technology May 6, 2009. Six FWPs for \$8.954M were submitted. Also during this period, the Lab supported submission of FWPs in response to Nuclear Physics FOA Number 09-26 Early Career Research Program. Support rendered for FOA 09-26 resulted in submission of seven FWPs totaling \$19.1M. The Lab also responded to Program Announcement LAB 09-24 Topical Collaborations in Nuclear Theory on August 28, 2009 with one FWP totaling \$222K. In addition, the Lab submitted four proposals in response to DOE-HEP FOA PS02-09ER09-05. All FWPs were submitted in a timely fashion into the Searchable FWP system, which facilitated timely approval of all through that system to the requested HQ Office.

#### NOTEWORTHY ACCOMPLISHMENT

“I’d like to recognize your staff for their efforts regarding the Early Career Research Program and associated Lab FWPs. All FWPs were submitted in a timely fashion (9/1) into the Searchable FWP system, and today (9/2) the Site Office has approved and submitted all of these through that system to the requested HQ office. Challenging time requirements are involved with PI interaction, technical assembly, and data entry into the system, in addition to staff trying to maintain their regular workload.”  
(André Bethea, Business Systems Manager, TJSO)

Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure goal by the end of the fiscal year.

Measure 6.1.2 Requirement: Demonstrate an effective financial management system through accurate, timely and complete financial reports to DOE, external reviews, internal and external audits, and self-assessments.

**TARGET:** Accurate, timely and complete financial reports are provided to DOE in accordance with Departmental requirements for key activities/deliverables including accelerated financial statement reporting and other financial data calls. No material/major Management Control Program findings as defined in DOE Order 413.1A Attachment 2. No material/major findings from internal/external audits and/or reviews. Explore improvements to financial system through self-assessment process which takes into account recommendations from internal and external reviews as well as self-identified improvements. Analyze potential financial system

improvements. Recommend and submit cost effective improvements to management for consideration.

JSA Performance:

Results of the Oak Ridge Financial Service Center (ORFSC) Financial Management Review of JSA indicate that Indirect cost pools are homogeneous and have a causal or beneficial relationship to the final cost objective. JSA has effectively implemented corrective actions on three of the four recommendations (Program offices to advise CFO on beneficial occupancy for plant and equipment capitalization, systematic control to ensure commitments do not exceed available funding and policy and procedure for account code manager process) that were identified in the FY2007 FMS review and 2008 follow-up and continues to make progress on the fourth (increase the number of vendors using electronic funds transfer). EFT use by vendors went up from 10% to 59% and employees are at 99%, where payroll is about 60% of the budget.

JLab has completed several ad hoc requests for FY09 budget information during this performance period: 1) Additional funds used for 12 GeV, 2) SC inputs requested on rising power costs, 3) 12GeV new start, no new start scenarios, and 4) a budget call for updating Site Security Plans & Direction re: Use of FS1005 Cyber Security Funds. JLab has also completed inputs for SAF106 Post Retirement Benefits (PRB) data calls to ORO. ORO was delayed until April 16, 2009 in getting the full PRB requirements out. JSA worked with its carrier to satisfy requirements through 9/30/09. Post FY09 requirements will follow, on schedule, in October 09. In addition, 533M monthly reports and quarterly assets reports were accurate, complete, and submitted in a timely manner in accordance with DOE requirements.

JSA CFO organization provided significant support in the conversion to the 401K plan. The Payroll group processed the required changes for all Lab employees. The CFO worked with the management team assigned to coordinate and implement the changes required for this conversion as well. During this reporting period, JLab prepared and responded to information requests on proposed ARRA funding and completed required internal responses to A-123.

Financial Systems improvements during this reporting period included action to mitigate risk through the deactivation of travel cards issued that had no activity or potential for activity. This action was completed during the second quarter and resulted in the closure of 45 travel cards, reducing the Lab's potential credit risk by \$127,000. JLab also implemented an electronic signature approval process for Travel Authorizations and completed transition of the Conference Management Accounting Function from SURA. We are also working with the TJSO on increasing our conference management approval threshold. This procedure update and conference threshold approval request will be completed and submitted to the TJSO by the end of September. JSA is revising its policies to ensure senior level management oversight is adequate to support the threshold increase. Further, we have changed our process for timesheet submissions, which significantly reduced the frequency of late timesheet submissions from an average of 24% of late timesheets each period to 6.3%. Additional financial process improvements in FY09 include updating the Job Related Training (JRT) approval process.

Based on the performance information that has been provided through August 31, 2009, we anticipate exceeding this measure goal by the end of the fiscal year.

**PERFORMANCE CHALLENGE**

The Financial Management Assurance Tool, with the exception of a few pilot sites was originally scheduled to be fully implemented by all sites by October 1, 2009. However, with the implementation of ARRA, the FMA tool, with a focus on ARRA related risks, was rolled out to all sites in May 2009. For all risks identified as being ARRA related, sites were required to perform a risk exposure assessment and for all "High and Medium" exposure risks, identify the mitigating controls, perform the required control testing and assess the effectiveness of the controls, as well as identify, plan, and initiate any necessary remediation activities. The new requirement resulted in additional workload with limited staff resources.

Measure 6.1.3 Requirement: Financial attestations accurately reflect the status of internal controls and are provided in a timely manner.

TARGET: Financial attestations accurately reflect the status of internal controls and are provided in a timely manner. OMB Circular A-123, Appendix A deliverables are provided in a timely manner. In addition, there are no significant financial management internal control weaknesses identified in the annual financial statement audit or OMB Circular A-123, Appendix A internal control assessments.

JSA Performance:

JSA updated the OMB A-123, Appendix A Contractor Implementation Plan in accordance with FY2009 Annual Guidance and forwarded to TJSO on December 18, 2008. In preparing the plan, JSA also updated the DOE A-123 Assessment and Reporting Tool (AART) Suite from v5.1 to v5.2. This update was submitted electronically to TJSO January 16, 2009. The OMB A-123 Appendix A Fiscal Year 2009 1st Quarter Report was also submitted January 16, 2009. The Internal Audit Office was involved in ARRA activities as required to coordinate with the ORO Financial Evaluation and Accountability Division (FEAD) and the DOE OIC to assist in implementing the audit strategy and planning required to assess the processes and internal controls over the use of ARRA funds. OMB A-123, Appendix A Quarterly Report and DOE A-123 Assessment and Reporting Tool Suite submitted to TJSO on April 15th, before the scheduled due date, with no significant financial management internal control weaknesses identified.

JSA completed the testing of process controls on June 30, 2009, and submitted the OMB A-123 Appendix A Fiscal Year 2009 3rd Quarterly Report by July 15, 2009, both of which were performed on schedule. Testing produced no material or significant findings and all test descriptions and test results rationale were input in the AART. Testing did identify that controls over vendor data management in the Payables Management sub-process should be strengthened to mitigate the risk of fictitious vendors or invalid accounts payable. While controls over this process will be remediated, this observation was not material in the overall Local Assessment, since other controls to include proper segregation of duties does exist over the payables management process, and there was no evidence of risk occurrence. In addition, as a result of the implementation of the American Recovery and Reinvestment Act of 2009 (ARRA), JSA was required to document and test controls for ARRA related activities, and to record the results thereof by July 31, 2009, in the Financial Management Assurance (FMA) Tool. There were no deficiencies identified. The controls tested as part of the OMB A-123 Appendix A and FMA reviews, were used to support the assurance statement that was submitted in a timely manner on July 31, 2009.

Based on the performance information that has been provided through August 31, 2009, we anticipate exceeding this measure by the end of the fiscal year.

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

Measure 6.2.1 Requirement: Demonstrate efficacy of the acquisition system through outstanding results on annual performance measures (Procurement Balanced Scorecard) that cover critical aspects of the procurement process.

TARGET: Achieve Procurement Balanced Scorecard Total Score > 89 (“Excellent”)

JSA Performance:

The Procurement Balanced Scorecard total score as of August 31, 2009 is 95 points (FY09 Goal > 89). Results include → Customer Satisfaction = 98.8% (FY09 Goal 92%); Effective Internal Controls = 100% of goals, Effective Supplier Management = 88.8% (FY09 Goal ≥ 84%); and Use of Effective Competition

= 90.0% (FY09 Goal  $\geq$  65%); Corporate Citizenship = 88.0% cumulative score for all goals (FY09 Goal 100% achievement for all goals). Final results will not be available until the end of the fiscal year. Procurement has worked diligently to develop a system to track and report on ARRA funding per DOE's guidance. During this performance period, several processes have been implemented including a complete update of the PCard training program and integration of the tracking and monitoring of results to the JLab Training Office. Additionally, the Procurement Department implemented a new reporting system for monthly PCard statements that will enable PCard Holders to receive monthly bank statements within one working day instead of five working days experienced under the old system. Procurement has also implemented a new secure web-based system to electronically transmit executed subcontracts to vendors in lieu of sending hard copies of the subcontract and attachments. Finally, the Department has completely upgraded its Subcontracting Officer Technical Representative (SOTR) Training Program and is working closely with QA and the Training Office to roll out the new training early FY2010.

Based on performance accomplishments through August 31, 2009 that resulted in a Balanced Scorecard Total Score = 95 ("Outstanding"), we anticipate exceeding our PEMP measure for fiscal year 2009.

Measure 6.2.2 Requirement: Demonstrated efficacy of Small Business Program through goal achievement and effective outreach.

**TARGET:** Achieve All Small Business Goals Established in JLab's Annual Small Business Plan.

JSA Performance:

As of August 31, 2009, JLab is meeting Woman-owned and Disadvantaged Small Business Goals. We are closely tracking performance of our small business achievements and are hopeful that the high volume of end-of-year activity will be sufficient to overcome the adverse and unanticipated impact of ARRA funding on our goals. It is also important to note that JLab anticipated significant impacts on the Small Business Program in FY2009 due to the start of the 12 GeV Upgrade Project and worked actively to mitigate those impacts where possible. Small Business awards through the first 11 months of the fiscal year are as follows: Small Business \$19.2M/32.1% (FY09 Goal \$18.18M/36.0%); Women-Owned \$3.7M/6.2% (FY09 Goal \$2.53M/5.0%); Disadvantaged \$4.4M/7.4% (FY09 Goal \$2.53M/5.0%); Service-Disabled \$1.0M/1.7% (FY09 Goal \$1.0M/2.0%); and HubZone \$1.5M/2.5% (FY09 Goal \$1.52M/3.0%). These were coordinated with TJSO and the DOE Small Business Office. Based on our performance through August 31, 2009, we anticipate achieving our Woman-owned and Disadvantaged Small Business Goals, and are aggressively pursuing all goals with the hopeful expectation that we can overcome the

**NOTEWORTHY ACCOMPLISHMENTS**

During this period Procurement:

- Processed 15 large (> \$.5M) solicitations for 12 GeV and awarded major construction subcontracts for Hall D (\$14.2M) and the CHL extension (\$1.5M).
- Transitioned JLab P-Card program from Bank of America to JP Morgan-Chase bank. Transition required reconciling and closing all BofA accounts and establishing new accounts/P-cards for 122 JLab card holders.
- Completed cross cutting High Performance Work Team (HPWT) facilitated by QA that identified key Subcontracting Officer Technical Representative (SOTR) responsibilities and developed a process diagram that will be utilized by Procurement to upgrade the Lab's SOTR training program.
- Implemented online Procurement customer survey that captures and reports customer satisfaction ratings on vendor performance and procurement responsiveness. The system also documents vendor ESH&Q proficiencies and deficiencies. The new system has significantly improved customer feedback (we have already received 458 responses through 2nd Qtr 2009 vs. 100 for all of FY 2008) and has helped to improve the efficacy of procurement operations.
- Implemented online tracking and reporting system to identify EPEAT (Electronic Product Environmental Assessment Tool) purchases. The reporting system identifies each purchase and documents the level of EPEAT certification. The system allows access to each ADP purchase action to determine level of certification.

**PERFORMANCE CHALLENGE**

Procurement challenges include:

- Coordinating stimulus-funded procurements separate from the Lab's normal procurement process to achieve mission performance as well as small business goals. The stimulus Recovery Act requires special terms and conditions to be flowed down to vendors as well as additional tracking and reporting.
- Updating the Lab's SOTR training program and accomplishing new training based on the outcome of the HPWT discussed above.
- Internal Audit completed a review of the P-Card program that resulted in several notable practices as well as some opportunities for efficiency/improvement. The items for efficiency/improvement are being tracked through CATS and scheduled for completion September 2009.

negative impact of ARRA funding received and meet the majority of our Small Business goals (Hub Zone procurements currently pose the greatest challenge for success.) Also during this period, our Small Business Manager attended the DOE Annual Small Business Conference that also included a small business vendor outreach session (one-on-one match making) with conference/attendees.

### **Objective 6.3 Provide an Efficient, Effective & Responsive Property Management System**

Measure 6.3.1 Requirement: Demonstrate efficacy of the property management system through outstanding results on annual performance measures that cover critical aspects of JLab's personal property management.

TARGET: Annual Property Balanced Composite Score is greater than or equal to 93 points.

#### JSA Performance:

Anticipate Property Balanced Scorecard results for FY09 will be above 99%. Performance results include Property Assignment Accuracy (Equip/Sensitive) equal to 99.98%, Physical Inventory Accuracy - Sensitive Property (Acquisition Value) equal to 99.99%, and Accuracy of Property Acquired with P-Card equal to 99.87%.

Hazardous Material Receiving and Transportation Procedures written were issued. Mail Security plan written with training of mail handlers in Shipping and Receiving (S&R) was completed. S&R Manager and Shipping Specialist completed 49CFR required IATA training and Census Bureau Automated Export System training. Three property staff completed NPMA training. In addition, NPMA Quinquennial Re-Certification requirements for "Certified Professional Property Manager" were completed by the Lab's Property Manager, Tom Briggs.

Property sales generated during this performance period in the amount of \$42,588. Jefferson Lab recycled 163,249 pounds of scrap metal, 30,000 pounds of lead and 8,800 pounds scrap ADPE. Reutilization -- incoming \$155,689 and outgoing \$82,950.

The annual property custodian validation process was conducted March 23 – April 6, 2009. New processes this year include key validation and each custodian was asked to state the general condition of their assigned property as “good”, “fair” or “poor”. Custodian validation generated 12 missing item reports. Annual inventory covered 20% of custodians; sampled 1,140 items and all but one were located. Over 50% reduction in items has been reported between FY07 and FY08 in the Missing, Lost & Damage annual report to DOE.

#### PERFORMANCE CHALLENGE

“Laboratory needs to continue its efforts to maintain awareness/visibility of custodial responsibilities for all employees.” (FY09 DOE 1st Quarter Performance Feedback)

STATUS: Updated Property Custodian Annual Training; Issued All Staff notification on property validation March 20, 2009.

The 53rd Materials Management Workshop was held at JLab on June 2 – 4, 2009. The workshop provided materials management personnel working for DOE, DOE contractors and NNSA an opportunity to meet and exchange ideas, address common problems, and expand the knowledge base for all attendees that are associated with materials management functions.

Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

### **Objective 6.4 Provide an Efficient, Effective & Responsive Human Resources Management System**

Measure 6.4.1 Requirement: Balanced Score Card Results Based on the Following:

A. Measure 1- Diversity - Protected Class Representation: Representation of protected classes (PC) within each EEO-1 category at the end of the fiscal year compared to the beginning of the fiscal year (adjusted for voluntary separations).

Measurement:

PC Assessment Factor =  $\frac{\% \text{ of PC to total workforce at the end of FY within each EEO-1 category}}{\% \text{ of PC to total workforce at the beginning of FY within each EEO-1 category}}$  where:

Meets Expectations = Achieve availability or increase representation in 85% or more of the EEO categories.

B. Measure 2 – Continuous Improvement – A review of HR systems/processes as demonstrated through annual self-assessment. HR will complete an initial self-assessment by way of a one page summary. Through this process, HR will identify 1 or 2 major HR systems/processes and assess baseline standards or requirements. Upon completion, HR will evaluate systems/processes and take necessary steps to enhance or streamline.

Measurement: For FY09, the HR Department will revamp the job classification matrix. This will allow employees and management a more thorough understanding of the requirements for career pathing and promotions.

Meets Expectations = Complete analysis, focus groups and implementation with 3 out of 3 job classification matrices.

C. Measure 3 – Learning and Growth – Supervisors will attend two management development courses within the first year of assuming a supervisory level position. HR will review surveys completed by participants to assess effectiveness of material.

Meets Expectations = 90% of supervisors complete two training courses.

D. Measure 4 - Retention of Talent - Attrition Rate of Top Performers.

Measurement: Percentage of top performers (employees who receive the top two performance ratings) who voluntarily separate from the Laboratory.

Note: Excludes involuntary terminations due to funding issues, restructuring or contractor turnover. Excludes voluntary terminations due to retirement, or participation in a voluntary separation program or early retirement program.

Compared to industry average:

Meets Expectations =  $\leq 10\%$  above industry average of BLS

\*BLS data from voluntary separation/attrition\*

E. Measure 5- Recruitment - Quality of Hire – Facilitate the new employee selection process to assure a continued world-class workforce.

Measurement: Combined average score of all Quality of Hire questionnaires completed by hiring managers within the first 6 months of employment.

Meets Expectations = 3.5 (on a scale of 1-5)

## F. Measure 6 – Recruitment – Quality of Hires

Measurement: The first performance review for all new hires will receive a rating of 3 or above.

Meets Expectations = 75% of all new hires receive a score of 3 or above (on a scale of 1 – 5)

## G. Measure 7 – Attrition Rate of New Hires

Measurement: Attrition rate will be less than or equal to 10% annualized for new employees hired within FY09 (Term employees who leave at the end of their term are not counted in this measure).

Note: Measure will be annualized for first 3 quarters, final reporting is actual annual rate.

Meets Expectations = Number of employees hired during FY09 that terminate / Number of employees hired during FY09 =  $\leq 10\%$

TARGET: 6 of 7 BSC Measures Meet Expectations and demonstrates improvement to human resources management through self-assessment process which takes into account recommendations from internal and external reviews as well as self-identified improvements.

JSA Performance:

Measure 1 – Diversity: Achieve Availability or Increase Representation in at least 85% of EEO Categories

FYTD = 80%; Diversity is an area we continually assess and are mindful of the need to strike a balance pertaining to metric attainment and selectively hiring for critical positions related to or in support of 12 GeV. Thus far in the fourth quarter, JSA has maintained an 80% representation in the EEO categories, meeting 16 out of 20 categories. The Lab is currently underrepresented in four occupational categories (officials, managers, engineers, and skilled trades). This measure will be evaluated at the end of September and it is feasible that achievement of the goal could occur when factoring in remaining year end activities (hiring, attrition).

Measure 2 – Continuous Improvement: Complete analysis, focus groups and implementation with 3 of 3 job classification matrices

The current classification matrices were last updated in 2000. HR has completed a self assessment of the 3 job classification matrices (Skilled Trades, Technicians & Constructive/Facilities Support). A thorough review and re-examination provides both employees and managers the ability to understand the requisite skills needed to build sustainable career paths. During the fourth quarter, HR formed committees to review the 3 job classification matrices (Skilled Trades, Technicians, and Construction/Facilities Support) and met with the groups. At this point, we are 60% complete with the activities required to complete the implementation of the job classification matrices. This measure will be completed and implemented by the end of the fiscal year.

Measure 3 – Learning and Growth: 90% of supervisors complete two training courses

As of August 31, 2009, 80% of the required training had been completed by the five newly promoted supervisors. It is expected that all supervisors will attend and complete the designated remaining course by the end of Q4.

Measure 4 – Retention of Talent: % of Top Performers Who Voluntarily Separate  $\leq 10\%$  Industry, Average of BLS

FYTD = 2.79% (within 10% of industry average). The Lab identified a total of 466 top performers. Thus far in the fourth quarter the Lab has had 4 employees leave the Lab that were classified as top performers. The cumulative attrition rate is at 2.79% with a total of 13 top performers leaving the Lab as of August 31, 2009. The BLS data used to track this metric is reported on a quarterly basis and therefore is a fluid metric. For the end of the fourth quarter, the BLS industry average is 22.5%. Based on this trajectory, we are in a position to meet this goal at the end of the fiscal year.

Measure 5 - Recruitment: Quality of Hire - Average Score of Questionnaires = 3.5 (on scale of 1-5)

FYTD average = 3.5 is cumulative score; A total of 18 employees achieved the six month anniversary milestone with the Lab during the fourth quarter. The majority of the surveys have been completed by management at this time and the overall average score on the quality of the hire is 3.4 for the fourth quarter. Based on the data we have collected thus far, we expect the goal will be met. We continue to use this as a vehicle to coach managers as appropriate and proactively identify those employees whose performance may be less than desired at this point and work to put measures in place to correct.

Measure 6 - Recruitment: Quality of Hires - 1st Performance Review for New Hires Receive Rating of  $\geq 3$  = 75% or Above

Current = Performance reviews scheduled for the end of the fiscal year.

Measure 7 - Attrition: Attrition Rate of Employees Hired in FY09  $\leq 10\%$

FYTD = 3.2%; Annualize for the assessed quarter thus far, 2 employees have left the Lab within one year of their date of hire (7/1/08-09/30/09). This is a rate of 2.7% for the quarter. The cumulative attrition rate for the year is 3.2% as of August 31, 2009. The total number of new hires this data is based upon is 126 (from 10/1/08-09/30/09). We expect that we will be within the desired percentage at the end of the year to meet this measure.

Additional Human Resources activity during this performance reporting period includes:

**401(k) Conversion:** HR and JLab management worked to ensure a seamless transition to the 401(k) plan. This effort was very sensitive and time intensive and consumed a large fraction of effort and activity during the first quarter. All activities related to this project were completed on time while minimizing impacts to Lab employees.

#### PERFORMANCE CHALLENGE

“Progress on meeting balanced scorecard measures is noted, but is only part of the meeting expectations for this objective. The Laboratory should continue to highlight the improvements to human resources management through their self assessment processes. A good example is the improved Employee Concerns Program initiated in response to an internal review. JLab should address results from these initiatives in future reports and the benefits gained. DOE remains interested in what drives improvements and outcomes from making changes.” (DOE Mid-Year Performance Feedback)

#### NOTEWORTHY ACCOMPLISHMENTS

**Co-Op Proposal Approved:** HR submitted a proposal to secure lodging funds in support of a student Co-Op Program through the JSA Initiatives Fund. During November, the department was notified that funding in support of the program was approved. This program will enhance recruiting and retention activities for hard-to-fill positions and build a pipeline of talent. Coordination and program approval with TJSO occurred during the 3rd quarter.

**JLab Women in Science Committee Formed:** During the 2nd quarter, JLab hosted its first Women in Science & Engineering Committee to engage in preliminary discussions about recruitment and retention of women in these disciplines. The turnout from staff and users was good and the meeting well received. Quarterly or Bi-Annual meetings are scheduled going forward to address or explore areas of interest. A fall workshop for employees and users is scheduled to highlight topics briefly discussed in previous meetings.

**Business Partner with the New Horizons Regional Education Center in support of The Governor’s Academy for Innovation, Technology and Engineering (GAITE):** This program is new to the state and targeted at the development of Electrical Engineering Technology and Mechanical Engineering Technology students in high school. The program allows students to earn college credits and provides local industry exposure for possible career paths upon graduation from local business partners.

**Partnership with VA Tech Extern Program:** Targets undergraduate students with job shadowing opportunities related to their major. This program lends itself to possible Co-Op opportunities or internships in the future.

**Employee Recognition:** The Lab fully implemented an Employee Excellence Program designed to recognize those employees whose contributions have gone significantly above and beyond their normal job duties in achieving a major performance accomplishment for their group, department or the Lab.

**Attended 2009 National Black Physicists Diversity Conference:** JLab was represented at the National Black Physicists Diversity Conference held in Nashville, TN in February. The conference was well attended; networking opportunities and recruitment activities were a priority.

**Employee Concerns Program (ECP) Assessment:** In February the Oak Ridge Office Diversity Programs completed an assessment of the Lab's ECP. It was determined the Lab had a strong employee concern program in place and there were no findings. The Lab's tool for reporting concerns, EthicsPoint, was noted as a positive attribute. Improvements to the Employee Concerns Program (ECP) have resulted in employees, users, and others utilizing the program as a tool to escalate concerns on matters they deem important.

**Awards and Prizes Task Force Committee Highlights:** 1) The new interactive web page went live, providing a resource for JLab supervisors to easily identify awards for which their employees are eligible. The site also has up to date information on JLab staff who have won awards to increase the visibility of these accomplishments; 2) As noted in Objective 1.1, members of the Detector and Imaging Group who worked on development of the technology for breast-specific gamma imaging was honored by the Federal Laboratory Consortium with an Excellence in Technology Transfer Award; and 3) A member of the Theory Group was awarded an Outstanding Junior Investigator Award for his research project Multi-Meson Systems in Lattice QCD.

**VA Tech Extern Program:** A partnership was established during the second quarter with the VA Tech Extern Program to provide undergraduate students an opportunity to shadow JLab employees and to learn more about the Lab and the associated research activities. During the third quarter, three students participated in this program. JLab plans to continue participation during the next school year.

Based on the performance information that has been provided through August 31, 2009, we anticipate exceeding this measure goal by the end of the fiscal year.

### **Objective 6.5 Provide Efficient, Effective, and Responsive Management Systems for Internal Audit and Oversight; Quality; Information Management; and Other Administrative Support Services as Appropriate**

**Measure 6.5.1 Requirement:** Oversight Through Internal Audit - Internal audits completed in accordance with annual audit plan.

**TARGET:** Complete all audits in accordance with annual audit plan (Notes 1, 2, 3)

*1 – Includes audit plan changes and/or substitutes.*

*2 – For Performance Level purposes, all current year audits (excluding Transaction Testing) are targeted for a report release date no later than 90 days after the close of the fiscal year, unless extenuating circumstances can be established. The Transaction Testing audit for Performance Level purposes is targeted for a report release date no later than 180 days after the close of the fiscal year, unless extenuating circumstances can be established.*

*3 – Percentage of completion will be utilized where practical including requests for other than annual reporting, e.g., mid-year.*

**JSA Performance:**

Internal Audits scheduled for this performance period were conducted in accordance with the annual audit plan. Based on the performance information that has been provided through September 2, 2009, we anticipate exceeding this measure by the end of the fiscal year.

AUDIT	SCHEDULED	CONDUCTED
Transaction Testing FY2008	1st Quarter	September 23 – December 22, 2008
Purchase Card Policies and Procedures	1st Quarter	October 7, 2008 – January 9, 2009
Contract Management Requirements	2nd Quarter	January 27 – March 30, 2009
ARRA Budget Execution Process Review*	3rd Quarter	April 28 – June 24, 2009
Cost Accruals	4th Quarter	August 20, 2009 – Current (On Schedule)
Follow Up Reviews FY2008: Property Management Fraud and Prevention Awareness	4th Quarter	September 2, 2009 – Current (On Schedule)
ARRA Subcontract Review *	4th Quarter FY09 – 1st Quarter FY10	On Schedule

\*These unscheduled joint reviews, led by the Oak Ridge Financial Evaluation and Accountability Division, were/are being performed in addition to the regularly scheduled audit plan.

**Purchase Card Policies and Procedures:** During the review of Purchase Card Policies and Procedures, there were some purchase card practices which JSA Internal Audit deemed to be notable practices as follows:

- Purchase Card process is well defined, monitored & executed
- Use of technology to streamline program
- Electronic log used to record purchases of recycled content products to support the DOE Affirmative Procurement Program.
- Cardholders are required to obtain training and pass a computerized test with an acceptable score of 80% or higher. Refresher training is required every two years.
- 100% of all cardholder purchases are reviewed by someone other than cardholder.

**Contract Management Requirements:** It was noted by JSA Internal Audit that during the course of the review for Contract Management Requirements, that the value analysis high performance work team approach used to conduct the workshop to evaluate the contract requirements was conducted to the highest industry standards, and the results thereof, were exceptionally well documented.

**Purchase Card Policies and Procedures:** In an effort to enhance process efficiency and keep training records centrally controlled, the training and testing function of the Purchase Card Program will be transferred from the Organization Program Coordinator (OPC), who manually tracks the due dates for cardholder refresher training, to the Training and Development Center, which uses automation to track training requirements. The OPC will develop the training material and testing criteria, which will then be hosted and monitored by the Jefferson Lab Training Department. In addition, payments made to the bank for Jefferson Lab Purchase Card purchases are processed using the traditional method of issuing a check for payment, which can be a more resource intensive method of payment processing. To enhance the efficiency and effectiveness of payment processing, the Accounts Payable Department will initiate Electronic Funds Transfers to process purchase card payments. For all Purchase Card purchases that require the cardholder to obtain additional approval(s) prior to making a purchase, the Procurement Card

Program is implementing changes to ensure the required approvals are documented in writing and maintained with the reconciled supporting documentation for the purchase.

**ARRA Budget Execution Process Review:** The review found that JSA funds control system has processes in place to adequately manage ARRA funds. The funds control system identifies and tracks ARRA funding separately from other funding sources. In addition, the review verified that commitments were properly approved, authorized, and in line with the intended purpose of the projects.

**Cost Accrual Audit:** Originally scheduled for the third quarter, this was delayed due to an unscheduled joint review of the Budget Execution Process associated with ARRA funding, which was led by the Oak Ridge Financial Evaluation and Accountability Division and performed simultaneously with other major contractors operating DOE facilities.

Measure 6.5.2 Requirement: Monitor/Maintain a Quality Improvement Plan

TARGET: Effectiveness reviews of the procedures identified in the 2007 QAP will be scheduled for review over the next three years. In FY09, at least four reviews will be conducted with corresponding written reports posted on the QA group's webpage.

JSA Performance:

There were 10 procedures identified for Effectiveness Reviews in the FY07 QAP and four reviews are scheduled for FY09. All four were completed as scheduled. Three of the reports are posted on the ESH&Q webpage. The fourth report has been drafted and is undergoing factual accuracy review. It is expected to be posted by September 30, 2009. All four reviews indicated that the procedures were being implemented and were effective. Of particular note is the independent review performed of our Operating Experience, Feedback and Lessons Learned program. The reviewers were quite complimentary of our program, providing only recommendations for continuous improvement, most of which had already been identified. Details are as follows:

FY09 Reviews – QAP Procedures	Review Completed	Report Posted	Web Link
Auditor/ Assessor Qualification	11/14/08	1/15/09	<a href="https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-21131/IA-2009-02.pdf">https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-21131/IA-2009-02.pdf</a>
Training & Qualification Policy Implementation	1/30/09	3/19/09	<a href="https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-21757/IA-2009-003.pdf">https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-21757/IA-2009-003.pdf</a>
Procurement Operations Manual	2/4/09	8/21/09	<a href="https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-23318/Procurement%20operations%20manual%20effectiveness%20review%20complete%20IA%20signed.pdf">https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-23318/Procurement%20operations%20manual%20effectiveness%20review%20complete%20IA%20signed.pdf</a>
Management of Contract Requirements	3/30/09	4/27/09	<a href="https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-21997/JSA%20IA-09-02.pdf">https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-21997/JSA%20IA-09-02.pdf</a>

Independent Assessment	4/9/09	6/10/09	<a href="https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-22600/Final%20Independent%20Assessment%20Procedure%20effectiveness%20MSA%20report.pdf">https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-22600/Final%20Independent%20Assessment%20Procedure%20effectiveness%20MSA%20report.pdf</a>
Operating Experience, Feedback and Lessons Learned Program	7/27/09	Expected 9/30/09	TBD

In addition to the effectiveness reviews identified for this PEMP, the Independent Audit group conducted an audit of our Requirements Management procedure. Although this was a detailed audit, it was a thorough test of the procedure and process for effectiveness. The report indicated that this process was effective for managing the process of analyzing proposed contractual requirements and developing implementation plans.

In FY09, Jefferson Lab revised its Quality Assurance Plan, merging it with our Contractor Assurance Program Description. The Assurance Program Description was submitted to TJSO for approval. The Program Description was approved after addressing a small number of issues.

Jefferson Lab continued to develop procedures to support our Assurance Program. These included:

- Unreviewed Safety Issues Process. This process was completed and released in May 2009. Training is ongoing and expected to be completed by November 2009.
- Trend Analysis. This process was revised to meet Lab and DOE expectations as well as conform to current practices. The revision was released and training held in May 2009.
- Analysis of Data. The draft is complete and the technical review has been scheduled.
- Continuous Improvement. The draft is complete and the technical review has been scheduled.
- Quality Improvement. The draft is complete and the technical review has been scheduled.
- Preservation of Product. This procedure detail is covered in the Property Manual.
- Software Control. The draft is near complete. We are continuing to work with procedure owners. We are expecting the document(s) to be complete between the end of this month and 1st quarter FY10. A copy of the document is available should TJSO wish to see progress.
- Equipment Design (Conduct of Engineering manual). Thirty-five percent of the document is ready for review and comment; 15% Initial Draft; 50% Concept/Outline; Due to 12 GeV priorities and budgetary constraints, development on this document has been delayed. An extension until the end of FY11 was sought and granted.

There were several High Performance Work Team (HPWT) workshops completed during FY09:

- The development of the Corrective Action Plan in response to the four findings from the DOE HSS assessment was conducted as four separate HPWT. This allowed us to bring all the stakeholders to the table to analyze the issue and propose a stronger path forward.
- The Subcontractor Officer Technical Representative (SOTR) Training workshop concluded on November 19, 2008. The purpose of this workshop was to ensure that all SOTR's associated with the 12 GeV project have been adequately trained about the expectations associated with this function. Significant benefits of the workshop include increased communications and an understanding of what should be considered for improving SOTR training materials. HPWT efforts

also resulted in a completed business process function model using the Value Methodology Function Analysis System Technique (FAST).

- The 12 GeV ESH&Q Communications HPWT was conducted to determine issues, concerns, and actions needed to improve ESH&Q communications with the 12 GeV project. The workshop provided clarification on many key issues and concerns of the 12 GeV project and concluded with positive feedback from all team members.
- The Engineering Business Process HPWT workshop concluded by completing the Engineering Business Process Model and meeting all the objectives outlined in the scope statement. The Model depicts the ISM core functions mapped to the diagram and will be used for developing the Conduct of Engineering Manual; the final draft has been created and the final draft is scheduled for completion by the end of FY09.
- A Calibration HWPT was convened to determine the scope of the Lab's calibration needs, specifically the types of equipment requiring ongoing calibration and tracking, as well as a process to successfully sustain such a program. Feedback was received from representatives of each division. Based on this information and the agreed upon process, the Lab is benchmarking other facilities and DOE subject matter experts for costs and overall implementation strategies.
- An HPWT on the Streamlining of Safety Data was conducted to in order to determine better methods of using, analyzing and acting on the Lab's multiple sources of safety data, including Safety Warden findings, CATS items, Safety Observations and the Facilities Work Request System. Representatives from MIS and each of the major Safety data provider divisions provided input and feedback, with the final recommendation of integrating outputs of these multiple systems into CATS. This solution would further define CATS as the site's Issue Management System. An MIS solution is currently being beta tested and is expected to be in place by March 2010.
- A HPWT to determine the implementation plan to transition the 3D ME CAD Software from I-DEAS to Next Generation NX was completed. A team presentation was made to management for concurrence of the options and implementation plan approach. The objects cited in the Scope Statement sheet were met. Obtained positive feedback from the team regarding the facilitation and results of the event.
- Facilities completed a required CD-2 Value Engineering study for the TEDF Facility.
- A number of HWPT have been proposed and are expected to go forward in FY10. These include a Value Engineering Study for Cryomodules, and configuration control.

In an effort to identify improvements to our Assurance Program, benchmarking was performed for several QA related areas. The primary sources for benchmarking were Pacific Northwest National Laboratory and Parsons Engineering. Parsons Engineering performs a significant amount of work for DOE and DOD. Benchmarking information was also obtained from consultation with TechnoGeneralServices (TGS). TGS serves as a Mentor Protégé under the JSA contract and is a professional services provider with significant DOE QA and Engineering expertise. The information gleaned will be used to validate and improve procedures as they related to Jefferson Lab programs and operations. Areas explored included:

- Supplier Evaluation & Qualification
- Procedures
- Pressure Systems QA
- Material re-certification/re-utilization

As DOE Order 414.1C was only recently placed into our contract, once the formal Assurance Program was established, support to the organizations to implement the Assurance Program and supporting procedures has been the next step of implementation. As part of its Quality Improvement Plan, ESH&Q met with divisional representatives to discuss strategic QA objectives for 2009. Plans for FY10 include

developing an orientation to the Lab's Assurance Program. Several opportunities surfaced which QA/CI is now supporting:

- Notable Event Critique and Analysis
  - ESH&Q supported each Notable Event reported by providing personnel trained in causal analysis to help the investigation team analyze the cause and scope of condition. As a result investigations are becoming more thorough and focusing on causal factors. Additional ESH&Q staff will be trained in the Tap Root Casual Analysis process, as well as human performance improvement to further improve these investigations.
- SRF QA Programs:
  - QA/CI embarked on dedicated support to SRF to support their QA Program implementation. A senior ESH&Q QA/CI resource has been assigned 60% of the time. This effort is to help with production process improvements in anticipation of additional fabrication/manufacturing workload. This effort is also anticipated to support the site wide goal to obtain ISO 9001-2008 certification in the next two years.
- Accelerator Operational & Efficiency Analysis:
  - QA/CI has initiated a Six Sigma statistical analysis project to review and analyze Accelerator performance data. Phase I was complete to review an initial set of data shared from Accelerator Operations. Phase II is proceeding working with a full set of historical data.
- Material Re-utilization:
  - A value analysis was complete and presented to management to consider re-utilizing approximately \$1M in unidentified materials for certified pressure systems applications. Preliminary potential net savings or cost avoidance is expected to be about \$750K. The plan was approved and moving into the next phase. QA/CI, facilities management as well as other divisional representatives will be moving forward with the project during FY10.
- Site Wide Document Management/Control:
  - With the Assurance Program and supporting procedures, and the ES&H Manual overhaul well underway, QA/CI is supporting the CFO and HR organizations as they begin to gather their policy and procedure documents to convert them into a PDFs and post them to Docushare.
- Mission Readiness Review Process:
  - At the request of senior lab management, a QA/CI resource has been assigned to work with the Lab's Facilities and Logistics Management (FML) Division to develop and implement an infrastructure planning process. While a primary goal of this effort is to prepare for the Lab's Mission Readiness Review in May, 2010, another expected outcome of this effort is a process and tools for senior lab management to better forecast, prioritize and plan for the expenditures required to maintain the Lab's position as a premier Nuclear Physics Research facility.
- Stop Work and Restart Process:
  - At the request of the Engineering Manager, a QA/CI resource has been assigned to work with the Lab's Engineering and Accelerator Divisions to develop a more robust process for restarting work after a Stop Work event has occurred. This process is expected to provide a clearer process in terms of both communication and documentation. This process will be released in FY10.

TJSO conducted a Quality Assurance Program Assessment April 13 – 16, 2009 and the outcome represents a significant milestone and progress toward successful implementation of the Lab's Assurance Program. The program was found to be programmatically compliant; with eight of ten criteria were met, two were partially met. Corrective actions have been developed and implemented for the few findings that were identified.

Based on the performance information that has been provided through August 31, 2009, we anticipate exceeding this measure by the end of the fiscal year.

Measure 6.5.3 Requirement: Deliver an integrated efficient and effective Information Technology Architecture that supports the mission of the Laboratory and benchmarks favorably with respect with other DOE laboratories, research universities and commercial industry best practices.

**TARGET:** Meet those recommendations from the FY2007 IT External Review Committee (including more formal project analysis and tracking) that the IT Steering Committee identifies for FY09 implementation commensurate with the Appropriations Budget. Include appropriate benchmarks in meeting the recommendations.

JSA Performance:

FY07 recommendations identified by the IT Steering Committee were deferred from FY2008 to FY2009 due to the budget appropriation. The following activities occurred during this performance period:

- Development of an IT Strategic Plan Driven by Lab Priorities Tied to AWP Process.

**STATUS:** IT plans have been organized by Lab priority and included in the Baseline Improvement Activities (BIA); unfunded IT priorities are now being tracked as part of the AWP process.

- Obtain Certifications for Those Who Work On/With Specific Systems.

**STATUS:** IT staff received certifications from VMware, Red Hat, and SANS

- Software Controls

**STATUS:** An initiative was launched to evaluate and document current software risks and mitigations associated with software applications. This pilot effort, which is in its infancy stage, plans to be commensurate with the identified and updated risks of the Laboratory.

- Scientific Computing.

**STATUS:** Updated farm usage reports and plans for the next LQCD cluster and farm upgrade based on the newly anticipated budgets for FY2009/2010. The data in the old silo was successfully migrated to the new silo with a resultant significant cost savings for tapes. The Lab was awarded a \$5M ARRA LQCD project based in large part on the demonstrated capabilities of the Lab.

- MIS.

**STATUS:** Launched and completed a project to update the identification and evaluation of systems that store and transfer PII.

- CNI.

**STATUS:** Provided DOE with POA&Ms on ARRA funding for SC Cyber Security Enhancements. The ARRA funding, however, did not materialize. Provided the IT Steering Committee with reports on email migration impacts and staffing plans based on expected funding. Status updates were also given to the committee on projects wireless network enhancements, Voice over IP evaluations, and planned upgrades to the CAD environment.

**NOTEWORTHY ACCOMPLISHMENT**

An automated database for notification and subsequent tracking of potential Suspect/Counterfeit items was implemented on November 26, 2008. Tracking and response coordination previously averaged four hours per item; the new system eliminates manual tracking/coordination and is projected to average 30 minutes per item.

**PERFORMANCE CHALLENGE**

“Planning and priority steps in relation to IT recommendations for the rating period need to be confirmed by the Site Office.” (FY09 DOE 1<sup>st</sup> Quarter Feedback)

**STATUS:** An overview to the Site Office was provided during Q1 and documentation was provided for confirmation purposes during Q3.

**FY09 STIMULUS FUNDING**

JLab was awarded a \$5M ARRA LQCD project based in large part on the demonstrated capabilities of the Lab.

- Pager Service Provider Cutoff Issues.

STATUS: Extended the pager contract with the previous vendor for through December 31, 2009 because the new vendor was unable to deliver adequate service on time.

The following activities were conducted during this performance period: 1) Continued progress to evaluate and document current software QA mitigations based on risks associated with software applications; and 2) Completed a survey of business systems and updating identification of systems containing PII. Based on the performance information that has been provided through September 9, 2009 we anticipate exceeding this measure by the end of the fiscal year.

### **Objective 6.6 Demonstrate Effective Transfer of Technology and Commercialization of Intellectual Assets**

Objective Requirement: The effectiveness of Technology Transfer activities at Jefferson Lab can be measured by three specific measures listed below.

Measure 6.6.1 Requirement: The proper stewardship of intellectual assets and Laboratory owned or originated technology as measured by Invention Disclosures and Patent Applications. Intellectual Property Stewardship as indicated by the annual number of Invention Disclosures and/or Patents awarded.

TARGET: Number of Invention Disclosures Greater than or Equal to 8 and Number of Patents Awarded Greater than or Equal to 3

#### JSA Performance:

For the third fiscal year in a row, Jefferson Lab has surpassed the performance goals established for Invention Disclosures and Patents Awarded. During this performance period, there were a total of nine Invention Disclosures and four Patents Awarded. Based on these statistics, the Lab's performance has exceeded expectations for FY09, one month before the end of the fiscal year. Listed below are the Invention Disclosures and Patents Awarded as of August 31, 2009:

#### INVENTION DISCLOSURES (9):

**ID#1250:** *The Use of High Power Lasers with Targeted Energies to Provide Efficient Release of Naturally Occurring Oils and Tars* – invented by Joan Thomas and disclosed October 13, 2008.

**ID#1251:** *Active Collimator for High Energy Photon Detection and Imaging* invented by Andrew Weisenberger – disclosed 03/06/2009.

**ID#1252:** *UHV Copper Gasket Removal Tool* invented by Frederick Guy Wilson – disclosed 02/20/2009.

**ID #1253:** *Fast Growth of Long Boron Nitride Nanotubes and Yarns* invented by Michael W. Smith (NASA) and Kevin C. Jordan, Cheol Park (NIA) – disclosed 03/10/2009.

**ID#1254:** *Highly Conductive Alumina Metallization* invented by Thomas Elliott – disclosed 02/09/2009

**ID#1255:** *High Performance Ingot Niobium Electrodes for DC Guns* invented by Ganapati Rao Myneni and Ken Surles-Law – disclosed 03/27/2009.

**ID#1256:** *Apparatus and Process for Passivating SRF Cavity* invented by Ganapati Myneni, Gianluigi Ciovati – disclosed April 1, 2009.

**ID#1257:** *Cryopumped Electron Guns* invented by Ganapati Myneni, Andrew Hutton, George Biallas – disclosed April 8, 2009.

**ID#1258:** *Unbalanced Field RF Gun* invented by Alicia Hofler – disclosed 08/21/2009.

**ID#1259:** *Dynamical Magnetic Shield Against High Axial Magnetic Fields* invented by Vitaly Baturin and E. Pasyuk – disclosed 08/24/2009.

## PATENTS AWARDED (4):

**U.S. Patent No. 7,444,009 B1** issued October 28, 2008. *Method to Improve Cancerous Lesion Detection Sensitivity in a Dedicated Dual-Head Scintimammography System* – D. Keiper, S. Majewski, B. Welch

**U.S. Patent No. 7,471,052 B2** issued December 30, 2008: *Cryogenic Vacuum RF Feedthrough Device* – Genfa Wu, Harry Lawrence Phillips

**U.S. Patent No. 7,499,476 B1** issued March 3, 2009: *Compact Two-Beam Push-Pull Free Electron Laser* – Andrew Hutton

**U.S. Patent No. 7,540,502 B1** issued June 2, 2009: *Serpentine Metal Gasket*

The Patent Award ceremony for FY2007 and FY2008 recipients was held on March 19, 2009. During this performance period, JLab was invited to speak with a group of inventors and small businesses at the Virginia Inventors Forum meeting on May 12, 2009 regarding technology transfer/licensing between inventors, small businesses, and JLab. This is a non-profit organization of inventors, small businesses, professionals, and others who seek to educate and help inventors understand, protect, and commercialize/license their technology.

On July 30, 2009, the Lab's CIO/CTO and the CFO met with JSA Board/Operations Committee Members Dr. Jerry Draayer and Gen. John Gordon, and others to include the JSA Secretary and Legal Counsel to review the Lab's Technology Transfer program. The presentation included topics on Technology Transfer Scope, Contract Metrics, IP Processing and Technology Transfer Vehicles, Royalties and Revenues Use, Secretary's Goals Lab Goals and Opportunities and a Discussion on Path Forward for the Lab to increase its performance in Technology Transfer and Assistance that the Board and Committees may be able to provide to help in meeting Lab objectives. In follow-up to the meeting, the Lab is developing a Plan which will include areas where the Committee Members and the Board can add support to enhance the Lab's Technology Transfer Program.

Measure 6.6.2 Requirement: The market impacts created/generated as a result of technology transfer and deployment activities as measured by licenses and/or options agreements executed.

TARGET: 2 licenses awarded or 2 option agreements executed or any combination of license and option agreements executed equal to 2.

JSA Performance:

Based on the performance information that has been provided through August 31, 2009, JSA/Jefferson Lab has met expectations for FY09, one month before the end of the fiscal year. Two licenses were negotiated during this period. JSA completed a Joint Ownership Agreement with Hampton University to license jointly held technology to Dillon Technologies, Inc. The Dillon License Agreement was successfully negotiated as a result. We also completed negotiations with Communications & Power Industries, Inc for a non-exclusive license of JSA's RF Feedthrough device; this is the third license related to this technology.

Ongoing Tech Transfer Initiatives are listed below:

JSA presented a License Term Sheet to FalSar for its PET and Optical Tissue Sample Imager. JSA is awaiting FalSar's initial response. In addition, JSA is currently negotiating a license agreement with Niowave for both its background intellectual property and any future intellectual property rights related to Niowave's utilization of JSA's pending U.S. Patent application in Niowave's STTR award; these negotiations are ongoing and should be completed by early FY2010.

Measure 6.6.3 Requirement: Contributions to the transfer of Laboratory originated knowledge and technology as measured by customer assessments. Points will be awarded based on the customer's overall

adjectival rating of the system.

TARGET: Annual Customer Rating = “Excellent”

JSA Performance:

The Survey was forwarded to 14 customers in FY09. Due to acceleration of this report to meet the PEMP deadline, we have only received four responses at this time but expect to receive more. The average score for the responses received to date is 3.8, which is nearly Excellent. We anticipate additional responses to the Survey and to meet or exceed the requirements to obtain an “Excellent” rating. In addition to the scores, survey responders have provided comments to support an “Excellent” rating and have also provided comments that we can focus on areas for improvement. For example:

In support of Excellent Rating:

- "JLab personnel (including legal) were totally AWESOME!!! "
- "Keep doing what you are doing. The CRADA has been a very good experience for Us"
- "Technical reporting is excellent."

Opportunities for Improvement:

- "The problem lies with DOE HQ Legal...FAR FAR FAR too long to put a relatively simple agreement in place. It's NOT the way to run a railroad let alone a high tech R&D Lab."
- "Put pressure on the chief scientific person that I've worked with at Jefferson Lab to be more professional and more responsible in meeting the delivery terms of the contract."
- "Need timely billing information. A monthly financial report would help a lot. [I]nvoices reach us many weeks later through Oak Ridge causing exceptional difficulties with our sponsor and potential loss of funding."

During this performance period, 11 companies requested letters of support from Jefferson Lab in response to a DOE SBIR/STTR request for proposals. Several of the companies submitted multiple proposals, including one company that submitted six. Jefferson Lab responded by sending out twenty-six individually tailored letters before the deadline of November 20, 2008. On February 10, 2009, Jefferson Lab's Technology Review Committee conducted a one-day proposal writing workshop for Lab staff and Users that was geared towards proposal writing for Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) grants. Feedback indicated that complimentary reviews were received from all attendees.

**NOTEWORTHY ACCOMPLISHMENT**

JLab's Technology Review Committee conducted a one-day proposal writing workshop for JLab staff and Users on February 10, 2009. The workshop was geared towards proposal writing for Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) grants and was well attended with over 25 participants.

The annual Technology Transfer database information that was collected for FY08 was forwarded as scheduled to the Technology Transfer Working Group (TTWG) database that collects this information for all DOE facilities. Also in FY09, the technology development first pass survey was completed with ~40 opportunities identified. In the upcoming fiscal year, JLab will continue to work with SURA and SURA institutions on Terahertz and other technology transfer opportunities.

JLab's Chief Information Officer, Roy Whitney, was appointed as the Chief Technology Officer in FY09 and will be responsible for fostering technology development by lab employees and enhancing the technology transfer program. Based on the performance information that has been provided through August 31, 2009, Jefferson Lab anticipates exceeding this measure by the end of the fiscal year.

**Table 17. Goal 6.0 Performance Rating Development**

ELEMENT	Letter Grade	Numerical Score	Objective Weight	Total Points	Total Points
<b>6.0 Deliver Efficient, Effective, and Responsive Business Systems and Resources that Enable the Successful Achievement of the Laboratory Mission(s)</b>					
6.1 Provide an Efficient, Effective, and Responsive Financial Management System(s)	A-	3.6	20%	0.72	
6.2 Provide an Efficient, Effective, and Responsive Acquisition Management System	A	3.8	15%	0.57	
6.3 Provide an Efficient, Effective, and Responsive Property Management System	A	3.8	15%	0.57	
6.4 Provide an Efficient, Effective, and Responsive Human Resources Management System	A-	3.5	20%	0.70	
6.5 Provide Efficient, Effective, and Responsive Management Systems for Internal Audit and Oversight; Quality; Information Management; and Other Administrative Support Services as Appropriate	A-	3.7	15%	0.56	
6.6 Demonstrate Effective Transfer of Technology and Commercialization of Intellectual Assets	A	4.0	15%	0.60	
<b>Performance Goal 6.0 Total</b>					<b>3.72</b>

**Table 18. Goal 6.0 Final Letter Grade**

Total Score	4.3-4.1	4.0-3.8	3.7-3.5	3.4-3.1	3.0-2.8	2.7-2.5	2.4-2.1	2.0-1.8	1.7-1.1	1.0-0.8	0.7-0
Final Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F

**GOAL 7.0 SUSTAIN EXCELLENCE IN OPERATING, MAINTAINING, AND RENEWING THE FACILITY AND INFRASTRUCTURE PORTFOLIO TO MEET LABORATORY NEEDS**
Goal Requirement:

The Contractor provides appropriate planning for, construction and management of Laboratory facilities and infrastructures required to efficiently and effectively carry out current and future S&T programs.

**Objective 7.1 Manage Facilities and Infrastructure in an Efficient and Effective Manner that Optimizes Usage and Minimizes Life Cycle Costs, and Ensures Site Capability to Meet Mission Needs.**

**Measure 7.1.1 Requirement:** Extent efficiency and effectiveness is demonstrated for recapitalization and acquisition of required facilities and infrastructure to support laboratory programs and performance of maintenance.

**TARGET:** Evidence is provided that validates the readiness of existing facilities and infrastructure to carry out the assigned scientific missions such as: peer review; critical maintenance funding is allocated and effectively spent; and summary tables within the mission readiness report show improvement in existing facilities and/or infrastructure (e.g. have moved upwards on the scale from “not capable” through “marginal” and “partial” to “capable”).

**JSA Performance:**

JLab’s Facilities Manager continues to actively contribute in the development of the SC Mission Readiness implementation process and participated as a member of the Mission Readiness Peer Review Teams for Oak Ridge National Laboratory in December 2008 as well as being the team lead of the Pacific Northwest National Laboratory Peer Review Team in March 2009. The COO participated in the Mission Readiness Peer Review that was held at Brookhaven National Laboratory. Additional JLab staff serve as peer review observers for each event in order to prepare for the Lab’s upcoming peer review next year. Implementation activities for mission readiness at JLab are proceeding on schedule.

Facility Issues completed a peer review of facility maintenance and the mission readiness program and in preparation of JLab’s Mission Readiness Peer Review, completed a gap analysis against lines of inquiry and developed a plan for closing identified gaps prior to May 2010.

Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

**Measure 7.1.2 Requirement:** Extent Contractor validates accuracy of data in the Facilities Information Management System (FIMS).

**TARGET:** The contractor has demonstrated validation of the accuracy of data in the FIMS data base with at least 90% statistical certainty that the data contains no more than a 10% error rate.

**JSA Performance:**

Sustainability Data Fields and FRPC data elements were fully populated in FIMS by November 14, 2008 as scheduled. Information to complete the FY08 FIMS/STARS reconciliation was forwarded to DOE HQ on October 14, 2008 and a batch upload was scheduled by HQ to complete the reconciliation. FY09 required maintenance figures were populated in FIMS December 15, 2008 as scheduled. The FIMS Validation conducted April 14th – 16th demonstrated 100% certainty that data contained a 0% error rate. All 21 Lab entered performance measures were green (ex: RPV, Deferred Maintenance, Status Utilization and Net Usable Sq Ft, Mission Dependency, Operating Costs (site level) and Annual Actual Maintenance). No discrepancies were found during the walkthroughs and TJSO noted the “*FIC database is a best practice for data comparison and presentation.*” FIC is a JLab developed Facility Information Center database.

**NOTEWORTHY ACCOMPLISHMENT**

“FIC database is a best practice for data comparison and presentation. No discrepancies found during the walkthroughs. Dave did an outstanding job in putting the data together for the validation. Everything went smoothly.” (TJSO general comments and recommendations from the FIMS Validation Report)

**PERFORMANCE CHALLENGE**

“OECM will monitor the FIMS validation scheduled for April 14-16. Attention is needed on QA of FIMS data and on validation planning to ensure the continued green status of FIMS.” (FY09 DOE 1st Quarter Feedback)

STATUS: FIMS data records were reviewed and updated as required in preparation for the validation.

Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

Measure 7.1.3 Requirement: Extent Contractor implements the DOE Order 430.2B TJNAF Executable Plan and supports the TEAM initiative.

**TARGET:** Site specific goals established in the Executable Plan are accomplished on schedule.

JSA Performance:

The final version of DOE Order 430.2B TJNAF Executable Plan Implementation was submitted to the Site Office December 22, 2008. The identified projects listed below are proceeding on schedule.

Accomplishments during this performance period include:

- A multi-agency agreement to conduct E-85 refueling at NASA Langley Research Center for 12 GSA leased flex fuel capable vehicles was established.
- Agreement with EnergyConnect, Inc. to participate in a Demand Power Reduction Program completed. Demand load test successfully completed June 11, 2009. JLab will receive up to \$189,000 for participation in the program.
- Completed building energy audits of all buildings as well as a sustainability review of buildings greater than 1,000 SF.
- Several staff have LEED training and/or certification.

Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

**PERFORMANCE CHALLENGE**

“The Laboratory has done well on this objective to date. More attention is needed on developing a good method to report progress/status on implementation of the Executable Plan.” (FY09 DOE 3rd Quarter Performance Feedback)

STATUS Progress/status of Executable Plan efforts progress reported via bi-weekly Facilities Management Status Reports.

PROJECT	STATUS
Energy Savings Project	Recommissioning of existing campus buildings underway. VARC / CEBAF Center commissioning complete. ARC pending, attempting to complete FY '09 / likely FY '10
Water Reduction Projects	HRSD submitted water reuse project for state stimulus funds.
Acquisition of Goods and Services Implementation Plan	Working to expand commodity manager program.
Waste Reduction and Recycling Implementation Plan	Track and share recycling results on a quarterly basis underway. JLab Weekly Briefs newsletter article planned
Sustainable Practices Implementation Plan	Completed Initial Sustainability Review of existing buildings including compliance plan. TEDF and Test Lab rehab/addition (~188,000 SF) being constructed under LEEDS guidelines. Estimated completion FY14 with required funding. Will exceed 15% goal when complete. Working with Ewing Cole for TEDF & Test Lab renovation LEED requirements, on target to comply with Gold certification.
Vehicle Fleet Implementation Plan	Have exchanged 3 vehicles for alternate fuel versions so far this FY, making 57% of the total fleet. Established MOA for obtaining E-85 fuel from NASA.

Electronic Equipment Implementation Plan	<ul style="list-style-type: none"> <li>– We have posted a list of desktop and laptop systems that we have approved as being EPEAT rated on the JLab website.</li> <li>– We only approve ADP systems that a) are from the approved list, b) the requester can prove the computer they want is EPEAT rated Silver or better, or c) no EPEAT-registered products meet the user's functional requirements.</li> <li>– Procurement is flagging these purchases in Costpoint for generating the EPEAT report.</li> <li>– CIO reviews the computer questionnaire with each computer purchases to ensure that systems are being used for 3+ years before they are replaced.</li> </ul>
Energy Manager Implementation Plan	Energy Engineer new hire in FY09. Paul Powers, Christine Snetter, Carroll Jones attended LEED Existing Bldg workshop. Bill Mooney, LEED AP certified and Certified Energy Manager (CEM) trained.
Energy Audits	Building Energy Audits completed 12/2008. Proposed projects and policies to use energy more efficiently identified as part of the plan. Energy audits scheduled to continue / complete all facilities at least every four years.

**Objective 7.2 Provide Planning for and Acquire the Facilities and Infrastructure Required to Support Continuation and Growth of Laboratory Missions and Programs**

Measure 7.2.1 Requirement The infrastructure portion of the Annual Laboratory Plan is recognized by funding entities as providing a sound strategy for acquisition of required facilities and infrastructure to support future laboratory programs.

TARGET: The contractor demonstrates that the infrastructure portion of the Annual Laboratory Plan is appropriately developed, reviewed, updated, and utilized as a Laboratory management document.

JSA Performance

JLab continues to participate in the development of the Mission Readiness process. During this performance period, a senior staff member and a technical representative from the Facilities & Logistics division served as observers for the Lawrence Berkeley National Laboratory Mission Readiness Peer Review. Implementation of mission readiness at JLab is proceeding on schedule.

JLab has demonstrated that the infrastructure portion of the Annual Laboratory Plan was appropriately developed and updated per SC DOE guidance; the Plan was submitted April 22, 2009 as scheduled.

Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

Measure 7.2.2 Requirement: Cost and schedule performance on all GPP projects and maintenance projects greater than or equal to \$100K (for construction phase of projects only and applying agreed to change control procedures).

TARGET: Applicable changes and cost overruns are less or equal to 8% of the total awarded bid amount and average scheduled index actual number of days to project completion or beneficial

occupancy to original contract duration in the awarded contract is  $> 1.0$  to  $\leq 1.1$ .

#### JSA Performance:

The following GPP and maintenance projects have been identified as being greater than or equal to \$100K: HD-Ice Target Facility, Central Material Storage Area, South Connector Road, Test Lab Cooling Towers, TJNAF Badging/Video System, and South Access LCW for FEL. The FEL LCW project was completed in June 2009. Construction is underway on the HD-Ice Target Facility and South Connector Road projects. The Central Material Storage is currently out for bid. Designs are progressing on all projects. An RFP for the Test Lab Cooling Towers will be issued in September 2009. The Badging/Video System is currently under design. Monthly reports are being submitted and the projects are currently on track for cost and schedule. During the fourth quarter, the remaining \$1,000 was received for the five ARRA projects.

Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

Measure 7.2.3 Requirement: GPP planning and execution are well coordinated to ensure effective utilization of resources.

**TARGET:** The contractor coordinates project planning and provides information on project status in accordance with the TJSO expectations provided in the TJSO GPP Management Process.

#### JSA Performance:

##### GPP Management Process Requirements:

- Round table review is revisited at least semiannually or more often if major changes are being considered.

**STATUS:** Meeting held February 11, 2009 and September 11, 2009.

- JLab provides summary of GPP scope, schedule, and cost estimate prior to start of new projects for approval.

**STATUS:** FY09 GPP Baseline provided to TJSO on February 23, 2009. Baseline updated in July and August 2009.

- JLab provides breakout of GPP funding allocation by year funding was appropriated, for all uncosted GPP funding, 30 days after TJSO approves the start of new GPPS.

**STATUS:** FY09 GPP Baseline provided to TJSO on February 23, 2009. Baseline updated in July and August 2009.

- JLab reports on status (estimated % complete) and cost (actual to date and commitments) quarterly using Insight.

**STATUS:** Monthly reports are posted on Insight.

#### PERFORMANCE CHALLENGE

“JLab has done a good job on this objective to date. GPP funding levels for FY09 are continuing to evolve. A revised GPP baseline is needed to establish current planning levels even though it may change again if additional GPP funding is forthcoming.” (FY09 DOE Mid-Year Feedback)

**STATUS:** A revised baseline for GPP was submitted to TJSO.

#### FY09 STIMULUS FUNDING

GPP Projects expected to receive \$10M as part of the stimulus funding from the American Recovery and Reinvestment Act (ARRA) of 2009. The funding includes the following projects:

- Experimental Staging Building (\$2.9M)
- General Purpose Building Expansion (\$1.9M)
- Test Lab Service Transformer Upgrade (\$1.0M)
- End Station Refrigeration (ESR) Building & Utilities Expansion (\$2.5M)
- Site Road and Parking Improvements I (\$1.7M)

Experimental Staging Building and Expand GPB will be awarded in September 2009. Dominion VA Power engineering work for the TL Service Transformer is underway and the transformer has been ordered. RFP issued for the Site Road and Paring Improvement project. Final design for ESR Bldg & Utilities project due in September 2009.

- JLab provides justification for changes to GPP scope, schedule, and/or cost estimate for TJSO review quarterly.

STATUS: FY09 GPP Baseline provided to TJSO on February 23, 2009. Baseline updated in July and August 2009.

Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

**Measure 7.2.4 Requirement:** Demonstrate effective schedule and cost management for the Technology and Engineering Development Facility (TEDF) project.

**TARGET:** The contractor completes milestones on schedule and project is kept within cost.

**JSA Performance:**

This project schedule was delayed due to the Federal Budget Continuing Resolution. Listed below are the milestones identified for the TEDF project along with a status of each. The Preliminary Design Kickoff was held April 15, 2009. Thirty-five percent Design reviews as well as value engineering, sustainability, constructability, and independent cost estimate reviews were completed in August 2009. The project remained on schedule during FY09 and within the estimated/projected cost. Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

ACTIVITY	DATE DUE	DATE COMPLETED
Advanced Conceptual Design: Draft Report	Schedule date December 12, 2009	December 9, 2008
Advanced Conceptual Design: Draft Report In House Review	December 10 – 23, 2008	December 23, 2008
Advanced Conceptual Design: Final Report	December 23, 2008 – January 30, 2009	January 30, 2009
SC Onboard Review	February 16 – 20, 2009	Onsite meeting with Gordon Fox (DOE-SC) February 18, 2009.
Soils Investigation	February – April 2009	Completed April 2009.
Topographic Survey	February – April 2009	Completed April 2009.
TEDF Project Design Start	April 2009 – March 2010	35% design complete.

**Table 19. Goal 7.0 Performance Rating Development**

ELEMENT	Letter Grade	Numerical Score	Objective Weight	Total Points	Total Points
<b>7.0 Sustain Excellence in Operating, Maintaining, and Renewing the Facility and Infrastructure Portfolio to Meet Laboratory Needs</b>					
7.1 Manage Facilities and Infrastructure in an Efficient and Effective Manner that Optimizes	A-	3.5	40%	1.40	

ELEMENT	Letter Grade	Numerical Score	Objective Weight	Total Points	Total Points
Usage and Minimizes Life Cycle Costs, and Ensures Site Capability Meet Mission Needs					
7.2 Provide Planning for and Acquire the Facilities and Infrastructure Required to Support Continuation and Growth of Laboratory Missions and Programs	A	3.9	60%	2.34	
<b>Performance Goal 7.0 Total</b>					<b>3.74</b>

**Table 20. Goal 7.0 Final Letter Grade**

Total Score	4.3-4.1	4.0-3.8	3.7-3.5	3.4-3.1	3.0-2.8	2.7-2.5	2.4-2.1	2.0-1.8	1.7-1.1	1.0-0.8	0.7-0
Final Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F

### **GOAL 8 SUSTAIN AND ENHANCE THE EFFECTIVENESS OF INTEGRATED SAFEGUARDS AND SECURITY MANAGEMENT (ISSM) AND EMERGENCY MANAGEMENT SYSTEMS**

#### Goal Requirement:

The Contractor sustains and enhances the effectiveness of integrated safeguards and security and emergency management through a strong and well deployed system.

The Sustain and Enhance the Effectiveness of Integrated Safeguards and Security Management (ISSM) and Emergency Management Systems Goal shall measure the Contractor's overall success in safeguarding and securing Laboratory assets that supports the mission(s) of the Laboratory in an efficient and effective manner and provides an effective emergency management program.

#### **Objective 8.1 Provide an Efficient and Effective Emergency Management System**

Measure 8.1.1 Requirement: Hazard survey supports designation of base program per DOE Order 151.1C.

**TARGET:** Provide hazard survey (implementation plan due 12/30/08) that appropriately supports the designation of base program per DOE 151.1C.

#### JSA Performance:

The Hazard Survey Technical Basis Document due December 30, 2008 was submitted to TJSO ahead of schedule on December 19, 2008. The survey consists of five steps and as noted at the beginning of this report, analysis results indicate no potential accident events and conditions would

#### **PERFORMANCE CHALLENGE**

“Nonconcur. JSA has only partially met the first quarter commitment. The Hazard Survey Technical Basis was submitted to TJSO, but it contained major deficiencies necessitating a rewrite. TJSO provided comments verbally and electronically on Jan 29, 2009. Another DOE review will be performed after resubmittal.” (FY09 DOE 1st Quarter Performance Feedback)

**STATUS:** The TBD was submitted to TJSO on December 19, 2008. The cover letter identified that a meeting had been scheduled to present the information in a more detailed manner. This meeting occurred in January 2009. At that time, TJSO stated that although there were comments to be addressed, the Lab had “met the mail”. ESH&Q continues to work to address TJSO comments.

be classified as an Alert or higher as defined in DOE O 151.1C. A briefing was provided to TJSO in January 2009, after which written comments were provided. All of the comments were addressed. Recently it was determined that a radiation source was no longer "certified" as a special form. An EPHA is being prepared to demonstrate that the source is controlled from an emergency preparedness standpoint. The TBD should be revised in early FY10.

Based upon the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

**Measure 8.1.2 Requirement:** After action critiques are conducted to identify improvements to the Emergency Management Program.

**TARGET:** After action reports from scheduled exercises or significant actual events are completed within 30 days. Corrective actions are entered into CATs per JLab procedure. 90% of corrective actions are completed on schedule.

JSA Performance:

Three after action critiques were conducted in FY09 as a result of the annual building evacuations drills, the hurricane tabletop exercise, and the Hall B VESDA alarm, which was an actual event. See the table below. In all cases, the emergency management system responded appropriately. The recommended actions that arose from the critiques were of a minor nature intended to improve the program and were not indicative of programmatic deficiencies.

Jefferson Lab provided site-specific hazardous material training, including radiation safety training, to the Newport News Fire Department Hazardous Materials Team over a three-day period in February 2009. Part of the training included a tour of some of the lab facilities, such as the Test Lab, where responders might be more likely to encounter hazardous materials. This training was well received and we intend to conduct an exercise in FY10 that would involve our off-site responders.

Jefferson Lab's management team spent time in April and again in September discussing response plans for the H1N1 influenza. In the Spring it became apparent that there was no need for action. In September it was agreed to write up our plan, which was based on the Center for Disease Control recommendations, as well as recommendations from the SOMD. Employee education material is under development, hand sanitizing supplies are being secured, and critical positions are being identified to assure there is adequate back-up trained and qualified should the need arise.

Based in the performance information that has been provided through August 31, 2009, we anticipate exceeding this measure by the end of the fiscal year.

EXERCISE	Building Evacuations December 15 – 19, 2008	Hall B VESDA Alarm March 12, 2009	Hurricane Tabletop May 27, 2009
CRITIQUE WITHIN 30 DAYS	January 8, 2009	March 24, 2009	May 29, 2009

**PERFORMANCE CHALLENGE**

“Regarding the after action critique that was conducted on May 29, 2009 for the Hurricane Tabletop exercise (TTX), attendance at the critique was less than adequate. Although the TJSO manager was a TTX participant and P. Hunt and D. Luke were observers, none were made aware of the after action critique. As a global feedback comment (i.e., not pertaining just to Emergency Management and ES&H), inclusion of TJSO in lessons learned discussions, critiques, etc. furthers communication, partnering and also is a necessary attribute of TJSO effectively executing its oversight responsibilities..” (FY09 DOE 3<sup>rd</sup> Quarter Feedback)

STATUS: Jefferson Lab agrees that we need to work with the Site Office towards greater transparency. Although not an excuse, TJSO had provided written comments prior to the critique. These comments were incorporated into the after-action report.

CATS NUMBER	MOA-2009-04	MOA-2009-18	MOA-2009-44
NUMBER OF CATS ISSUES	4	1	5
CATS SIGNIFICANCE CATEGORY	SC1 – 3 SC0 - 1	SC-1	SC1 – 3 SC0 - 2
CATS COMPLETION RATE	100%	100%	100%

**Objective 8.2 Provide an Efficient and Effective System for Cyber-Security**
Objective Requirement:

Assure appropriate level of cyber security risk assessment and program planning and that Jefferson Lab computer systems are not compromised or used in attacks on other Internet locations.

Measure 8.2.1 Requirement: The Cyber Security Incidents (CSI) is the number of appropriately reported incidents in which JLAB computer systems were compromised or were used to attack other systems. These are to include all system-level Root Compromises (RC) of centrally managed systems or incidents where jlab.org nodes were used to carry out Cyber Attacks (CA) on other systems on the Internet. The equation represents a measure of the performance level of the overall cyber security program.

$$CSI = RC + 0.5(CA)$$

TARGET: CSI = 1; and favorable results on internal/external reviews, surveys and inspections that demonstrate the cyber security program is: effective, integrated into laboratory culture, and laboratory leadership's commitment to strong cyber security performance.

JSA Performance:

There were no JLab computer system compromises or incidents in which a jlab.org machine was used to attack other systems during FY09. Additionally, there were no incidents in which staff (including scientist) or users were denied access to data or computing capabilities.

Based on the performance information that has been provided through September 9, 2009 we anticipate exceeding this measure by the end of the fiscal year.

**PERFORMANCE CHALLENGE**

“Continuing vigilance on cyber security, ensuring a robust program and system is in place, and timely and effective closure of POAMs.” (FY09 DOE 1st Quarter Performance Feedback)

STATUS: Two POA&Ms were closed during Q2. One of the two was ahead of schedule.

Measure 8.2.2 Requirement: Ensure less than 5% of scanned machines are flagged by the SANS system as having a severe vulnerability.

TARGET: <5% of scanned machines identified as having a severe liability.

JSA Performance:

As of September 9, 2009, the average percentage of systems identified by SANS TOP 20 scanning as having a severe vulnerability was 0.09%, far exceeding the goal of less than 5.0%.

Based on the performance information that has been provided through September 9, 2009 we anticipate exceeding this measure by the end of the fiscal year.

Measure 8.2.3 Requirement: Average number of working days to remediate (reconfigure, repair, patch, mitigate, or classify as false positive) those systems identified by alarms from the automated system log filtering and notification process including the intrusion detection system.

TARGET: Remediate in five working days.

JSA Performance: The average number of working days to remediate systems identified by alarms from automated system log filtering and notification process was 2.7 days during the first quarter, 3.04 days during the second quarter, 1.48 days during the third quarter, and 2.6 days as of September 9, 2009 of the fourth quarter.

Based on the performance information that has been provided through September 9, 2009 we anticipate exceeding this measure by the end of the fiscal year.

Measure 8.2.4 Requirement: Effectively manage cyber security enhancement projects in the areas of authentication, encryption, network (audit, registration, dynamic configuration, VPN, etc.), and security training. In the first month of the fiscal year, and with quarterly updates, determine the new requirements scope and schedule in agreement with the Thomas Jefferson Site Office.

TARGET: Manage projects for cyber security enhancements on schedule, as applicable to JLab according to a revised Plans of Action & Milestones (POA&Ms) and project schedules matched to the appropriation budget

JSA Performance:

There are seven cyber security enhancement projects scheduled for completion in FY2009. As noted in the table below, projects due in the first half of FY2009 were completed as scheduled; project 3, the Laptop Encryption System, was completed eight months ahead of schedule and project 4, 2-Factor Authentication and Laptop Encryption for FEL Sensitive Machines, was completed four months ahead of schedule. Project 7, Add Host Side Vulnerability Scanning for JLab Managed Systems into the Network Vulnerability Scanning Program, was postponed until FY10 due to budget and resource constraints. Additional activities not shown in the table below include sharing near real-time intrusion detection information via Argonne's Federated Model for Cyber Security and aggressively deploying virtual machine technology that will enhance manageability and reduce power consumption respectively. JLab is also leading the National Lab CIO's efforts on moving DOE cyber security policy to national standards. Based on the performance information that has been provided through September 9, 2009 we anticipate exceeding this measure by the end of the fiscal year.

CYBER SECURITY PROJECT	SCHEDULED	ACTUAL COMPLETION
1. Extend Internal Network Monitoring Capabilities	October 1, 2007 – December 15, 2008	December 15, 2008
2. Extended Deployment of Two-Factor Authentication to Selected Workstations	October 1, 2007 – March 1, 2009	March 1, 2009

**NOTEWORTHY ACCOMPLISHMENT**

“Vulnerability identification and remediation successes are noted. Demonstrates good decision making of resource allocations.” (DOE 3rd Quarter Performance Feedback)

3. Laptop Encryption System	November 1, 2007 – July 1, 2009	November 17, 2008
4. 2-Factor Authentication and Laptop Encryption for FEL Sensitive Machines	November 15, 2007 – July 1, 2009	March 1, 2009
5. Additional Intrusion Detection on TJSO Subnet	September 1 – October 31, 2008	October 31, 2008
6. Separation of System Administration Privileges	October 1, 2008 – September 30, 2009	Due 4th Quarter
7. Add Host Side Vulnerability Scanning for JLab Managed Systems into the Network Vulnerability Scanning Program.	October 1, 2008 – September 30, 2010	Due FY10
8. Wireless Network Enhancements	July 15, 2009 – December 31, 2009	Due FY10

**Objective 8.3 Provide an Efficient and Effective System for the Protection of Special Nuclear Materials, Classified Matter and Property**

Measure 8.3.1 Requirement: Maintain an effective Security Program, demonstrated by:

- Ensuring non-U.S. citizens' from sensitive countries who have badged access to JLab facilities, or perform work on CRADAs or Work for Others are identified, and are entered into the Foreign Access Central Tracking System.
- Current timely and approved security-related Admin Policy and Security Plans.
- Reportable and accountable "Other Nuclear Materials" are inventoried and reported with DOE approved procedures.
- Provide effective support for on-site Counter Intelligence (CI) activities.

TARGET: Maintain an effective Security Program in accordance with all applicable requirements. Maintain effective professional relations with threat reduction officials at DOE Headquarters, FBI Norfolk, and Newport News Police Department by participating in opportunities to share information in security, community policing, and incident management. Effectively perform functions specified in Site Specific CI Support Plan.

JSA Performance:

JLab's Security Training Plan was submitted to TJSO for approval on October 13, 2008. Jefferson Science Associates, LLC updated its Exporter Registration according to the Arms Export Control Act and International Traffic in Arms Regulations (ITAR Part 122); this officially notified the State Department of the change of JLab leadership from Christoph Leemann to Hugh Montgomery. In addition, JLab prepared and coordinated two International Traffic in Arms Regulations deemed export license requests to the HQ DOE Senior Counterintelligence Officer, the DOE Site Office Manager, and coordinated with the Office of Naval Research Program manager for Directed Energy; the license requests were submitted to the Department of State Directorate of Defense Trade Controls.

The TJNAF Site Security Plan, Change 4 was revised out of cycle to comply with DOE SC-3 direction to submit an updated Site Security Plan according to the new DOE SC Format Guide for Site Security Plans (SSPs) dated October 2008. The plan was updated, coordinated, and approved by the DOE TJSO manager to meet the specified December 15, 2008 due date to serve as a basis for FY2010 Safeguards &

Security budget planning.

Additional activities conducted during this performance period include updating, coordinating, and submitting two requests for T-4 national assignment renewals requiring DOE HQ Panel review and assignment approval by the DOE Under Secretary for Science; these detailed packages were prepared according to technical specifications and marked according to DOE HQ UFV&A program guidance.

JLab continues to maintain effective professional relations with threat reduction officials at DOE HQ, FBI Norfolk, and the Newport News Police department and hosted several visits during this performance period including → Alex Turner, FBI Norfolk Special Agent-in-Charge and his senior staff (toured lab locations that could potentially involve sensitive ITAR controlled technology); senior counterintelligence agents from the HQ DOE Office of Intelligence, Naval Criminal Investigative Service, and Navy Intelligence; tour and meetings with DOE Office of the Inspector General Technology Crimes Section.

JLab's Security Manager attended the HQ DOE Derivative Classifiers' Course at DOE HQ Germantown during this performance period. He attended "Complying with U.S. Export Controls" February 3 – 4, 2009 and "Complying with U.S. Deemed Export Controls" February 5, 2009 conducted by the Bureau of Industry and Security at the Department of Commerce, Washington D.C. He also attended the "International Traffic in Arms Regulation (ITAR) In-House Seminar" February 19, 2009 at the Directorate of Defense Trade Controls, U.S. Department of State, Washington D.C.

Additional activities during this period include contracting with Gregg Protection Services to conduct a Security Risk Assessment on the Technology Engineering Design Facility program and survey for the placement of recorded video March 10 – 13, 2009. The Washington Regional Counterintelligence Office (WRCO) Inspection was held on March 23, 2009 → JLab's Counterintelligence Representative hosted a team of independent inspectors who were onsite conducting an assessment of the WRCO's support to the TJSO and JLab. The Lab also conducted Security & Export Control reviews of 12 GeV MOUs and Cooperative Research and Development Agreements, notifying senior JLab managers of potential red flags and coordination irregularities. JLab's Security and Services manager along with the lab's Cyber Security Team participated in the INFRAGUARD network regional information exchange at FBI Norfolk June 2, 2009. In addition, two T-4 national assignments renewals were completed according to HQ DOE specifications and tracked until approved by the Under Secretary for Science.

JLab provided support for CI activities during FY09 by assisting DOE Regional Counterintelligence in conducting defensive security briefings for JLab staff traveling to China.

Completed TEDF Security Risk Assessment and video technology project under contract to Gregg Protection Services; Risk Assessment and technology proposal submitted to TJSO.

Presented JLab's understanding of Nuclear Materials program requirements for the type and quantity of nuclear materials possessed by JLab for the DOE HQ security budget validation. Additionally, the nuclear material quarterly inventory was conducted and reported to the Nuclear Materials Management & Safeguards System as scheduled.

Conducted Sensitive Science & Technology and Export Control awareness briefings to vulnerable work groups with the CIO/Chief Technology Officer. JLab also assisted DOE TJSO members of the DOE/SC Safeguards & Security Benchmarking Committee collect information and provided regional security benchmarking contacts as a part of the DOE Deputy Secretary's S&S Reform Initiative.

Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

Measure 8.3.2 Requirement: Demonstrate effective Security Program through internal, self-assessment and external reviews, surveys and inspections.

**TARGET:** Conduct and document a self-assessment of all applicable aspects of the Security Program and submit to TJSO 6-months prior to the next Security Survey.

JSA Performance:

JLab conducted an internal security requirements review according to the new DOE Office of Science Format Guide for Site Security Plans (October 2008). Conflicting guidance was noted between the Format Guide and the requirements that were distributed to the field relating to Information Systems Security Manager and Information Systems Security Officer positions at classified and unclassified labs; as a result adjustments were made in notifications to the field.

A thorough review of the new Safeguards and Security Budget Reference definitions and JSA’s contract security requirements was conducted to update the TJNAF Site Security Plan. Facilities Management also completed a FY09-11 budget estimate and submitted it to DOE TJSO before the required date and time.

Jefferson Lab completed the biennial Safeguards & Security Self-Assessment on September 3, 2009. The assessment identified several opportunities for improvement due to local mission changes, and the need to track potential changes in DOE Safeguards & Security requirements due to the DOE Security Reform Initiative. Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

**PERFORMANCE CHALLENGE**

“Concur - It will be necessary for Jefferson Lab to demonstrate a thorough self assessment of the security program to achieve full credit for this objective.”  
(FY09 DOE 3<sup>rd</sup> Quarter Feedback)

STATUS; Self assessment completed September 3, 2009.

Measure 8.3.3 Requirement: Implement corrective actions to address noted deficiencies identified in the FY08 Security Review

**TARGET:** All corrective actions which are not dependent on DOE approval actions are completed on schedule.

JSA Performance:

JLab received a composite rating of Satisfactory on the 2008 Safeguards and Security Survey Report, which is the highest possible rating. In addition, as noted above in the summary section, Facilities Management implemented corrective actions to address the six noted deficiencies identified that were not dependent on DOE approval; all actions were completed ahead of the scheduled due date as noted below. The FY2009 performance target for this measure was achieved during the 1<sup>st</sup> quarter of FY2009. All of the noted deficiencies were completed ahead of schedule. Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

NOTED DEFICIENCY	SCHEDULED COMPLETION	ACTUAL COMPLETION
NE-2008-08-01: Establish a tech-oriented feedback loop from CANS to JList to match up badge access authorities and personnel records; identify inconsistencies between JList and CANS.	November 12, 2008	September 23, 2008

NOTED DEFICIENCY	SCHEDULED COMPLETION	ACTUAL COMPLETION
NE-2008-08-02: Establish and train upon a written, controlled policy for merging files, to include notification of the CANS administrator for all merges.	December 12, 2008	December 3, 2008
NE-2008-08-03 Manually check/monitor CANS updates when there is a JList merge.	November 12, 2008	September 26, 2008
NE-2008-08-04: Require an email account (one that is regularly monitored) to be filed for notification of training expiration.	November 12, 2008	November 5, 2008
NE-2008-08-05: Set up an automatic email notification to the CANS administrator whenever duplicate files are merged in JList.	November 12, 2008	October 21, 2008
NE-2008-08-06: Investigate if/where similar interfaces exist where a duplicate can be created. Apply NE-2008-08 corrective actions to those situations if necessary.	November 12, 2008	September 26, 2008

**Measure 8.3.4 Requirement:** Control and maintain nuclear materials in accordance with approved lab processes and activities.

**TARGET:** One hundred percent compliance with the approved TJNAF Nuclear Materials Control and Accountability Program Plan.

**JSA Performance:**

JLab achieved 100% compliance with the approved TJNAF Materials Control and Accountability Program plan by reporting all operational losses, transactions, and materials on-hand to the Nuclear Materials Management Security & Safeguards System on time. Additionally, as noted in Measure 8.3.1; the TJNAF Site Security Plan, Change 4, Chapter 8, Nuclear Materials Control and Accountability was updated and approved by DOE TJSO Manager December 15, 2008.

Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure goal by the end of the fiscal year.

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

**Measure 8.4.1 Requirement:** Effectively operate a sensitive information system for the Laboratory's Business Sensitive and Personnel Sensitive information that meets existing and new requirements.

**TARGET:** Successfully execute the agreed upon FY09 plan for meeting existing and new requirements for a sensitive information system.

JSA Performance:

During this performance period, JLab completed deployment of the laptop encryption system and deployment of the 2-factor authentication for users working with or accessing sensitive information. With these deployments, JLab has completed the FY09 plan ahead of schedule.

During the third quarter, JLab completed a survey of business systems and updated identification of systems containing PII; this was an update to the survey done as part of the C&A process. No reportable events involving loss of business and personnel sensitive information have occurred FYTD.

The following activities have been conducted to meet reporting and mitigation of IT and information security events → 1) Made monthly summary reports to CIRC to certify comprehensive reporting; 2) Deployed various security patches to address CIRC Bulletin notices on vulnerabilities; 3) Worked daily with CIRC operations via the Cyber Ops secure chat server; 4) Used the Federated Model to exchange firewall block lists with other DOE Labs as part of our mitigation activities.

Based on the performance information that has been provided through August 31, 2009 we anticipate exceeding this measure by the end of the fiscal year.

Measure 8.4.2 Requirement: Meet requirements for reporting and mitigation of IT and information security events.

TARGET: Meet reporting and mitigation of IT and information security events as necessary within required reporting periods.

JSA Performance:

JLab met the reporting and mitigation of IT and information security events goal by reporting a case of "infection" by the Sony tracking Trojan (not considered a root compromise), making monthly summary reports to DOE – Cyber Incidents Response Capability (CIRC) to certify comprehensive reporting, and working daily with CIRC operations via the Cyber Ops secure chat server. The IT Division deployed various security patches to address CIRC Bulletin notices on vulnerabilities and made preparations for the expected conficker worm attack on April 1, 2009. JLab also met the required reporting on preparations made and the status of the conficker work at JLab. Additional activities performed include updating network scanning, ID signatures, and checking anti-virus definitions deployed on desktops.

Based on the performance information that has been provided through September 9, 2009 we anticipate exceeding this measure by the end of the fiscal year.

Measure 8.4.3 Requirement: Commitment to strong protection of sensitive information is appropriately demonstrated.

TARGET: No reportable event involving the loss of Laboratory's Business Sensitive and Personnel Sensitive information.

JSA Performance:

As of September 9, 2009 there have been no reportable events involving the loss of the Lab's Business Sensitive and Personnel Sensitive Information during this period. Based on the performance information that has been provided, we anticipate exceeding this measure by the end of the fiscal year.

**Table 21. Goal 8.0 Performance Rating Development**

<b>ELEMENT</b>	<b>Letter Grade</b>	<b>Numerical Score</b>	<b>Objective Weight</b>	<b>Total Points</b>	<b>Total Points</b>
<b>8.0 Sustain and Enhance the Effectiveness of Integrated Safeguards and Security Management (ISSM)</b>					
8.1 Provide an Efficient and Effective Emergency Management System	B+	3.4	30%	1.02	
8.2 Provide an Efficient and Effective System for Cyber-Security	A	3.8	50%	1.90	
8.3 Provide an Efficient and Effective System for the Protection of Special Nuclear Materials, Classified Matter, and Property	A-	3.5	10%	0.35	
8.4 Provide an Efficient and Effective System for the Protection of Classified and Sensitive Information	A-	3.7	10%	0.37	
<b>Performance Goal 8.0 Total</b>					<b>3.64</b>

**Table 22. Goal 8.0 Final Letter Grade**

<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</b>
Final Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F