FY04 JEFFERSON LAB SELF-ASSESSMENT OF CONTRACT PERFORMANCE

U. S. Department of Energy's

Jefferson Lab

THOMAS JEFFERSON NATIONAL ACCELERATOR FACILITY

DIRECTOR'S OVERVIEW

Jefferson Lab performance is measured in targeted areas using qualitative and quantitative metrics as an essential part of our performance-based contract. While I am gratified that Jefferson Lab has again earned a rating of "Outstanding" based on many assessments and reviews, management and staff must remain steadfast in their commitment to deliver outstanding science in an efficient, safe, and secure manner.

I am delighted with the 2004 Science and Technology (S&T) Review Panel's observation that the JLab "research program is doing an excellent job of addressing the relevant scientific questions identified by the Nuclear Science Advisory Committee (NSAC), and the laboratory's research has attracted considerable attention that extends beyond the nuclear physics community. The Panel's overall summary of the research program was that it is "outstanding". The panel was pleased with the hiring of our Chief Scientist, A. W. Thomas, and noted the excellent work of the Theory group. The Lab's preparations to minimize damage from Hurricane Isabel and the Accelerator Division's tremendous efforts to get the experimental program back online were applauded by S&T reviewers. They also lauded the lab's accomplishments in support of the SNS project, recognized the FEL's achievement of 10 kW and its roles as a model application of the lab's core competency, and congratulated the lab on the significant achievement of receiving Approval of Mission Need (CD-0) for the 12 GeV Upgrade.

In addition to this annual assessment of our science and technology programs, the biennial Institutional Management Review was held this year. The Lab's performance in the areas of Strategic Planning, Managerial Effectiveness, and Organizational Culture were rated as "Outstanding" (91%). This review looks not only at what we have accomplished, but grades our plans for the future, the environment we have created at the Lab for our employees, and our outreach activities.

Our focus for the coming year must be worker safety. Lab performance has not met our own or DOE expectations in this important area. We have mobilized management and staff to ensure a safe working environment by identifying focus areas and developing and implementing suggestions for improvements. We are working to integrate the plans in these focus areas utilizing our own safety professionals as well as outside experts in the safety field. We have plans to hire a safety professional who will report to me directly as recommended in our Institutional Management Review. We will continue to make safety a top priority to achieve measurable progress in safety performance metrics and to strengthen our safety culture.

We have developed a strong vision that is aligned with the Department's mission and goals, and we have in place the organizational structure and science and technology assets needed to achieve that vision. Excellence must continue to be our standard in all that we do, with metrics and assessments providing both feedback and direction as we strive to attain that standard.

Overview of
FY04 Appendix B Performance Measures Scoring
By Performance Area

Appendix B Performance Measures and Their Key Indicators

Section	Description	Key Indicator	Point Value
1	Outstanding Science and Technology	Peer Review	625
2	Corporate Citizenship – Public Outreach – Tech Transfer	• Public Participation • Non-DOE Investment in Jefferson Lab Initiatives	75
3	Quality Performance in Environment, Health, and Safety	• Total Recordable Case Rate (TRC) • Days Away, Restricted or Transferred (DART) • Environmental Exceedances	150
4	Business & Administrative Practices	Peer Review	100
5	Responsible Institutional Management	Peer Review	100
6	Project Management	Schedule Performance – SNS – CEBAF Center Addition	47*
Total Point Value			**1097***

Total Score - Appendix B Performance Measures

Section	Description	Point Value	Points Awarded	Percent of Assigned Pts	Adjectival Rating
1	Outstanding Science and Technology	625	600.1	96.0%	Outstanding
2	Corporate Citizenship	75	73.8	98.4%	Outstanding
3	Quality Performance in Environment, Health, and Safety	150	133.9	89.3%	Excellent
4	Business & Administrative Practices	100	94.4	94.4%	Outstanding
5	Responsible Institutional Management	100	91.0	91.0%	Outstanding
6	Project Management	47*	46.7	99.4%	Outstanding
Total FY04 Score Appendix B		**1097***	**1039.9**	**94.8%**	**Outstanding**

* Reduced 10 points from Appendix B because of delay in CEBAF Center project funding award of CD-3 for the CEBAF Center Project.

Details of Scores By Performance Measure

1. Outstanding Science and Technology						
PM	**Description**	**Point Value**	**Points Awarded**	**Goal**	**Raw Score**	**Adjectival Rating***
1.1	**Key indicator - Peer Review**	355	332.2	355	332.2	Outstanding
	Subtotal Peer Review	**355**	**332.2**	**% of Points Assigned = 93.6%**		**Outstanding**
1.2	**Reliable Experimental and Accelerator Operations**					
1.2.1	Delivered Physics Research Operations	100	100	5212.8	6840.5	Outstanding
1.2.2	Accelerator Downtime	40	40	≤15%	12.0%	Outstanding
1.2.3	Experimental Equipment Availability Hall A Hall B Hall C	20	20	78.5% Total Availability 77.5% 80.0% 77.5%	87.0% Total Availability 70.6% 94.2% 92.1%	Outstanding
1.2.4	Effectiveness of the Scheduling Process	20	19.5	100%	97.6%	Outstanding
1.2.5	Overall Operations Effectiveness	20	20	27 weeks	27.6 weeks	Outstanding
	Subtotal Reliable Experimental And Accelerator Operations	**200**	**199.5**	**% of Points Assigned = 99.8%**		**Outstanding**
1.3	**Production of Scientific and Technical Manpower**					
1.3.1	Number of Student Years Per Year on Jefferson Lab Related Research or Technical Activities	20	20	1,075	1085	Outstanding
1.3.2	Number of Advanced Degrees Per Year Based on Jefferson Lab Research	35	35	53	97	Outstanding
1.3.3	Number of Advanced Degrees Per Year Granted by Minority Universities and Based on Jefferson Lab Research	5	5	6	9.7	Outstanding
1.3.4	Participation of Students From Groups Traditionally Underrepresented in Physical Science and Engineering Fields	10	8.4	35%	27%	Excellent
	Subtotal Production of Scientific and Technical Manpower	**70**	**68.4**	**% of Points Assigned = 97.7%**		**Outstanding**
TOTAL OUTSTANDING SCIENCE AND TECHNOLOGY		**625**	**600.1**	**% OF ASSIGNED PTS = 96.0%**		**Outstanding**

2. Corporate Citizenship						
PM	**Description**	**Point Value**	**Points Awarded**	**Goal**	**Raw Score**	**Adjectival Rating***
2.1	**Public Outreach and Improved Scientific Literacy**					
2.1.1	**Key Indicator - Public Participation**	20	20	90,000	90,652	Outstanding
2.1.2	Public Visibility (a) Number of Articles (b) Citations Mentioning DOE	 7 3	 7 3	 900 100%	 904 100%	 Outstanding Outstanding
2.1.3	Customer Satisfaction	5	4.6	100%	91.6%	Outstanding
	Subtotal Public Outreach and Improved Scientific Literacy	**35**	**34.6**	**% of Points Assigned = 98.9%**		**Outstanding**

2. Corporate Citizenship						
PM	**Description**	**Point Value**	**Points Awarded**	**Goal**	**Raw Score**	**Adjectival Rating***
2.2	**Technology Transfer**					
2.2.1	**Key Indicator - Non-DOE investment in Jefferson Lab initiatives (including direct dollars, manpower costs, and contributions in-kind)**	20	20	2 – 2.5% of JLab ops budget	12.3%	Outstanding
2.2.2	Intellectual property generation as indicated by the annual number of (a) Patent applications (b) Patents awarded (c) License agreements	10	10	5 or 1 or 2	11 10	Outstanding
2.2.3	Benefit to partners based on customer surveys	10	9.2	5.0	4.2	Outstanding
	Subtotal Technology Transfer	**40**	**39.2**	**% of Points Assigned = 98.0%**		**Outstanding**
TOTAL CORPORATE CITIZENSHIP		**75**	**73.8**	**% OF ASSIGNED PTS = 98.4%**		**Outstanding**

3. Quality Performance in Environment, Health, and Safety						
PM	**Description**	**Point Value**	**Points Awarded**	**Goal**	**Raw Score**	**Adjectival Rating***
3.1	**Key Indicator – Total Recordable Case Rate (TRC)**	50	38.4	≤1.0 per 100 person years	2.0	Good
3.2	**Key Indicator – Days Away, Restricted or Transferred (DART) Case Rate**	50	46.3	≤0.4 per 100 person years	0.7	Outstanding
3.3	**Key Indicator – Environmental Exceedances**	20	20	4 times as good as the DOE complex average	0.0	Outstanding
3.4	Reportable Radiation Exposures	4	4	Satisfactory ALARA program; no exposures >80% of ORPS SC3 threshold	0 Reportable Exposures	Outstanding
3.5	Hazardous Substance Exposures	4	4	No exposures above OSHA action level	0 Reportable Exposures	Outstanding
3.6	Solid Waste Recycled	6	6	Exceed FY94 baseline ratio by 44%	R=0.11	Outstanding
3.7	Radioactive Waste Generation	4	4	≥.90 of radioactive waste generated for useful purposes	0.99	Outstanding
3.8	Pounds of Hazardous Waste Produced	4	4	Produce <0.25 of maximum useful hazardous waste	R=0.17	Outstanding

3. Quality Performance in Environment, Health, and Safety						
PM	**Description**	**Point Value**	**Points Awarded**	**Goal**	**Raw Score**	**Adjectival Rating***
3.9	Peer Review of the Radiological Control Program (Even Years)	4	3.8	Appropriate program = 100	90	Outstanding
3.10	"Highly Protected Risk" Rating for High-Value Facilities	4	3.4	All facilities meet highly protected risk designation	93	Excellent
TOTAL QUALITY PERFORMANCE EH&S		**150**	**133.9**	**% OF ASSIGNED PTS = 89.3%**		**Excellent**

4. Quality of Business and Administrative Practices						
PM	**Description**	**Point Value**	**Points Awarded**	**Goal**	**Raw Score**	**Adjectival Rating***
4.1	**Key Indicator - Peer Review**	70	65	100%	92.9%	Outstanding
	Subtotal Peer Review	**70**	**65**	**% of Points Assigned =92.9%**		**Outstanding**
4.2	**Facilities Management**					
4.2.1	Asset Condition Index (ACI) defined as one (1) minus the ratio of Deferred Maintenance to Replacement Plant Value	2	1.6	≥ 98%	95%	Excellent
4.2.2	% of Planned Facility Condition Assessments Completed	2	2	≥94%	100%	Outstanding
4.2.3	% of Indirect Projects Completed from the Planned Project List	2	2	≥94%	95.8%	Outstanding
	Subtotal Facilities Management	**6**	**5.6**	**% of Points Assigned = 93.3%**		**Outstanding**
4.3	**Property Management & Protection**					
4.3.1	% of value of property located during the inventory cycle: Capital Property (Odd Years)	N/A in FY04	0	≥99%	N/A	N/A
4.3.2	% of value of property located during the inventory cycle: Sensitive Property	4	4	≥99%	99.54%	Outstanding
	Subtotal Property Management & Protection	**4**	**4**	**% of Points Assigned = 100%**		**Outstanding**
4.4	**Financial Management**					
4.4.1	Number of CAS violations	1	1	0	0	Outstanding
4.4.2	Dollar % of invoices deemed unallowable	1	1	≤1%	0	Outstanding
4.4.3	% of vendor invoices paid with discounts lost	1	1	≤1%	0.05%	Outstanding
4.4.4	% of annual actual cost variance from budget for each overhead pool	1	1	≤3%	0.85%	Outstanding
4.4.5	Number of occurrences that Cost Management Report had to be resubmitted to Contracting Officer – DOE Site Office	1	1	0	0	Outstanding
4.4.6	Number of audit errors in travel expense reports	1	1	≤2%	0	Outstanding
	Subtotal Financial Management	**6**	**6**	**% of Points Assigned= 100%**		Outstanding
4.5	**Procurement**					
4.5.1	Average procurement cycle time	3	3	<10 days	3.55	Outstanding

4. Quality of Business and Administrative Practices						
PM	**Description**	**Point Value**	**Points Awarded**	**Goal**	**Raw Score**	**Adjectival Rating***
4.5.2	% of total available purchasing dollars awarded to: small business concerns, small women-owned business concerns, and small disadvantaged business concerns	SB 1 WO 1 SD 1	1 1 1	≥48% ≥5% ≥6%	49.4% 12.1% 10.8%	Outstanding
	Subtotal Procurement	**6**	**6**	**% of Points Assigned = 100%**		**Outstanding**
4.6	**Human Resources and Services**					
4.6.1	% of action oriented diversity commitments as established in the Affirmative Action Plan	1	1	≥ 90%	100%	Outstanding
4.6.2	Representation of protected classes within each EEO-1 category	1	.8	100% Maintained	17 of 20 fully utilized	Excellent
4.6.3	Sustainable EEOC charges	1	1	0 Charges	0 Charges	Outstanding
4.6.4	Compensation positions aligned with market practices	1	1	± 3% of Market Average	-1.1%	Outstanding
4.6.5	% of 3-year rolling average of annual increases in premium cost relative to market	1	1	≥ 5% Below Market Data	-11.5%	Outstanding
	Subtotal Human Resources and Services	**5**	**4.8**	**% of Points Assigned = 96.0%**		**Outstanding**
4.7	**Information Systems**					
4.7.1	Cyber Security Review (5pts, held every 3 years, next one in '05)	N/A	N/A	>90%	N/A	N/A
4.7.2	Number of times JLab computer systems were compromised or used to attack other systems	2	2	≤ 1	0	Outstanding
4.7.3	% of current year's papers written by JLab staff or Users placed online	1	1	≥97%	100	Outstanding
	Subtotal Cyber Security	**3**	**3**	**% of Points Assigned = 100%**		**Outstanding**
TOTAL BUSINESS & ADMIN PRACTICES		**100**	**94.4**	**% OF ASSIGNED PTS = 94.4%**		**Outstanding**

5. Responsible Institutional Management						
PM	**Description**	**Point Value**	**Points Awarded**	**Goal**	**Raw Score**	**Adjectival Rating***
5.1	**Key Indicator - Responsible Institutional Management Peer Review**	100	91	100	91	Outstanding
TOTAL INSTITUTIONAL MANAGEMENT		**100**	**91.0**	**% OF ASSIGNED PTS = 91.0%**		**Outstanding**

6. Project Management						
PM	**Description**	**Point Value**	**Points Awarded**	**Goal**	**Raw Score**	**Adjectival Rating***
6.1	**Key Indicator - Schedule Performance SNS**	35	34.8	Ahead of or on schedule	0.06 months behind schedule	Excellent
6.2	**Key Indicator - Schedule Performance on the CEBAF Center Addition**	10	10	Ahead of or on schedule	Average 13 days ahead of schedule	Outstanding

6. Project Management						
PM	**Description**	**Point Value**	**Points Awarded**	**Goal**	**Raw Score**	**Adjectival Rating***
6.3	Cost Performance on the CEBAF Center Addition Project*	N/A	N/A	>15%	N/A	N/A
6.4	% of Overrun on all Projects >$100K	1	1	≤8%	2.6%	Outstanding
6.5	Variance of Scheduled Completion Time for Projects >$100K	1	.9	≤1.10	1.12	Excellent
TOTAL PROJECT MANAGEMENT		**47**	**46.7**	**% OF ASSIGNED PTS = 99.4%**		**Outstanding**

*See Explanation within Section 6.3

Total Appendix B Score on Performance Measures				
	Point Value	**Points Awarded**		**Adjectival Rating***
TOTAL APPENDIX B SCORE	**1097**	**1039.9**	**% OF ASSIGNED PTS = 94.8%**	**Outstanding**

Adjectival Ratings are assigned as follows:

Adjectival Rating	% of Points
Outstanding	90% to 100%
Excellent	80% to < 90%
Good	70% to < 80%
Marginal	60% to < 70%
Unsatisfactory (Poor)	50% to < 60%
Unsatisfactory (Failing)	<50%

Accuracy at the one decimal point level is to be retained for both percentages and points assigned.

1. Outstanding Science and Technology

Introduction

Description	Point Value	Points Awarded		Adjectival Rating
TOTAL OUTSTANDING SCIENCE AND TECHNOLOGY	**625**	**600.1**	**% OF ASSIGNED PTS = 96.0%**	**Outstanding**

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
1.1	**Key Indicator – Peer Review**	355	332.2	355	332.2	Outstanding
Subtotal Peer Review		**355**	**332.2**	**% of Points Assigned = 93.6%**		**Outstanding**

Discussion

The experimental program at Jefferson Lab continues in steady state operation, with all three halls in production running at design specification. Following PAC26, the complete approved experimental program broken down by subject and hall is:

Topic	Number of Experiments	Hall A	Hall B	Hall C
Nucleon and Meson Form Factors and Sum Rules	29	12	5	12
Few Body Nuclear Properties	29	18	6	5
Properties of Nuclei	28	7	11	10
N^* and Meson Properties	46	7	31	8
Strange Quarks	23	4	15	4
Total	**155**	**48**	**68**	**39**

The Lab believes that this approved program represents some of the best nuclear physics that will be done anywhere in the next decade. The program to date is having a major impact on our understanding of the basic quark structure of matter, and the portion of the program that has been approved but not yet run is of uniformly high quality as a consequence of both the outstanding capabilities of the accelerator and experimental equipment and the intense competition for beam time.

As of the end of FY04, we have completed data-taking for roughly 70% of the program approved to date (though analysis of the data is not as far along). Full data is at hand for 102 of the 155 approved experiments, and significant portions of the needed data have been obtained for 11 more. We were gratified to see that the Science and Technology Peer Review Panel agrees with our assessment of the significance of this program, noting that the JLab "research program is doing an excellent job addressing the relevant scientific questions identified by the Nuclear Science Advisory Committee (NSAC), and the laboratory's research has attracted considerable attention that extends beyond the nuclear physics community." The panel's overall summary of the research was that it is "outstanding".

Some of the particularly noteworthy results identified by the panel included: the parity-violating experiments, the pentaquark searches, the proton electromagnetic form factor measurements, and the lattice Quantum Chromodynamics (QCD) effort. They were particularly happy with our response to the issues raised by the tentative identification of the pentaquark, noting that the "quickness of the laboratory to respond to this issue was impressive and demonstrated an admirable flexibility in the laboratory's ability to schedule experiments despite the four year backlog of approved experiments." The Panel (and we) are looking forward to data from the continuation of the program using the base equipment in the halls and from the enhanced capabilities associated with three major installation experiments planned for the near future: the backward angle measurements of the strange quark form factor of the proton by the G0 experiment; the measurement of the neutral pion lifetime by the PrimeX experiment (now well underway); and the next generation of high-resolution hypernuclear spectroscopy that will be made possible by the installation (in FY05) of the new HKS spectrometer. FY05 should also see results from the analysis of the new data on the pentaquark that is now in hand.

Other achievements of significance in the nuclear physics program included: a year of three-hall operation with significantly improved accelerator availability, continued high hall availability, and a multiplicity of 2.54 the continued delivery of >5 GeV beam for physics; and the final stages of the development of the unique beam structure required for the G0 experiment and its delivery within specifications for the entire forward angle run of G0, with the simultaneous delivery of high resolution ($\delta E/E < 3\times10^{-5}$) beams for hypernuclear physics. The recovery from the impact of Hurricane Isabel was also deemed noteworthy, with the panel stating that "the laboratory is to be congratulated for a very effective recovery effort from the severe power interruption from Hurricane Isabel and for the subsequent highly successful operation of CEBAF." They went on to note:

> "The Accelerator Division is commended for its performance this year of meeting or exceeding operational goals, in spite of having to recover from Hurricane Isabel, which caused the loss of 75% of the facility's liquid helium supply and the warm up of the superconducting RF (SRF) accelerating cavities to room temperature. The laboratory took advantage of this unfortunate situation to perform maintenance on the accelerator that resulted in improved availability once operations were restored. This effort contributed to the laboratory exceeding its performance requirements this year and running its full schedule in spite of the lost time from the hurricane."

The large backlog of experiments (~4.7 years in Hall A, 4.8 years in Hall C and 3.9 years in Hall B at the present, 30 week/year level of operations) continues to be a concern. Progress has been made toward reducing it through a thoughtful review of scientific priorities via the PAC jeopardy process, and this avenue will continue to be pursued. However, the preferred solution would be increased weeks of accelerator operations and increased availability, both of which are difficult in times of tight resources. The additional operating funds required to have a significant (~15% increase) impact on overall scientific throughput are relatively modest.

One of the major accomplishments of the year was the validation for our vision for the facility's future provided by the signing of CD-0 for the 12 GeV Upgrade. A major focus of the coming year will be the completion of the R&D necessary to advance the project, and the development of a Conceptual Design Report for the facility. Much of the key work on the physics portion of the document has been done as part of the preConceptual Design Report (pCDR) released this year.

Another major accomplishment of FY04 has been the addition of Anthony Thomas as the laboratory's Chief Scientist. The committee shared our enthusiasm for Tony's arrival, noting that "the reviewers considered A. W. Thomas an excellent choice for the position of Chief Scientist. He appears to have a clear vision for the group and an appreciation of the challenges it faces and its opportunities for growth."

In commenting on the Theory Group in general, they observed that "the group's research program is well balanced, aligned with national priorities and generally well tuned to the laboratory's experimental program." The value of our recent hires of two new staff members in phenomenology was also recognized. One key concern noted by the Panel was the rate of progress on the analysis of the extensive data from CLAS and other JLab experiments on baryon structure. Action toward the establishment of an Excited Baryon Analysis Center (a key part of our plan to address issues associated with moving this analysis forward more rapidly) is proceeding with the submission of a revised proposal to DOE. We share the Panel's view that this effort is critical since the "EBAC initiative and related efforts, such as the future Hall D program, are an essential part of the long-term program at the Laboratory." We are hopeful that it can begin shortly.

Two other theory initiatives in progress are an effort to develop world-class capability in lattice QCD and a plan to expand a visitor program that will bring more theorists to the laboratory. These were both welcomed by the Panel, which noted:

> "The laboratory is in a position to develop a world-class capability in lattice QCD, an essential theoretical tool for progress in hadron physics. An enhanced Hadron Physics visitor program has the potential to bring additional theory resources to the Laboratory, and create an internationally renowned focus for Hadron Physics Theory."

Accelerator operations in FY04 continued to receive an outstanding rating based on the contract performance metrics. A year ago there was some concern that the accelerator availability was dropping and that management was not giving high enough priority to accelerator operations. This year the accelerator availability was up significantly (despite major demands placed on the accelerator by the need to simultaneously deliver both the parity quality, high bunch charge G0 beam and a beam with low energy spread for the Hall A hypernuclear program), and the "hard down" time was reduced by 20% of its value. The committee commended the effort involved, noting that:

> "The laboratory responded to last year's S&T action items concerning accelerator operations. The recovery and subsequent excellent performance of CEBAF demonstrated that accelerator management was intimately involved in accelerator operations and that the integration of CASA support of operations had improved."

We continue to give the efficient operations of the accelerator and experimental equipment the Lab's highest priority, and presented the committee with our "in place" strategy for enhancing accelerator availability, which includes: a long-range planning role for the Jefferson Lab Research Operations Committee (JROC), the implementation of a long-term maintenance plan (that is being coordinated with DOE), a further strengthened role for the Center for Advanced Studies of Accelerators (CASA),

and a more formalized review of beam requirements by the Nuclear Physics Experiment Scheduling Committee. The committee agreed that

> "The long range maintenance plan and the AIP plan are well developed and properly addresses the machine maintenance needs and the performance requirements of the planned future experiments."

They also noted that:

> "The efforts of CASA in its pursuit of improved understanding of the linac injector, beam breakup effects in the FEL, and in developing transport optics for the G0 experiment have been outstanding,"

and indicated their overall satisfaction with our strategy.

The SRF Institute's work in developing cryomodules for the Upgrade while simultaneously fulfilling responsibilities for SNS was also praised; the panel noted that "the laboratory is to be congratulated on its effort to support the SNS construction, an important Office of Science project." They went on to comment about the importance of SRF R&D for future Office of Science facilities, noting that:

> "At the present time, the SRF facility at TJNAF for assembling, testing and qualification of SRF cavities constitutes the largest capability world-wide. Capitalizing on these capabilities, the SRF Institute has proposed a Center of Excellence in SRF technology. The laboratory was encouraged to develop a plan for the SRF Center that fits into a comprehensive national accelerator R&D plan, capitalizes on the existing capabilities so as to attract world class experts, and encourages the transfer of SRF fabrication technology to industry."

We are in the final stages of developing such a plan, and expect to submit it to DOE shortly.

The Panel also recognized the outstanding success of the FEL program, noting that it is "a superb example of the application of core competencies of JLab to develop novel accelerator systems which have broad applications in defense and basic science." At the time of the review the FEL was operating within a factor of two of its design goal; it has since met that goal and detailed studies of its capabilities and characteristics are underway. We now have every expectation that stable Department of Defense funding for a 5-year program of operations and development will be forthcoming soon. Interest in high-power, short-pulse light in the terahertz and far infrared regimes continues to grow, and we continue to work with the potential user community for this facility to identify the best science that can be done using the FEL's unique beam characteristics and to make the case for operations support for basic science as well as more applied work.

The Panel noted some concerns on the part of the User community about their involvement in the planning of the CEBAF Center addition. We are working hard to address that concern through communication with the Users and, in particular, with the Users' Group Board of Directors. A key part of the general "space crunch" will be solved with the completion of the CEBAF Center Addition project, which is progressing well now that funding has been secured.

Looking ahead, we have found setting overall priorities for FY05 within our continuing financial constraints exceedingly difficult. The highly desirable increase represented in the President's budget request for FY05 is, at the time of this writing, still not realized as the budget for FY05 has not been passed. In addition, there are increasing pressures on our budget to support essential R&D for the 12 GeV Upgrade and the writing of the Conceptual Design Report. Despite this situation, we began FY05 with a plan to keep at the 30-week level of FY03 (and at the "Isabel corrected" level of operations in FY04). We also continue to be concerned that rising maintenance costs for aging equipment may make maintaining this level of operation difficult, and have submitted a long-term maintenance plan to DOE that will address this problem.

Another major area of concern is EH&S. As the Panel noted, we have experienced an increased rate of "Days Away, Restricted or Transferred" (DART) and "Total Recordable Cases" (TRC). Although the DART rate at the end of FY04 had improved, addressing this is a major focus of laboratory management efforts, and we have taken a multi-pronged approach involving both internal reviews of safety in a variety of areas (electrical safety, materials handling, and use of personal protective equipment) and external review of our overall management of EH&S at the laboratory using PrSM Corporation, a company with extensive experience in safety at DOE laboratories.

In FY05, we will continue to maximize productivity through careful internal prioritization and resource allocation. While we remain unable to invest adequately in advanced accelerator research and development at our present funding level, we recognize that it will be essential to remedy this problem soon in preparation for the 12 GeV Upgrade. It is also clearly of interest to the larger physics community to see the Lab's Accelerator Physics and SRF expertise strengthened with stabilized funding; we will work with DOE to plan for a long-term solution to this funding problem.

We will also continue to pursue the development of the scientific case for the 12 GeV Upgrade by building on our earlier work, on our evolving understanding of the underlying physics issues, and on the results of the ongoing research program. In FY04 we published the pre-Conceptual Design Report for the Experimental Equipment, and are using it as a basis for the production of a fully-developed Conceptual Design Report in preparation for the upcoming CD-1 review and as a basis for the difficult job of prioritizing the scientific goals of the project.

There is one last observation of the Panel in which we take particular pride – namely that "the reviewers believed that the quality of the staff personnel in theory, experimental and technical domains are outstanding. The dedicated engagement of the staff was particularly visible during the very difficult and demanding recovery from the damage caused by the hurricane."

We were also pleased to note that the panel indicated that "The laboratory responded effectively to all of the action items from last year's S&T Review."

In summary, the Lab found the concrete observations of the Science and Technology Peer Review Panel to be consistent with our own assessment of the Lab's performance. We believe this Review was constructive, useful, and accurate in its observations. The full report of the Review of Science and Technology is included in this document as Attachment A.

Principal Areas of Emphasis for FY05

- Deliver beams as required for the planned experimental program, and continue to manage the approved experiment backlog toward a goal of ~3 years/hall.
- Continue development work toward the prototyping of the final "next generation" cryomodule appropriate for the 12 GeV upgrade. This will include a formal design review of the cryomodule design and in-beam testing of the prototype.
- Develop a CDR for upgrading CEBAF and its ancillary experimental areas to 12 GeV capability.
- Carry out other critical R&D essential for the CD-1 review of the project.
- Further strengthen the science case for BES funding of research using the upgraded FEL.
- Present to DOE a plan for an SRF Center of Excellence that fits into a comprehensive national accelerator R&D plan, capitalizes on the existing capabilities to attract world class experts, and encourages the transfer of SRF fabrication technology to industry.
- Develop a white paper articulating the physics that JLab wants to address through LQCD JLab computing, identifying the needed computing capabilities and subsequent resources and how the national LQCD collaboration will contribute to this effort.
- Continue close interactions and involvement with the nuclear physics user community.
- As soon as funding permits, create an Excited Baryon Analysis Center to optimize the physics output from the CLAS detector (a revised proposal has been submitted to DOE addressing questions raised in the intial reviews of our first proposal for this center).
- Continue to fulfill all obligations to the SNS project.
- Participate as requested in RIA R&D.

1.2 Reliable Experimental and Accelerator Operations

Introduction

The overall performance of the accelerator and experimental equipment continues to be a major achievement. FY04 was an exceptional year due to hurricane Isabel that struck the lab on September 18, 2003. The hurricane impacted the main electrical feed to the site for four days allowing the superconducting RF modules to warm up to near room temperature, many of them for the first time since installation. We elected to take the opportunity to perform preventive maintenance on the electrical substations and the Central Helium Liquefier (CHL) that is difficult to schedule in normal running. In parallel, an enormous amount of other preventive maintenance was carried out, which has had a positive impact on the accelerator availability for the rest of the fiscal year (12% down compared to around 15% in recent years). The recovery from the hurricane took six weeks, but we hoped to be able to recover about half of this running time during the year by compressing the previously scheduled downtimes (we had accomplished much of the maintenance foreseen for these periods during the post-hurricane recovery). Accordingly, we negotiated with the DOE to redefine the FY04 goal for Overall Operations Effectiveness to be 27 weeks of operation for physics research. By the end of the year, we managed to provide 27.55 weeks of running, a notable achievement. In addition, the number of experiments running in parallel was increased with an average multiplicity of 2.54, one of the highest values ever. The availability of the experimental equipment continued to be high in halls B and C, but there were problems with the new septum magnets in Hall A, which caused considerable loss of beam time. This necessitated a complete reshuffling of the experimental program in the spring

of 2004. Overall, we exceeded the primary physics metric, Delivered Physics Research Hours, by 31.2%, a significantly greater margin than last year. The Accelerator Availability for Physics Research (which measures the fraction of time that the users are happy with the beam) was 70.8%, about as good as in previous years even though the beam specifications needed for the experimental program were the tightest we have ever attempted (and achieved).

Operation in the first part of the year in Hall C was for the engineering run and first production run of the G0 experiment, which needed special beam conditions (one bunch every sixteen buckets). For last year's commissioning run, a Ti-Sapphire laser capable of delivering the required 31.2 MHz beam structure was acquired. The unusual bunch structure – the first time that CEBAF had delivered anything other than 499 MHz bunch trains – created problems for the beam diagnostics as well as bunch formation in the injector. It proved possible to create the G0 bunch conditions using strong longitudinal focusing in the injector to counter the strong space-charge forces. However, these conditions were not fully compatible with the bunches required for Halls A and B which have lower space charge forces, so a compromise had to be found. The Accelerator Division applied significant accelerator physics resources to achieving the tight parity quality beam specifications required, and at the same time producing the high bunch charges desired by the G0 collaboration. The G0 experiment got excellent results in the engineering run so that the production run was allowed to proceed. This was a significant achievement for the accelerator.

In Hall A, the extremely demanding hypernuclear experiment, which requires a very small energy spread ($<2.5 \times 10^{-5}$), was initially scheduled to avoid running concurrently with the G0 experiment. However, the schedule was compressed due to the hurricane and the experiments partially overlapped. Nevertheless, the beams delivered to the experiment achieved the tight tolerances on energy spread, and in addition, a new non-invasive monitor and modified beam optics were designed and commissioned so that the performance could be demonstrated in real time during the entire time the experiment was taking data.

The performance measures continue to be extremely useful both to management and the users. The main challenge in FY05 will be achieving the high energy running that the Physics program requires. A significant result of the hurricane was that four cavities had to be removed from service, and the arc rates in many other cavities were adversely affected. This lowered the overall top energy of the accelerator. A considerable amount of time was spent to characterize the cavity performance and it was decided to operate in FY05 at 5.75 GeV, albeit with an enhanced trip rate. Early indications in September 2004 showed that the trip rates were as predicted, a good indicator for next year's running.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
1.2.1	Delivered Physics Research Operations	100	100	5,212.8 hours	6,840.5 hours	Outstanding

Discussion

This "bottom line" metric compares the number of delivered hours of physics research operations for which both beam and experimental equipment are simultaneously available to the number of hours that would be delivered if the goals for beam and experimental equipment availability, multiplicity (average number of halls in simultaneous use), and operations schedule were all met.

This is the seventh year we have used this metric, and we continue to believe that it represents the overall productivity of the facility and provides a firm basis for many detailed operational decisions by keeping focus on the overall physics output. As noted above, this year we exceeded our goal by 31.2%, compared to 10% in FY03, 29.9% in FY02 and 19% in FY01. Because just reaching the goal means that some experiments do not obtain all the data they anticipated (due to fluctuations in accelerator and hall availability experiment-by-experiment that are averaged in the overall metric), we will continue to work hard to enhance this margin in FY05.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
1.2.2	Accelerator Downtime	40	40	≤15%	12%	Outstanding

Discussion

Accelerator downtime is the time during which the accelerator although scheduled for machine development or physics running is able to support neither machine development nor the research program of a least one hall.

This was the second year for this new "Accelerator Downtime" metric that has become a complex-wide standard at DOE. Our downtime this year was 12%, compared to 15% in FY03. This was a significant achievement for the accelerator and required an incredible investment of skill and hard work to achieve – partially fueled by the desire to profit from the hurricane. We will do our best to maintain this level, but it will not be easy.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
1.2.3	Experimental Equipment Availability	20	20	78.5% Total	87.0% Total Availability	Outstanding
	Hall A			77.5%	70.6%	
	Hall B			80.0%	94.2%	
	Hall C			77.5%	92.1%	

Discussion

This metric compares the average availability of experimental equipment in the three halls during the year to the average if the availability goal in each hall is met. The averages are weighted by the hours of operation in each hall.

Hall availability was outstanding in Halls B and C, but significantly degraded in Hall A compared to former years. The Hall A program was affected by problems with the septum magnets. Nevertheless, several high priority experiments were completed in Hall A, including the hypernuclear experiment discussed above. The experimental program in Hall B was completely revamped to allow two pentaquark experiments to run, given the extraordinary level of interest that exists in this topic. The experiments were extremely successful, getting significantly more data than originally requested and we are eagerly awaiting the results. Several experiments using the base equipment were completed in Hall C in addition to the G0 experiment discussed above.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
1.2.4	Effectiveness of the Scheduling Process	20	19.5	100%	97.6%	Outstanding

Discussion

Because Jefferson Lab is a user facility, it is important that experiments begin when they are scheduled. Many users, especially those from abroad, may need to plan their travel well in advance of their actual arrival at the Lab.

This metric is a measure of how closely the average start of experiments matches the scheduled start as given in the "firm" operations schedule. In FY04, most experiments began very nearly at the scheduled time earning 19.5 out of 20 possible points – the best result ever. The exception was caused by delays in the Hall A program necessitated by the problems associated with the septum magnets.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
1.2.5	Overall Operations Effectiveness	20	20	27 Weeks	27.6 Weeks	Outstanding

Discussion

This metric is the ratio of total time the accelerator is operating for physics to the operating time set in the annual negotiation of the Lab's operations budget.

In FY04 the number of weeks of operation exceeded the modified goal, an achievement that we are extremely proud of, given the challenges faced in recovering from the hurricane.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
Subtotal Reliable Experimental And Accelerator Operations		**200**	**199.5**	**% of Points Assigned = 99.8%**		**Outstanding**

Changes for FY05

All of the metrics in this section are valid measures of performance and should be retained in FY05.

1.3 Production of Scientific and Technical Manpower

Introduction

Jefferson Lab remains committed to increasing production of scientific and technical manpower by continuing to engage students in a broad range of research projects. Our continued success is indicated, as in previous years, by data gathered primarily with a Jefferson Lab Users Group Survey. In this year's survey, we again provided respondents with an easy means of submitting a "no students" reply by promptly returning the electronic mail survey with that two-word phrase in the subject heading. As in the past, many Users replied to our initial request within hours of our sending it out. In addition to our e-mail survey, we ran a crosscheck of respondents against a list of known Users and

known Jefferson Lab graduate students and consulted Laboratory staff who oversee the work of students in order to enhance the statistical reliability.

In FY05, we will continue to improve our database of Users and students. We will contact Users throughout the year and encourage them to track and report these data. As in the past, we must work to ensure that Users do not overlook the production of advanced degrees that were granted earlier in the same fiscal year. In FY05 we intend to keep our databases and User reports at a level that allows us to minimize follow-up contacts.

Jefferson Lab continues to be strongly involved with the development of research programs and the corresponding production of advanced degrees at Historically Black Colleges and Universities (HBCUs) and at Minority Educational Institutions (MEIs). Advanced degrees have been awarded based upon Lab research at one or more of the seven HBCUs and MEIs with which we have memoranda of understanding (MOU) agreements. During the past fiscal year, Jefferson Lab maintained MOUs with the following HBCUs and MEIs:

- Florida International University
- Hampton University
- Norfolk State University
- North Carolina A&T
- North Carolina Central University
- New Mexico State University
- University of Texas at El Paso

Table 1.3-1 shows the number of advanced degrees granted by these institutions since FY97. Although the absolute numbers in any three-year period are small, they represent a significant fraction of U.S. minority degrees awarded in physics and reflect a promising trend in the participation of minority students in physics research at Jefferson Lab. Annual variations in minority advanced degrees can be attributed both to the time delay in completion of an advanced degree and to statistical fluctuations in small numbers such as these. At least six such students are in progress toward the PhD degree at present and thus a peak in minority degree production may occur in the coming fiscal year. We note that an unusual rise in these numbers was evident for FY02. Such fluctuations lend support to the decision to report a three-year average for this metric.

Table 1.3-1 Advanced Degrees Awarded by Minority Institutions

	FY97	FY98	FY99	FY00	FY01	FY02	FY03	FY04
MS	3	3	3	0	1	6	1	1
PhD	1	1	1	2	3	6	0	1
Total	4	4	4	2	4	12	1	2

Principal Areas of Emphasis for FY05

- We will continue our practice of interviewing each arriving graduate student and conducting follow-up interviews with a majority of those already on site. In addition, we will take advantage of a variety of activities organized under the Jefferson Lab Student Affairs Office to facilitate and enhance the student experience at Jefferson Lab and encourage the research effort at the Lab to become more efficient at production of trained manpower in physics and related technical fields.
- We continue to expand involvement and opportunities—intellectual, social, and recreational—for students during their tenure at Jefferson Lab. Laboratory management has supported use of the Residence Facility Great Room for graduate student meetings, and a dedicated space is now set aside for a graduate student meeting room. Comfortable furniture and facilities for table-soccer and table tennis and a computer terminal are installed in that room. We arrange a regular schedule of seminars presented by the students in addition to other activities that serve to welcome and integrate new students into the student community.
- Jefferson Lab has been actively producing data from the three experimental halls for several years, allowing timely progress in PhD studies. In addition, many theory graduate students are closely associated with the Laboratory. In FY05 we will continue to publicize these unique opportunities in both the United States and throughout the world.
- The head of the Jefferson Lab Student Affairs Office has participated in a Nuclear Sciences Advisory Committee educational subcommittee throughout the past fiscal year with a principal goal being the enhancement of minority participation in nuclear science. Although such a goal is expected to be a long term one, we will continue to make every effort to make Jefferson lab a welcome experience for all students and especially for those previously underrepresented in this field.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
1.3.1	Number of Student Years Per Year on Jefferson Lab Related Research or Technical Activities	20	20	1,075	1,085	Outstanding

Discussion

This performance measure is based on a Weighted Student Involvement Index (WSII) defined by:

WSII (Weighted Student Involvement Index) = 1(HSS) + 2(UGS) + 4(GS)
where HSS = High School Students, UGS = Undergraduate Students,
and GS = Graduate Students

The FY04 score is WSII = 8 + 2x92.5 + 4 x 223 = 1085.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
1.3.2	Number of Advanced Degrees Per Year Based on Jefferson Lab Research	35	35	53	97	Outstanding

Discussion

In FY04, there were 39 advanced degrees (10 Masters and 29 PhDs) awarded that were based on Jefferson Lab research. This performance measure is based on a Composite Degree (CD) Index defined by:

CD (Composite Degrees) = 1(MD) + 3(PHD)
where MD = Number of awarded Masters degrees and PHD = Number of awarded PhDs

The FY 04 CD score is: CD = 10 + 3(29) = 97

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
1.3.3	Number of Advanced Degrees Per Year Granted by Minority Universities and Based on Jefferson Lab Research	5	5	6	9.7	Outstanding

Discussion

In FY04, we report one MS and one PhD degree awarded by a minority institution. By comparison, in FY02 six PhDs and six master's degrees were awarded by minority institutions based on Jefferson Lab research. We feel that the expected fluctuations in these small variables give ample justification to the decision made two years ago to evaluate this datum based on a three-year average. It is also worth noting that 13 African American students are listed on the Jefferson Lab roster of graduate students for FY04.

The score of this performance measure for FY04 is based on the following equation:

CDM (Composite Degrees Minority) = $(MD_y+MD_{y-1}+MD_{y-2} + 3(PHD_y+PHD_{y-1}+PHD_{y-2}))/3$
where MD = Number of awarded Master's degrees and PHD = Number of awarded PhD's and $_y$ is the current year.

In FY04 one PhDs and one MS degrees were granted by minority institutions.

FY04 CDM = (1 x (6 +1 + 1) + 3 x (6 + 0 + 1))/3 = 9.7

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
1.3.4	Participation of Students From Groups Traditionally Underrepresented in Physical Science and Engineering Fields	10	8.4	35%	27.0%	Excellent

Discussion

The Minority Weighted Student Involvement Index for women and underrepresented minorities is:

Scoring: Determine the percent of students at all levels participating in Jefferson Lab based research and technical activities who are women or underrepresented minorities.

$$\text{Participation} = P = \left\{ \frac{\text{Number of research students who are female, African American, Hispanic, or Native American}}{\text{Total number of research students}} \right\}$$

Students who qualify for more than one category can be counted more than once. In order to correct for this bias, each match will be treated as a distinct individual, thereby ensuring that whatever number is added to the numerator also will be added to the denominator.

For FY04 the Jefferson Lab User Liaison Office had registered a total of 246 active, badged graduate students engaged on site in Jefferson Lab research efforts. This group represents the majority of Jefferson Lab graduate students and thus can be expected to yield accurate percentages of participation by underrepresented persons. Of that group:

49 were female,
5 were Hispanic, and
13 were African American.

Two were both female and minority and thus to be included in the denominator as described above.

Thus, Participation $P = \frac{49 + 5 + 13}{246 + 2} = 27\%$

We note that the percentage of Jefferson Lab related female PhD candidates (20%) compares favorably with the results of a recent survey (by an NSAC subcommittee) indicating that 12.5% of nuclear physics PhDs went to women in the period 1991-2002. Similarly, in 2001 there were 18 PhDs and 34 masters degrees awarded in the United States to African Americans in all fields of physics. In FY2004, 13 African American students were seeking advanced degrees based on Jefferson Lab research.

Description	Point Value	Points Awarded		Adjectival Rating
Subtotal Production of Scientific and Technical Manpower	**70**	**68.4**	**% of Points Assigned = 97.7%**	**Outstanding**

2. Corporate Citizenship

Introduction

Description	Point Value	Points Awarded		Adjectival Rating
TOTAL CORPORATE CITIZENSHIP	**75**	**73.8**	**% OF ASSIGNED PTS = 98.4%**	**Outstanding**

Public Outreach

Jefferson Lab's approach to strong community relations and public outreach efforts starts with top management and is based on involvement by the Lab, its leadership and staff in the community. The Director and the Chief Technology Officer serve on a state-wide board called the Virginia Research and Technology Advisory Council and the Virginia Nanotechnology Committee. The Director also is an executive member of the Hampton Roads Partnership, a regional committee whose mission is to unite the region for economic development activities. Other Lab staff are actively involved with and serve as members of committees and boards including: the Jefferson Center for Research and Technology Committee, the United Way of Virginia, Corporate Volunteer Council, the Cooperating Hampton Roads Organization for Minorities in Engineering, the Newport News Environmental Commission, the Newport News Chamber of Commerce Business and Education Council, the Virginia Emergency Management Committee, and the Hampton Roads Research Partnership.

Through these interactions, city officials, state delegates, local business leaders, and the citizens of the community remain informed of Lab activities and staff obtain feedback that strengthens the Lab's involvement with the community. The Lab has a strong sense of community, and takes its role as a responsible community member most seriously. Consistent community involvement provides a forum for community members to ask questions and raise concerns, allowing the Lab to be proactive, accurate, and responsible when dealing with issues that could impact the public.

Jefferson Lab's Corporate Citizenship activities illustrate the continued diligence of the entire staff in engaging the public in a variety of science education and awareness activities and events including: conducting tours and public outreach events—including the very popular biennial open house; giving public lectures to civic groups; and inviting the public to the Lab for guest speaker presentations. These efforts involve the community at Jefferson Lab and result in continued goodwill.

All performance measures for Public Outreach and Improved Scientific Literacy have been reviewed. New metrics levels were set in FY04 that were challenging to meet. JLab proposes no changes to the metrics for FY05.

Principal Areas of Emphasis for Public Outreach in FY05:

- Participation in the 2005 World Year of Physics with events aimed at the general public such as the 2005 Open House, and special lectures regarding Einstein's impact on Jefferson Lab
- Continued emphasis of media coverage in trade and technical journals
- Continue to recruit excellent science series speakers from a broad spectrum of science interests

- Continue to enhance science education activities for students and participate in the DOE High School and Middle School Science Bowl for the State of Virginia

2.1 Public Outreach and Improved Scientific Literacy

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
2.1.1	**Key Indicator – Public Participation**	20	20	90,000	90,652	Outstanding

Discussion

Contributions to the Commonwealth and the nation's science education and literacy are being made by Jefferson Lab, as evidenced in Public Participation metrics. The centerpiece is the Lab's K-12 science education program, Becoming Enthusiastic About Math and Science, most often referred to as BEAMS. The BEAMS program serves all sixth, seventh, and eighth grade students and teachers from two local schools with the most "at-risk" students. Students and teachers visit Jefferson Lab for two to five days of hands-on math and science activities conducted by Jefferson Lab scientists, engineers, and technicians. This continued interaction has yielded measurable results, increasing test scores of these students in Virginia Standards of Learning tests in Math and Science.

During the summer of 2004, 16 middle school science teachers participated in the Lab's Teacher Academy for the Physical Sciences program, a four-week basic refresher course in physics, taught by physics professionals including staff scientists. Additional activities in science education include classroom visits; Physics Fest days (field trips to the Lab); supporting science and high technology high school and college internships; participating as local and regional science fair judges; spring and fall Science Series presentations; and participation in the Department of Energy's High School Science Bowl and for the first time, the Middle School Science Bowl. The students from the Virginia team went on to win the national championship for the third year in a row. During FY04, Jefferson Lab served more than 16,000 students. In addition, the Lab provided in-service activities, which include access to the Lab's expertise and equipment, to more than 2,300 teachers.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
2.1.2	Public Visibility					
	(a) Number of Articles	7	7	900	904	Outstanding
	(b) Citations Mentioning DOE	3	3	100%	100%	Outstanding

Discussion

Public visibility and awareness of the Department of Energy and Jefferson Lab continues to be reinforced through the use of the media and interactions with the public. Local and regional news articles covered events related to Jefferson Lab including the Lab's science, public lectures, and technology development. On the national and international front, the two major Lab physics articles made their way around the world including two *New York Times* articles, *USA Today, Science*, *Science News, The Economist, Physics Today* and with website coverage spanning the globe. The continued subscription by the Department of Energy to a science journalist website called EUREKALERT! continues to give Jefferson Lab news much more exposure nationally and internationally and reflects well in the scores.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
2.1.3	Customer Satisfaction	5	4.6	100%	91.6%	Outstanding

Discussion

The Lab's FY04 activities included participation in the Virginia State Fair. More than 5,000 members of the public came to the JLab stage to hear about the science program and watch a cryogenics demonstration. This is a unique opportunity to present the Lab's science to a slice of the population that would otherwise have no exposure to the Lab. This event is popular with the public. The Lab also conducted over 30 tours—attended by over 1,000 people —for industry and government officials and professional organizations, and provided speakers for civic groups as requested. Customer satisfaction ratings of public tours and student interactions is outstanding, with the negative comments most often being expressions of disappointment when specific areas of the accelerator site are closed for tours due to running experiments.

Description	Point Value	Points Awarded		Adjectival Rating
Subtotal Public Outreach and Improved Scientific Literacy	**35**	**34.6**	**% of Points Assigned = 98.9%**	**Outstanding**

2.2 Technology Transfer

Technology transfer plays a critical role in supporting the Lab's existing science programs (NP and FEL), developing new Lab programs responsive to DOE and national needs (SNS, RIA, LQCD), meeting technology transfer mandates, and building relationships with the community and region to support economic development.

As in FY03, the primary focus of Jefferson Lab's FY04 technology transfer program was on the unique opportunity the FEL represents as a tool for both basic and applied science. The FEL team successfully completed and commissioned the IR FEL Upgrade in FY04 with the achievement of its primary goal: 10 kW of cw power. In addition, work continued in FY04 on the design and construction of the complementary UV Upgrade, which is scheduled to be completed in FY05. The Office of Naval Research and the Air Force Research Laboratory fund the FEL Upgrade work. An interagency agreement between the DOE and the U.S. Army completed in late FY03 allowed us to fund a CRADA with AES, Inc. to design and build a terahertz (THz) beam line for studies of THz imaging and spectroscopy. This beamline will be commissioned in early FY05 and will be available for users who have made preliminary plans for user experiments at two SURA/JLab sponsored workshops on THz applications.

The secondary focus of the technology transfer program continues to be medical imaging, which derives from the Lab's core competency in detector technology. Progress continues on two productive collaborations in this area: (1) The JLab Detector Group continues its partnership with a small business and several research hospitals to further the development of a scinti-mammography medical imaging device that has demonstrated improvements in early breast cancer detection. The small business partner (Dilon, Inc.) has successfully started up production and sales of a commercial scinti-

mammography instrument in FY04. (2) A collaboration continues with Oak Ridge National Laboratory and the Johns Hopkins University to develop instrumentation that will allow bio-medical researchers to study small animals with nuclear medicine imaging techniques while they are awake and unrestrained. This novel technology should offer neural scientists the opportunity to use conscious mice to study neural processes in real-time and over an extended period. The Lab initiated negotiations in FY04 with one small company for licensing the small animal imaging technology. Finally, a new project to develop a next generation gamma imaging device in partnership with the University of Florida and the University of South Florida will be launched in early FY05 funded through the US Army.

The Lab continues its active role in local, regional, and state organizations promoting economic development through partnerships and other technology transfer activities. In addition to the participation described in Public Outreach section of this report, the Lab Director and the Chief Technology Officer serve in organizations such as the Hampton Roads Technology Council, the Peninsula Alliance for Economic Development, the Virginia Research and Technology Advisory Commission, and the Newport News Economic Development Authority.

In FY04 Jefferson Lab continued to work diligently with the Hampton Roads Research Partnership (HRRP) to establish multi-disciplinary, multi-institutional research efforts. The Board of Directors of HRRP is composed of the presidents of eight local universities and directors of NASA and Jefferson Lab. In FY04 the HRRP sponsored a workshop on promoting regional technology transfer initiatives and launched a proposal team for developing bioscience applications of the FEL User Facility.

The Lab's performance generating, protecting, and transferring intellectual property again earned a rating of Outstanding. Ten invention disclosures were submitted by Jefferson Lab staff, eleven patent applications were processed, and ten patents were awarded in FY04 (compared with five in FY03). The Lab also continues to participate in the DOE's SBIR program with three currently active partnerships and participation in the Commonwealth of Virginia's SBIR/STTR Annual Conference for small businesses. Three CRADAs were active in FY04. The total amount of "funds in" to Jefferson Lab as a result of technology transfer activities was $10.3M, slightly more than 12% of Jefferson Lab's annual operating budget of $83.5M.

The adjectival rating for Technology Transfer continues to be Outstanding. But because the increase in technology transfer activities is outpacing the available resources, the Jefferson Lab Technology Review Committee is reviewing all tech transfer processes with the goal of improving and streamlining them so that we can continue to earn the Outstanding rating. This review may result in a future recommendation of modified, even new, metrics for Technology Transfer.

We believe that the performance measures of this section remain valid indicators of the Lab's performance in technical transfer and should remain unchanged. The performance goals likewise are appropriate and should remain unchanged for FY05.

Principal areas of emphasis for technology transfer in FY04 will include:

- Strengthening the support for the 10 kW IR FEL Upgrade as a user facility.
- Re-starting the FEL User program.

- Continued nurturing and growth of medical imaging technology.
- Responding to homeland security requests with Jefferson Lab technologies as appropriate.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
2.2.1	**Key Indicator - Non-DOE investment in Jefferson Lab initiatives (including direct dollars, manpower costs, and contributions in-kind)**	20	20	2 – 2.5% of JLab ops budget	12.3%	Outstanding

Discussion

Non-DOE investment far exceeded the 2.5% goal. DoD was the chief source of Non-DOE funds: $10,264,877.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
2.2.2	Intellectual property generation as indicated by the annual number of (c) Patent applications (d) Patents awarded (e) License agreements	10	10	5 or 1 or 2	11 10	Outstanding

Discussion

The Lab's performance in this area continues to be very strong.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
2.2.3	Benefit to partners based on customer surveys	10	9.2	5.0	4.2	Outstanding

Discussion

A survey of 18 Jefferson Lab partners was conducted by email in late 2004. Of the 18, ten responded with the average score of 4.2 out of a possible perfect score of 5.0.

Description	Point Value	Points Awarded		Adjectival Rating
Subtotal Technology Transfer	**40**	**39.2**	**% of Points Assigned = 98.0%**	**Outstanding**

3. Environment, Health and Safety

Introduction

Description	Point Value	Points Awarded		Adjectival Rating
TOTAL QUALITY PERFORMANCE EH&S	**150**	**133.9**	**% OF ASSIGNED PTS = 89.3%**	**Excellent**

Although Jefferson Lab's EH&S program, as measured by the metrics in this section, is rated "Excellent" with an overall score of 89.3 (133.9 points out of 150), there is one area in which the Lab's performance is not as strong as we would like; total recordable case (TRC) rate. Jefferson Lab's TRC rate did not improve in FY04. However the Lab's Days Away, Restricted, or Transferred (DART) rate did show considerable improvement, dropping from 1.0 in FY03 to 0.7 in FY04. While other Office of Science (SC) labs have driven their TRC rates down in FY04, Jefferson Lab's rate has increased. Jefferson Lab's TRC rate was above the SC goal of 1.44 in FY04.

Jefferson Lab is committed to improving performance on this important metric and plans FY05 initiatives to increase worker safety awareness and improve timely injury reporting. There were at least three FY04 TRC cases that would have been minor first-aid cases with prompt reporting to Medical Services.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
3.1	**Key Indicator - Total Recordable Case (TRC) Rate**	50	38.4	≤1.0 per 100 person years	2.0	Good

Discussion

The Jefferson Lab TRC rate of 2.0 compared unfavorably with the SC goal of 1.44 for FY04. Jefferson Lab plans to improve this metric in FY05 by promoting worker safety awareness and prompt injury reporting as discussed above. This TRC metric compares Jefferson Lab's TRC rate for employees and non-construction subcontractors to SC goals set relative to the OSHA rates for SIC 873 (Research and testing organizations).

We recommend that the TRC metric be retained for FY05 with the scoring revised to reflect the SC goal of 1.10 for FY05.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
3.2	**Key Indicator - Days Away, Restricted, or Transferred (DART) Rate**	50	46.3	≤0.4 per 100 person years	0.7	Outstanding

Discussion

The Jefferson Lab DART rate improved from 1.0 in FY03 to 0.7 in FY04. This DART metric compares Jefferson Lab's DART rate for employees and non-construction subcontractors to goals set relative to the OSHA rates for SIC 873 (Research and testing organizations).

We recommend that this DART metric be retained for FY05 with scoring revised to reflect the SC goal of 0.5 for FY05.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
3.3	**Key Indicator - Environmental Exceedances**	20	20	4 times as good as the DOE complex average	0.0	Outstanding

Discussion

As measured by the number of environmental exceedences, the Lab's environmental program is functioning well. In FY04 no environment permit Notices of Violation were issued to Jefferson Lab. The Laboratory also received the highest award of the Hampton Roads Sanitation District (HRSD) in FY04, the HRSD Gold Award for Pretreatment Excellence.

Because this measure remains a valid indicator of the health of the Lab's environmental program, we recommend that it be retained for FY05 with a revised scoring system similar to that used by the HRSD.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
3.4	Reportable Radiation Exposures	4	4	Satisfactory ALARA program; no exposures >80% of ORPS threshold	0 Reportable Exposures	Outstanding

Discussion

Jefferson Lab's ALARA-based radiation protection program is very effective. There were no FY04 Jefferson Lab radiation exposures requiring special reporting under the DOE occurrence reporting thresholds. The ALARA (As Low As Reasonably Achievable) program, which yearly results in no measurable doses for the large majority of our badged employees and users, is rated "Better Than Satisfactory."

Due to the importance of an effective radiation protection program and because this measure remains a valid indicator, we recommend that it be retained in FY05 with an increase in maximum points available from 4 to 6 points.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
3.5	Hazardous Substance Exposures	4	4	No exposures above OSHA action level	0 Reportable Exposures	Outstanding

Discussion

The Lab hazardous substances program operated effectively through the year. There were no FY04 Jefferson Lab exposures to hazardous substances or chemicals requiring special reporting under either OSHA or DOE occurrence reporting thresholds.

Because this measure remains a valid indicator, we recommend that it be retained in FY05 with an increase in maximum points available from 4 to 6 points.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
3.6	Solid Waste Recycled	6	6	Exceed FY94 baseline ratio (0.021) by 44%	R=0.11	Outstanding

Discussion

Strong recycling efforts by the Facilities Management Department along with broad staff support for recycling resulted in the strong FY04 result. Recycling bins, now conveniently located across the Lab complex, are widely used. FY04 recycling totaled 36.6 tons with 283 tons of solid waste sent to the landfill in FY04. A recycling total of 36.6 tons corresponds to a performance level (fraction of waste recycled) of 0.11, that exceeds the goal of 0.03.

We recommend that this measure along with 3.7 and 3.8 be replaced with the Lab Affirmative Procurement score in FY05 with a maximum of eight (8) points available. We believe that Affirmative Procurement is a more relevant measure of the Lab's impact on the environment.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
3.7	Radioactive Waste Generation	4	4	$\geq$ .90 of radioactive waste generated for useful purposes	0.99	Outstanding

Discussion

There was one radioactive waste shipment (in March 2004) from Jefferson Lab in FY04. The goal of producing >90% of radioactive waste for useful purposes was exceeded for FY04.

We recommend that this measure along with 3.6 and 3.8 be replaced with the Lab Affirmative Procurement score in FY05 with a maximum of eight (8) points available. We believe that Affirmative Procurement is a more relevant measure of the Lab's impact on the environment.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
3.8	Ratio of pounds of hazardous waste produced to pounds that would have been produced without countermeasures	4	4	Produce <0.25 of maximum useful hazardous waste	R=0.17	Outstanding

Discussion

Hazardous waste and division EH&S staff emphasized reduction of hazardous waste in FY04 and their efforts resulted in a rating of outstanding for this metric.

We recommend that this measure along with 3.6 and 3.7 be replaced with the Lab Affirmative Procurement score in FY05 with a maximum of eight (8) points available. We believe that Affirmative Procurement is a more relevant measure of the Lab's impact on the environment.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
3.9	(Peer Review of the Radiological Control Program – Even Years) (Peer Review of Emergency Management Program – Odd Years)	4	3.8	Appropriate program = 100	90	Outstanding

Discussion

The biennial Radiation Control Peer Review was held August 30 – September 1, 2004. The Laboratory's program received a score of 90 (middle of the Outstanding range). This was an improvement from the 2002 panel score of 88. A copy of the Radiation Control Peer Review Report is included in this document as Attachment B.

The two peer reviews conducted by external experts are valid indicators of the health of the emergency management and radiation control programs. We recommend that they continue to be used as performance measures in FY05 with the scoring revised for consistency with the other EH&S performance measures. Also it is recommended that the maximum points available for the annual peer reviews be increased from 4 to 10 points.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
3.10	"Highly Protected Risk" Rating for High-Value Facilities	4	3.4	All facilities meet highly protected risk designation	93	Excellent

Discussion

The August 2004 evaluation review of Jefferson Lab high-value facilities received a score of 93 or 86% of available points. A fire protection engineer associated with the SURA fire and property insurance broker conducted the review. Remediation activities in Hall A, the only facility not meeting the designation in FY04, have not been completed. Thus the 2004 score remained the same as the 2002 evaluation.

Because this measure has not noted any additional fire protection deficiencies, we recommend that it be deleted for FY05.

4. Quality of Business and Administrative Practices

Introduction

Description	Point Value	Points Awarded		Adjectival Rating
TOTAL BUSINESS AND ADMINISTRATIVE PRACTICES	**100**	**94.4**	**% OF ASSIGNED PTS = 94.4%**	**Outstanding**

The Administration Division comprises the Division Office, Facilities Management, Business Services, Division Environmental Health and Safety, and Human Resources (including Medical Services). The key indicator for assessing the Division's performance for FY04 was the annual Peer Review of Administration Division, Chief Financial Office (CFO), and Chief Information Office (CIO). The FY04 review panel stated, "The Administration Peer Review concluded that the three administrative support organizations reviewed, i.e., Admin Division, Office of the CFO, and the Office of the CIO are operating in a highly effective manner. Each of these organizations has developed strategic organizational goals that support the overall mission of the Laboratory and these strategies are being implemented in a conscious and effective manner."

Secondary indicators, as defined in Appendix B, of the SURA/DOE contract assess performance in specific areas and provide a more in-depth evaluation of each of the Administration Division, CFO, and CIO. The results of the FY04 Appendix B metrics are consistent with, and supportive of, the findings of the Peer Review Panel. These results and any accompanying narrative follow departmental overviews below.

Facilities Management

Facilities Management is responsible for performing or specifying performance of all Jefferson Lab facility maintenance, construction, and security. Responsibility for emergency management was transferred to the Office of Assessment under the Director's Office and property services was transferred to the Department of Business Services within Administration Division during the period. Contracted services include: security guard force, janitorial, refuse collection and disposal, pest control, and grounds as well as maintenance of mechanical, electrical (high and low voltage), fire protection, and HVAC control systems. The majority of contracted services are awarded through firm-fixed-priced contracts, and the Lab's Facilities Management staff monitors the outsourced services to ensure quality. A consolidated facilities work control management and reporting system was implemented and is in its first year of operation.

Safety remains the top priority for the Lab as well as Facilities Management. This year refresher safety training was provided to all of our long-term service subcontractors with a special emphasis on electrical safety. All Subcontracting Officer's Technical Representatives for facilities work attended a 12-hour OSHA Construction Safety course. Standard EH&S training was modified for the CEBAF Center Addition project to include OSHA construction safety topics specific to the work being performed for the project.

Using DOE's Federal Information Management System (FIMS), Facilities Management tracks and reports all construction and maintenance on all Jefferson Lab leased or owned buildings, trailers, and

other structures including roads, sidewalks, and grounds. During FY04 Facilities Management verified for all facility replacement plant values and maintenance costs (required, actual, and deferred) and entered them into the FIMS database.

Major projects completed in FY04 include Test Lab and EEL Lighting Modifications, Replacement of LCW Piping at the South Access Building, creation of a Central Chiller Plant for the Accelerator Service Buildings, construction of a North Connector Road, and re-roofing of all Accelerator Service Buildings.

DOE level project funding delayed issuance of CD-3 for CEBAF Center Addition nearly three months with resolution consolidating the funding plan from 3 to 2 years. The construction contract was awarded within days after receiving CD-3 with construction commencing in July 2004. Construction was at the 9% complete mark by the end of FY04. Despite this delay the project is on track for completion by the original date.

Jefferson Lab continues to maintain a flexible posture consistent with the nationwide Homeland Security Advisory System. The Lab's Security Program obtained the highest score on the biennial Security Survey. All Lab staff received the annual integrated security management awareness briefings. Facilities Management staff quickly implemented security enhancements required by DOE in response to national security alerts. A Foreign Visit and Assignments (FV&A) Program is in the process of being implemented at the Lab in response to increased world-wide terrorism.

Business Services

The Business Services Department (BSD) has successfully transitioned to its new role following the Laboratory's reorganization that established the Chief Financial Office in FY03. In FY04, the BSD assumed responsibility for the property management function (transferred from Facilities Management) that expanded its scope of responsibilities to include procurement, online e-commerce system, small business program, technology transfer support, staff services, technical stockroom, electronic equipment pool, copy services, shipping and receiving, mail delivery, and property management.

BSD accomplishments in FY 04 included an "Outstanding" rating on all Appendix B performance measures and participation in the Administration Division Peer Review that earned the Division an "Outstanding" rating from the review team. Other significant contributions include:

- Implementation of an online "Vendor Portal" database that provides the Lab with important information on Lab vendors
- A 60% reduction in the ratio of approving officials to P-Card holders (5.5:1 to 2.2:1) and a 22% reduction in the number of P-cards at the Laboratory
- A customer satisfaction rating of 97% based on results of the Lab's real time procurement customer survey
- Implementation of an online system to enable online processing of domestic and international express mail requests (that resulted in a ½ FTE savings)
- A 26% increase in the number of vendors participating in our just-in-time e-commerce system, and
- Attainment of all socio-economic goals in FY04

Human Resources

Human Resources (HR), which now includes Medical Services as well as the more traditional HR functions of employment, compensation and benefits, employee relations, and training and performance, was both stable and highly productive during FY04. The most significant accomplishment includes the hire of a Director of Human Resources. The new HR Director reported in May 04. Significant accomplishments include:

- Excellent benefit program: 4.2% increase in our Medical Benefits Plan renewal this year
- No unresolved grievances or external complaints
- All individual training plans (ITPs) have been reviewed for Administration Division employees
- EH&S objective included in all performance appraisals and verified all incidents, near misses were included in evaluation
- Implemented Health Insurance Portability and Accountability Act (HIPAA) requirements
- Expanded Automatic External Defibrillator (AED), ergonomics and lead monitoring programs
- Developed Lab-wide staffing plan to assist in workforce planning
- Implemented a special DOE salary adjustment for physicists to improve the Lab's market position
- Enhanced Costpoint HRIS and RecruitMax Applicant Tracking Systems
- Migrated additional EH&S training courses to the web
- Updated the annual security awareness briefing
- Received outstanding or excellent results on all performance metrics

Administration Division Environment, Health, and Safety

Focus on subcontractor EH&S performance continued, with Workers' Compensation experience ratings included in the criteria used both in best-value and conventional, lowest-price subcontract awards. A prospective subcontractor's Workers' Compensation experience rating has proved to be an excellent, results-oriented measure of its commitment to safety.

A revised, risk-based safety-penalty-assessment scheme for subcontractors was introduced in FY04, and the EH&S incentive/penalty clause was specified in more projects (lower dollar-amount) than in the past.

SURA/Jefferson Lab's own Workers' Compensation experience rating continued to be very favorable. For FY03, it was 0.66; "par" for our risk peer group is 1.00. This is indicative of good case-management practices.

Highly Protected Risk (HPR) status is unchanged from 93% (Excellent) in 2002. Because of arrays of wooden spools and cable, needed as signal delay lines, mounted on its shield hut walls, Hall A is the only Lab area not fully meeting HPR criteria. Fire-resistive material now covers the spools on the "outboard" side of each shield hut. The opposite sides had been inaccessible due to the side-by-side configuration of the huts during a lengthy experimental run. Installation will resume at the next scheduled maintenance period, and when this work is complete, Hall A will meet HPR criteria.

The 2003 Emergency Management Peer Review had a very successful outcome. The Lab earned a rating of "Outstanding" with a numerical score of 99%. Per the panel's report, "We believe the Jefferson Lab continues to have a very strong emergency management program supported by management and dedicated professionals. We observed a breadth and depth to the program as evidenced by the presentations and discussions with staff."

The panel pointed to a number of innovations and improvements since the 2001 review, and made special mention of Jefferson Lab's continued excellent partnership with the local emergency response and planning community.

Administrative Division's Strategic Initiatives:

- Contribute to Lab-wide efforts to improve safety performance
- Support 12 GeV Upgrade Project
  - Civil construction
  - Procurement
  - Staffing
- Continued support of 6 GeV operations
- Completion of CEBAF Center Addition project within cost and schedule
- Continue to optimize skill mix for 12 GeV Upgrade
- Optimize space planning for appropriate work space based on tasks performed
- Ensure finalized security order affecting foreign visitors is effectively communicated and implemented
- Complete piloting of basic management development program
- Continued focus on increasing minority/female applicant flow and hires
- Reduce Technical Stockroom inventory to include only mission essential items not readily obtained through procurement
- Implement web-based self-service benefits
- Complete input of historical information into our Human Resource Information System (HRIS)
- Implement a consolidated Facilities Management Work Control and Reporting System
- Continue to implement and improve the Foreign Visit and Assignments program

4.1 Peer Review

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.1	**Key Indicator – Peer Review**	70	65	100%	92.9%	Outstanding

Discussion

2004 Peer Review Results

Key Measure by Group	Available Points	Points Achieved	Adjectival Rating
Admin Division	20	19	Outstanding
CIO	25	23	Outstanding

Key Measure by Group	Available Points	Points Achieved	Adjectival Rating
CFO	25	23	Outstanding
Total Peer Review	**70**	**65**	**Outstanding**

Consistent with the 2002 reorganization, the Administration Division as a whole was given a single rating. The Chief Information Office and the Chief Financial Office were rated separately.

The Administration Peer Review, a performance metric in the SURA/DOE Contract, is conducted as a two day, on-site panel review. The FY04 review, conducted in May 2004, focused on the Chief Information Office and the Chief Financial Office, but included the Administration Division. The six-member review panel included representatives from the scientific community, the DOE, other DOE Laboratories, and representatives with expertise in specific functional areas.

The review panel was charged to determine the quality of standards adopted and pursued; evaluate the effectiveness of all units to carry out their responsibilities in a cost-effective, efficient and responsive manner; identify business units that merit special recognition; and determine aspects of any department's performance that warrant attention for improvement.

During the review, the panel met with and/or received presentations from SURA, the DOE site office, the Laboratory Director, the Associate Directors, the CIO, the CFO, the heads of Business Services, Human Resources and Facilities Management within the Administration Division, and key Lab managers from the operating divisions. Supporting documentation, such as departments' Line Self Assessments, also was made available to the panel. The scores for FY04 are indicated in the table above, and the full report of the FY04 Administrative Peer Review Panel is attached (see Attachment C). The cumulative score of 65 (92.9% of available points) correlates to an adjectival rating of "Outstanding."

The Administrative Peer Review remains the key indicator of the quality of the Lab's business and administrative practices. No change is recommended.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
Subtotal Peer Review		**70**	**65**	**% of Points Assigned = 92.9%**		**Outstanding**

4.2 Facilities Management

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.2.1	Asset Condition Index	2	1.6	≥98%%	95%	Excellent

Discussion

This is the first year Asset Condition Index (ACI) (1-DM/RPV) has been a formal metric. The metric includes DOE owned facilities and does not consider the VARC and Forestry buildings nor personal property trailers. The overall ACI is brought down by the failed condition of our real property trailers.

About 45% of the real property trailers are slated for removal at the completion of CEBAF Center Addition Phase 1.

FIMS Category	Deferred Maintenance (DM)	Replacement Plant Value (RPV)	FCI	ACI
Buildings	$3,200,087	$87,129,133	3.7%	.96
Real Property Trailers	$4,800,798	$4,840,031	99.2%	.01
OSF	$1,597,495	$113,177,442	1.4%	.99
Total	**$9,598,380**	**$205,146,606**	**4.7%**	**.95**

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.2.2	% Of Planned Facility Condition Assessments Completed	2	2	≥94%	100%	Outstanding

Discussion

Condition assessments for the below list of facilities were planned and completed during the fiscal year. The same consultant as last year was used to complete and document these assessments.

Bldg #	Description	SF
8	Central Helium Liquefier	13,980
8A	CHL PUMP HOUSE	731
12	CEBAF Center	66,424
18	Free Electron Laser Building	25,281
19	Forestry	2,904
28	VARC	35,033
72	Physics Storage Building	20,415
85	Machine Control Center	7,625
87	Accelerator Maintenance & Support Bldg	6,720
89	ATS Building	10,152
97	Counting House	16,729
102	End Station Refrigeration Bldg	3,151
	TOTAL	**209,145**

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.2.3	% Of Indirect Projects Completed from the Planned Project List	2	2	≥ 94%	95.8%	Outstanding

Discussion

A total of 24 indirect projects were identified following the establishment of FY04 funding in March 2004. A project to rehab the MCC control room, and an addition of an access road gate were added;

three projects were deferred to FY05 due to funding, and one project is awaiting City of Newport News approval. All but one project on the resulting list was completed during the fiscal year.

Description	Point Value	Points Awarded		Adjectival Rating
Subtotal Facilities Management	**6**	**5.6**	**% of Points Assigned = 93.3%**	**Outstanding**

Business Services

The Business Services Department (BSD) has successfully transitioned its role to focus on procurement, technology transfer support, property management, and staff services following the Laboratory's reorganization in FY03. This year, the BSD assumed responsibility for property management that was transferred from the Facilities Management Department.

4.3 Property Management and Protection

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.3.1	% of value of property located during the inventory cycle: Capital Property (Odd Years)	N/A in FY04	0	≥99%	N/A	N/A

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.3.2	% of value of property located during the inventory cycle: Sensitive Property	4	4	≥99%	99.54%	Outstanding

Discussion 4.3.1 and 4.3.2

Percentage of sensitive equipment located during the inventory cycle was deemed outstanding based on locating 99.54% of all Lab sensitive property in the inventory. Percentage of capital equipment located is applicable for odd fiscal years only. Four points earned.

Description	Point Value	Points Awarded		Adjectival Rating
Subtotal Property Management & Protection	**4**	**4**	**% of Points Assigned = 100%**	**Outstanding**

4.4 Financial Management

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.4.1	Number of CAS violations	1	1	0	0	Outstanding

Discussion

There were no violations of Cost Accounting Standards during this period.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.4.2	Dollar % of invoices deemed unallowable	1	1	≤1%	0	Outstanding

Discussion
The internal audit report for FY03 conducted in FY04 indicated no findings and the Inspector General's Office audit of FY00-FY02 had no findings for Jefferson Lab.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.4.3	% of vendor invoices paid with discounts lost	1	1	≤1%	0.05%	Outstanding

Discussion
Discounts were lost on only one of the 1958 eligible invoices.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.4.4	% of annual actual cost variance from budget for each overhead pool	1	1	≤3%	.85%	Outstanding

Discussion
The variance from budget on the G&A overhead pool was .85% and thus met the measure of <3%.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.4.5	Number of occurrences that Cost Management Report had to be resubmitted to Contracting Officer – DOE Site Office	1	1	0	0	Outstanding

Discussion
There were no Cost Management Reports (533M) re-submitted during FY04.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.4.6	Number of audit errors in travel expense reports	1	1	≤2%	0%	Outstanding

Discussion
There were no expense reports audited that contained an error exceeding $100.

The metrics in the financial management section taken together are valid indicators of performance in this area and should be used again next year.

Description	Point Value	Points Awarded		Adjectival Rating
Subtotal Financial Management	**6**	**6**	**% of Points Assigned = 100%**	**Outstanding**

4.5 Procurement

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.5.1	Average procurement cycle time	3	3	<10 days	3.55	Outstanding

Discussion

Procurement cycle time improved 33% from FY03 (5.34 days) to FY04 (3.55 days) earning an outstanding rating.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.5.2	% of total available purchasing dollars awarded to: small business concerns,	SB 1	1	≥48%	49.4%%	Outstanding
	small women-owned business concerns, and	WO 1	1	≥5%	12.1%	Outstanding
	small disadvantaged business concerns	SD 1	1	≥6%	10.8%	Outstanding

Discussion

The Laboratory exceeded all of its FY04 Small Business Goals to earn an outstanding rating for this category. The Lab has also been very proactive in supporting minority-disadvantaged businesses in FY04 as the recipient of two "Corporate Cups" from the VA Minority Supplier Development Council (Oct '03 and April' 04) and exceeding its FY03 small disadvantaged business goal by 80%.

The metric is a valid indicator of the Lab's performance relative to DOE's Small Business Program and should be used to measure performance next year. However, based on DOE National mandated targets the Laboratory will realize a significant increase in FY05 goals and in some cases this will be very difficult to achieve, particularly goals for Small Disadvantaged and Service-Disabled Veteran-Owned. Small business performance goals for FY05 are: Small Business Concerns 50.0%; Small Disadvantaged Business Concerns 15.0%; Small Women-owned 9.99%; Service-Disabled Veteran-owned 3.0%; and Hub Zone 3.0%.

Future Procurement Improvement Goals and Initiatives

- Assess effectiveness of current SOTR training, and work with Division EH&S staff and SOTRs to institute recommended changes to SOTR training program
- Implement a precious metals program managed by the Lab's Property Officer to monitor and control use of precious metals at the Laboratory
- Institute appropriate feedback mechanisms to utilize subcontractor EH&S performance in future procurements

- Expand utilization of Lab's decentralized just-in-time E-commerce system
- Continue to align procurement resources to meet needs of 12GeV program

Description	Point Value	Points Awarded		Adjectival Rating
Subtotal Procurement	**6**	**6**	**% of Points Assigned = 100%**	**Outstanding**

4.6 Human Resources and Services

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.6.1	% of action oriented diversity commitments as established in the Affirmative Action Plan	1	1	≥ 90%	100%	Outstanding

Discussion

We continued a strong focus on outreach to community organizations and minority recruiting sources, adding websites and organizations as we became aware of them. We were pleased to participate in five career fairs and conferences during the year.

Diversity Commitment	Accomplishments
1) Unless limited by budget constraints, Division HR Administrators will participate in at least three job/career fairs with high female/ minority representation.	HR Administrators participated in career fairs at Hampton University, Old Dominion University, Armed Forces, NAACP, and National Society of Black Physicists (combined with National Society of Hispanic Physicists).
2) The EEO/AA Coordinator and Division HR Administrators will provide continuing assistance to Lab management in integrating the Lab's minority and female goals into their staffing plans.	HR Administrators personally distributed Affirmative Action Plan copies to hiring managers in their specific divisions. Areas of underutilization were discussed and emphasized, together with other details of affirmative action achievements and goals. Human Resources reviews and validates that every member of management has performance expectations relating to EEO/AA. The Lab plans to utilize 2000 census data for its 2005 Affirmative Action Plan and is preparing to adapt to data presented in alternative ways.
3) In partnership with the Newport News Housing & Redevelopment Authority, Jefferson Lab will continue to support the Welfare to Work Program by providing training to program participants, typically females, to prepare them to enter the workforce with a skill.	In partnership with the Newport News Housing & Redevelopment Authority, Jefferson Lab continues to support the Welfare to Work Program by providing training to program participants. An individual was placed at the Lab in July through this Program. In conjunction with the Hampton Roads Workforce Association, we hope to be able to reintroduce a proposed JLab Vocational Training Program. This program will provide unpaid training to RHA selected participants that will give them an opportunity to acquire marketable skills.

Diversity Commitment	Accomplishments
4) SURA's Small Business Representative will support the Lab's Small Business and Small Disadvantaged Business Subcontracting plan by contacting minority and small business trade associations and business development organizations, as well as attending small and minority business procurement conferences and trade fairs.	SURA's Small Business Manager attended the Virginia Minority Supplier Development Council (VMSDC) Trade Fair in Richmond this year and is the Vice Chair for the Tidewater Region of the Council. In addition, SURA received the "Corporate Cup of the Month" for April 2004 from the VMSDC for its outreach program for contracting with minority firms.
5) The minority and female recruiting sources previously identified, as well as newly identified sources, will be contacted and advised of SURA/Jefferson Lab job opportunities.	We continue to target job fairs and job boards that will increase the applicant pool of females and minorities and continue working with local agencies such as VEC, colleges/universities, etc. We have made contact with the Society of Women Engineers, Association for Women in Computing, and the women sections of The Optical Society of America and American Physical Society. The *Woman Engineers* magazine (Spring 2004 issue) featured Celia Whitlatch, who is a female minority engineer at Jefferson Lab. Other avenues include The Hispanic Network Magazine, a proactive approach to recruitment of Hispanics, Native Americans, African Americans, Asians, women, veterans, and physically challenged individuals; LatPro.com, the leading employment source for Spanish and Portuguese speaking professionals throughout the Americas; the National Society of Hispanic MBAs; the Society for Advancement of Chicanos and Native Americans in Science; and DisabilityInfo.gov.
6) Jefferson Lab will continue to advertise job vacancies, including targeted advertising, and the Internet to increase our pool of qualified minorities and females, particularly for technical positions.	The Referral Source Effectiveness Report from RecruitMax (our automated employment system) shows that generally our own JLab webpage is generating the most candidate response. Other online job boards, such as CareerBuilder, are the second most effective, followed by newspaper and publication advertising. This information assists us in determining where best to spend our recruiting dollars. Leads in the Hispanic community have been located at the Society of Hispanic Professional Engineers (SHPE), League of United Latin American Citizens (LULAC), and Hispanic Alliance for Career Enhancement (HACE). The Hispanic Employment Program (HEPM) has been added to the list of posting sites for new openings. The AAP Coordinator represents the Laboratory on DOE's Hispanic Employment Coordinators' Group, whose mission is to increase Hispanic representation within the Department.

Diversity Commitment	Accomplishments
7) A salary equity review will be conducted to identify any salary alignment disparities for females and minorities.	As part of the Lab's annual compensation review, salary equity adjustment funds were distributed with alignment issues as a concern. 40% of the equity adjustments were distributed to females and 20% of the adjustments were distributed to minorities. In both cases, these groups received adjustments at a higher rate than to the general population. In FY04 special salary adjustments were implemented for physicists. As a result of the distribution of these funds, increases to base salaries were 5.73% for minorities compared to 3.92% for non-minorities and 6.99% for females compared to 3.99% for males.
8) The Employment Staff will continue to utilize formal (associations) and informal (employees and colleagues) networks to locate qualified minorities and females for open positions.	We continue to work with various divisions at the Lab on HR participation in any upcoming minority/female conferences, special events, etc. to broaden our outreach efforts. For example, a small team of JLab Hispanics assisted the HR staff in implementing a small but visible celebration of Hispanic Heritage Month for the first time in September 2004. In addition, we continue to network with local Historically Black Colleges and Universities (HBCUs), Virginia Employment Commission, and various local/national agencies such as National Society for Black Physicists, National Technical Association, etc. to establish a more visible presence for Jefferson Lab.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.6.2	Representation of protected classes within each EEO-1 category	1	.8	100% Maintained	17 of 20 fully utilized	Excellent

Discussion

There were three job categories in which we did not maintain our representation: female and minority managers and minority technicians. We are very much aware of our underutilization in the manager category; and although there are few opportunities in these job groups, we are focusing heavily on ways to increase utilization. We believe the decrease in the number of minority technicians is a temporary hiring aberration related to hiring cycles and expect that the current underutilization will be corrected. We are pleased that the female scientist category is now fully utilized and that the percentage of female scientists increased by 1.5% since 9/30/03. Representation also increased in both minority and female officials, female buyers, minority and female administrators, minority scientists, minority and female computing, minority and female engineering, minority office/clerical, and female skilled trades.

JOB CATEGORY	MINORITY %				FEMALE %			
	AVAILABILITY	REPRESENTATION 9/30/03*	9/30/04*	ASSESSMENT	AVAILABILITY	REPRESENTATION 9/30/03*	9/30/04*	ASSESSMENT
1A-Officials	10.9	11.1	14.3	Fully utilized	33.6	33.3	35.7	Fully utilized
1B-Managers	12.6	9.0	7.3	***Not maintained***	26.1	21.8	20.7	***Not Maintained***
1C-Buyers	7.7	22.2	20.0	Fully utilized	46.4	66.7	70.0	Fully utilized
2A-Administrators	16.7	17.4	17.6	Fully utilized	49.3	78.3	78.4	Fully utilized
2B-Scientists	10.9	21.6	23.3	Fully utilized	12.6	10.2	11.7	Fully utilized
2C-Computing	11.8	17.7	20.4	Fully utilized	32.9	31.4	31.5	Fully utilized
2D-Engineering	13.8	15.8	18.5	Fully utilized	10.0	10.5	10.8	Fully utilized
3 -Technicians	17.9	17.3	16.2	***Not maintained***	14.7	17.3	16.9	Fully utilized
5 -Office/Clerical	21.3	35.5	36.5	Fully utilized	85.8	95.2	95.2	Fully utilized
6 -Skilled Trades	25.7	26.3	25.0	Fully utilized	8.3	21.1	25.0	Fully utilized

Legend: **Maintained**: Underutilized but maintained/increased representation.
Not Maintained: Underutilized and representation decreased.
Fully Utilized: Achieved/maintained full representation.

*Adjusted for voluntary separations

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.6.3	Sustainable EEOC charges	1	1	0 Charges	0 Charges	Outstanding

Discussion

The internal grievance procedure is utilized to effectively resolve issues of conflict.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.6.4	Compensation positions aligned with market practices	1	1	± 3% of Market Average	-1.1%	Outstanding

Discussion

Despite a conservative merit program the Lab was able to maintain an outstanding rating due to a targeted market adjustment for physicists. This market adjustment enabled the Lab to partially address the salary lag for the scientific population.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.6.5	% of 3-year rolling average of annual increases in premium cost relative to market	1	1	≥ 5% Below Market Data	-11.5%	Outstanding

Discussion

The Lab had a health benefits renewal significantly below market for the third year in a row. The premium rate increase for FY04 was -12.2 below market. The Lab had below market premium

increases in FY02 (-10.4%) and FY03 (-11.8%). For the first time the Lab score was below the -5.0% required for an outstanding rating. This standard is very difficult to achieve.

Description	Point Value	Points Awarded		Adjectival Rating
Subtotal Human Resources and Services	**5**	**4.8**	**% of Points Assigned = 96.0%**	**Outstanding**

4.7 Cyber Security

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.7.1	Cyber Security Review (5pts, held every 3 years, next one in '05)	N/A	N/A	>90%	N/A	N/A

Discussion
Next review to be held in FY05.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.7.2	Number of times JLab computer systems were compromised or used to attack other systems	2	2	≤ 1	0	Outstanding

Discussion
There were no root compromises during FY04 and no instances of Jefferson Lab computer systems used to attack other systems.

This is a valid metric and should be used next year.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.7.3	% of Current Year's Papers Written by JLab Staff or Users Placed Online	1	1	≥ 97%	100	Outstanding

Discussion
While this metric is valid for FY05, due to the automated system now in place, it should be considered for updating in subsequent years.

Description	Point Value	Points Awarded		Adjectival Rating
Subtotal Cyber Security	**3**	**3**	**% of Points Assigned = 100%**	**Outstanding**

5. Responsible Institutional Management

Introduction

Description	Point Value	Points Awarded		Adjectival Rating
TOTAL INSTITUTIONAL MANAGEMENT	**100**	**91**	**% OF ASSIGNED PTS = 91.0%**	**Outstanding**

Responsible Institutional Management (IM) is assessed via a biennial peer review, which looks at how Jefferson Lab is managed and at how Lab management plans and prepares for the future of the Laboratory. The areas covered are Strategic Planning, Managerial Effectiveness and Organizational Culture.

The 2004 Institutional Management Review was held in August 2004 and was chaired by Charles Shank, Director-at-Large at Lawrence Berkeley National Laboratory. The Panel also included Jerry Bellows, Associate Director for Laboratory Operations at the National Renewable Energy Laboratory; Michael Derbidge, Chief Operating Officer at Argonne National Laboratory; Don Geesaman, Director of Physics Division at Argonne National Laboratory; Walter Henning, Scientific Director at GSI Darmstadt; and Bernard Maguire, Chief Executive Officer of VPA Corporation. The panel found Jefferson Lab to be "a vibrant institution which continues to be well managed and to have a clear vision of its future." The IM review assigned the Lab a rating of "Outstanding," stating that "The Laboratory is clearly making its mark in quark physics and is viewed worldwide as a unique institution…the Lab is delivering on its commitments…(and) Lab culture is viewed as robust."

In its evaluation, the panel found that the Lab has a well-developed strategic plan that capitalizes on its past successes and unique expertise. Plans were viewed as well-focused with correct emphasis in the areas of operations and scientific output. The 12 GeV Upgrade is seen as a priority for the Lab and encouragement was given to take the next steps necessary to make the project a reality. The panel noted that the Lab has established itself as a leader in SRF technology, and recognized the Lab's successful role in the Spallation Neutron Source. The Panel also commented positively on the Navy's long-term future commitment to the FEL program.

Managerial effectiveness at Jefferson Lab was rated "Outstanding." The panel specifically noted the Lab's management of post-Hurricane Isabel recovery and the fact that the recovery time and resources were utilized to perform opportunistic maintenance to enhance machine performance. It was recommended that EH&S communication should be improved and that the Lab should consider establishing a senior manager position charged with improving safety performance. This position should report to the Lab Director. Overall, the review panel felt that the Lab has demonstrated a strong and effective balance between programmatic, EH&S and administrative needs both in day to day operations and in longer term planning.

As part of its assessment, the Panel was presented results from both the Science and Technology Peer Review and the Administrative Peer Review, both of which rated the Lab's performance as "Outstanding." These results were included in the overall assessment of Institutional Management at Jefferson Lab.

The IM Panel met with employees throughout the Lab to help assess the organizational culture. The Panel reported that employees are strongly supportive of the Lab and its mission. The Lab is viewed by employees as a great place to work and morale at the Lab is high. The Panel concluded that communication was open and timely, both within the Lab and with key stakeholders.

Update on Focus Areas

The IM review panel looked at recommendations from the previous Review and determined that the Lab had done a good job of addressing noted issues. Advancing the Nuclear Physics program by enhancing beam-on-target time, stabilizing funding for the FEL and securing the 12 GeV CD-0 all demonstrated that the lab has accomplished the tasks that were identified by previous reviews.

Principal Areas of Emphasis for FY 2005

The reviewers also emphasized that lab management focus their efforts on the following:

- Focus and enhance efforts in EH&S performance; enhancing communication, raising visibility at the Director level and hire a professional who would direct EH&S activities and report to the Director as a strategy to improve safety culture and performance.
- Ensure that the 12 GeV project team has the resources and authority needed to accomplish their goals, especially in light of the heightened DOE expectations in the area of project management
- Maintain record of outstanding performance in assessments and audits
- Move toward activity based budgeting and accounting in the Nuclear Physics Program
- Enhance effective communication with the DOE Site Office

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
5.0	Responsible Institutional Management Peer Review			100	91	Outstanding
	• Strategic Planning	40	37			
	• Managerial Effectiveness	40	36			
	• Organizational Culture	20	18			

Discussion

The IM Peer Review continues to be a valid indicator of performance and provides valuable input to the lab from a variety of perspectives. We recommend that this metric be retained in FY05.

6. Project Management

Introduction

Description	Point Value	Points Awarded		Adjectival Rating
TOTAL PROJECT MANAGEMENT	**47**	**46.7**	**% OF ASSIGNED PTS = 99.4%**	**Outstanding**

Jefferson Lab's rating of "Outstanding" (46.7 of 47 possible points) accurately reflects the Lab's performance on its two major projects, SNS and the CEBAF Center addition, as well as on its smaller projects.

The FY04 SNS metric compares actual cryomodule assembly with the Office of Science weekly schedule. The eleven cryomodules completed in FY04 were assembled an average of only 0.27 weeks behind schedule causing no delays to the overall SNS project. Furthermore cryomodule production will be completed by April 1, 2005, in accordance with the current SNS schedule.

After a more than two month delay in the issuance of CD-3, construction on the CEBAF Center addition began four days ahead of the revised schedule and the first construction milestone (completion of piles and excavation) was achieved 38 days ahead of schedule.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
6.1	**Key Indicator - Schedule Performance SNS**	35	34.8	Ahead of or on Schedule	0.06 months behind schedule	Excellent

Discussion

Jefferson Lab, one of the six partner labs building the SNS in Oak Ridge, Tennessee, is responsible for the SRF cryomodules and the cryogenic system. Jefferson Lab's SNS metric was revised to compare cryomodule assembly with the Office of Science weekly schedule.

FY03 was the fourth full year the Lab was involved in the SNS partnership; our formal involvement started in February 2000. We completed 11 medium-beta cryomodules and 6 high-beta cryomodules. We tested eight medium-beta and two high-beta crymodules at JLab.

JLab assembled 11 SNS cryomodules during FY04. Completion varied from 2 weeks early to 2 weeks late for an average of 0.27 weeks late and a metric of 99.4%. JLab expects to complete the remaining 6 cryomodules in compliance with the current SNS schedule by 1-Apr-05.

CM #	Weeks
M7	2.0
M8	0.0
M9	-2.0
M10	-2.0
M11	1.0

CM #	Weeks
H1	0.0
H3	-1.0
H4	0.0
H5	0.0
H6	-1.0
H7	0.0
Weeks	-0.27
Months	-0.06
%	99.4%

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
6.2	**Key Indicator - Schedule Performance on the CEBAF Center Addition**	10	10	Ahead of or on Schedule	Average of 13 days ahead of schedule	Outstanding

Discussion

Award of the CEBAF Center construction contract was delayed by the late issuance of CD-3. Construction is currently ahead of the project schedule baseline, earning 100% of the 10 available points.

Selected Milestone	Scheduled Date	Revised Scheduled Date*	Actual Date	Difference
Complete Final Design	Jan 30,hj 2004	N/A	Feb 23, 2004	-23
CD-3 Issued	Mar 22, 2004	N/A	Jun 4, 2004	N/A
Award FPSC Contract	April 26, 2004	Jul 9, 2004	Jun 7, 2004	32
Begin Construction	May 25, 2004	Aug 7, 2004	Aug 3, 2004	4
Piles and Excavation Complete	Aug 16, 2004	Oct 29, 2004	Sep 21, 2004	38

* Revised Schedule Date was added to reflect the delay in the issuance of CD-3.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
6.3	Cost Performance on the CEBAF Center Addition Project*	N/A	N/A	>15%	N/A	N/A

Discussion

This metric is not rated due to a delay in funding authorization to award the construction contract. The goal for this metric was originally set for the amount of remaining contingency to complete the project at greater than or equal to 15%. At the time of award, the DOE Site Office agreed that maintaining 15% contingency was higher than necessary to manage the associated risk with this project and agreed to the lower contingency at award. At the end of the fiscal year project funding status showed the following:

Remaining Construction Contingency – $863,000
Estimate to Complete (ETC) – $8,711,353
Performance Level – 9.9%

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
6.4	Percentage of overrun for projects > $100K	1	1	≤ 8%	2.6%	Outstanding

Discussion

Below are listed the projects with contracts greater than $100K completed during FY04. The value of contract changes for these projects totaled 2.6%.

Project	Contract Award	Total Change Orders*	Adjusted Change Orders
Test Lab & EEL Lighting Modifications	$259,752	$11,751	$5,463
LCW Trench Near Bldg 38	$99,732	$7,490	$7,490
Central Chiller	$2,229,305	$142,517	$64,642
North Connector Road	$157,813	($11,122)	$0
Reroof Accelerator Bldgs	$290,894	$8,253	$803
Total	**$3,037,496**	**$158,889**	**$78,398**

* Does not include post-design programmatic changes, value-added new technology, and value engineering proposals.

Performance Level - $78,398 / $3,037,496 = 2.6%

This project metric has historically measured performance on single contracts greater that $100K. Recommend this metric continuing however this point should be clarified in the future.

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
6.5	Variance of Scheduled Completion Time for Projects >$100K	1	.9	≤1.10	1.12	Excellent

Discussion

Below are listed the projects with contracts greater than $100K completed during FY04. Construction contract durations for these projects averaged 12% longer than planned.

Project	Original Contract Duration (Days)	Actual Duration (Days)	Adjusted Actual Duration* (Days)
Test Lab & EEL Lighting Modifications	200	278	222
LCW Trench Near Bldg 38	150	150	150

Project	Original Contract Duration (Days)	Actual Duration (Days)	Adjusted Actual Duration* (Days)
Central Chiller	270	504	372
North Connector Road	110	99	99
Reroof Accelerator Bldg	123	111	111
Total	**853**	**1142**	**954**

*Time attributed with acts of God (weather), labor disputes, documented material unavailability, and user desired post-award change orders is not included.

Performance Level – 954 / 853 = 1.12

This project metric has historically measured performance on single contracts greater that $100K. Recommend this metric continuing however this point should be clarified in the future.