JEFFERSON LAB
FY2004
APPENDIX B

U. S. Department of Energy's

Jefferson Lab

THOMAS JEFFERSON NATIONAL ACCELERATOR FACILITY

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Performance Evaluation by Performance-Based Metrics

General

This Appendix sets forth the basis upon which an evaluation of the performance of the Thomas Jefferson National Accelerator Facility (otherwise known as "Jefferson Lab;" formerly CEBAF) will be conducted as required by contract Clause H-32 (Use of Objective Standards of Performance, Self Assessment and Performance Evaluation) and Clause H-31 (Performance Measure Review) of the contract. The evaluation procedure described below utilizes a set of "key indicators" which will broadly measure the laboratory's performance in six critical areas. Associated with most "key indicators" (both peer reviews and performance metrics) is a set of "secondary indicators" which will measure the laboratory's performance in a more detailed way and extend the validity of each respective "key indicator." As it relates to Clause H-32 of the contract and the peer review process for the Business and Administrative Practices and Responsible Institutional Management sections of the Performance Evaluation Plan, the parties agree that: (i) the panel will be selected by mutual agreement; and (ii) DOE will concur with the official charge to the panel prior to issuance by SURA.

The Summary of Performance Measures, shows the six performance objectives of this contract and their corresponding key indicators. Following this table are six sections elaborating on each key indicator and listing the associated secondary indicators with established performance goals, where appropriate. A system for scoring performance in the six categories and for integrating these scores into an overall evaluation rating for each performance period is provided under the subheading "Scoring Methodology." The parties agree to adhere to this system in arriving at the overall evaluation of the laboratory's performance against these measures. The schedule for performing the Laboratory evaluation is provided under the subheading "Appendix B Annual Appraisal Timeline." It is the intent of the parties to strictly adhere to this schedule although either party may request a revision to the proposed schedule.

For FY04, performance measures have been established in accordance with the annual reassessment process outlined in the paragraph entitled "Periodic Reassessment" and the FY03 results. The FY04 performance goals have been set based on: (i) the outcome of the FY03 performance measures in relation to the FY03 performance goals; and, (ii) other pertinent data.

Goal Setting

The primary considerations for selecting performance measures and setting goals at Jefferson Lab are:

- Performance measures should provide accurate, valid measures of performance in areas of importance to DOE and Laboratory management.
- The total set of measures should reflect priorities of DOE and Laboratory management and a proper balance of cost-benefit and return-on-investment.

- Setting goals that optimize the Laboratory's overall performance in the contexts of its mission frequently yields a more desirable result than setting goals that stress maximum quantitative performance in narrow areas. For instance, simply pushing for maximum accelerator availability might penalize highly specialized or difficult experiments with high scientific merit or impede accelerator development. In other areas, pushing for unreasonably high quantitative goals might divert limited resources from other more mission-oriented activities with little or no benefit.
- The broader the base of comparison of Jefferson Lab's performance with similar institutions, the greater the possibility of learning improved ways of performing activities and how important it is to perform those activities.
- Comparison with other facilities is most effective when objectives, constraints and hazards at the facilities are similar, or normalization is relatively simple.
- The performance measures, the comparison base, and the goals should be selected keeping in mind the ease of obtaining current comparison data.

Given these considerations, the DOE and SURA have agreed that the primary use of performance measures will be to compare the Laboratory's performance against the mission objectives of the Laboratory, taking into account the maturity of its various programs (*e.g.*, the criteria to achieve an "outstanding" rating for a mature program would be different from that for a young program). The allocation of points among the performance objective categories is the first indication of this value judgment. The DOE/Laboratory Performance Measurement Teams were advised to select as broad a comparison area as practical in order to maximize the opportunity to improve systems and processes and to define the performance measures and set the goals with the intent of enhancing the Lab's performance toward achieving its mission. While this approach requires a considerable exercise of judgment and somewhat limits a direct comparison with other facilities based on score, it presents the best opportunity to improve the overall performance of the Laboratory. This approach results in a mixture of broad performance measures where Laboratory performance can be quantitatively compared with other DOE and/or industrial facilities (such as property loss ratios), and measures that are much more unique to the mission of this Laboratory (such as Reliable Experimental and Accelerator Operations, Production of Scientific and Technical Manpower and Technology Transfer). A practice used extensively at Jefferson Lab that combines broad measures with measures very closely tailored to the mission of the Laboratory is the Peer Review. Depending on the function or category under review, technical and/or management personnel with similar responsibilities at other facilities review the Laboratory's performance as prescribed in a carefully constructed charter and arrive at a score or adjectival rating for that function or category. This practice makes available the experience and expertise of nationally recognized experts in various fields and provides maximum opportunity for knowledgeable feedback leading to performance improvement.

Performance Report

The Contractor will report on the results of its performance as defined by Appendix B at the end of each fiscal year. This Performance Report should include for each performance category, in

addition to actual performance metric scores and/or peer review results, an overview self-assessment which includes: a brief description of major achievements; significant strengths and weaknesses; the status of responses to recommendations from the Peer Reviews; an assessment of whether the performance measures were valid indicators of performance; other lessons learned; principal areas of emphasis for improvement during the following fiscal year; and any recommended changes in performance measures or goals for the following fiscal year. A discussion of the Laboratory's overall performance and the major areas Lab-wide that SURA perceives as the most important focus areas for the upcoming performance period also will be included.

The DOE will use the Contractor's Performance Report along with other inputs to evaluate the Contractor's overall performance for each evaluation period. These other inputs include observations and results of inspections conducted by the Site Office staff, and programmatic/functional appraisals and reviews coordinated by the Site Office. As a means of incorporating these additional considerations, the parties have agreed that the Contracting Officer will develop an overlay performance report that will supplement the product of the performance measure process. This report will capture the highlights of the DOE Site Office observations/reviews, results of DOE appraisals, as well as other important information (including mitigating factors or events that may be outside the control of the Contractor) that will be used to balance the overall performance assessment for the year. This overlay report will include a discussion of performance against regulatory and contract requirements that were not defined in terms of performance measures. The parties agree that the results from these assessment inputs could change the category rating and/or overall performance rating (up or down) by as much as one performance level.

Periodic Reassessment

The parties also agree to a reassessment of these performance measures prior to the beginning of each evaluation period. In particular, the parties agree to:

1. Assess the validity of each respective indicator as an accurate and meaningful reflector of performance (using the detailed secondary indicators and other criteria) and to replace them with more appropriate indicators if necessary;
2. Consider adding to or subtracting from the complement of secondary indicators in order to more meaningfully and accurately track vital performance objectives or to correct deficiencies in the more global key indicators; and
3. Consider adding or subtracting key indicators or secondary indicators as appropriate in response to the evolving requirements of DOE; in particular, both parties undertake to replace DOE directives whenever feasible by performance metrics.

Scoring Methodology

The parties have agreed to the following scoring methodology:

A. Point Allocation: A 1107-point scale will be distributed among the six performance objective categories as follows:

1.	Outstanding Science and Technology	625 points
2.	Corporate Citizenship	75 points
3.	Quality Performance in EH&S	150 points
4.	Business and Administrative Practices	100 points
5.	Responsible Institutional Management	100 points
6.	Project Management	57 points

Within each of the six performance objective categories, the individual points have been allocated between the key indicator and the secondary indicators.

B. Point Scale: A grading scale will be used for rating each category and the overall performance evaluation 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%

After applying the appropriate percentage to the points assigned for each indicator, accuracy at the one decimal point level will be retained.

C. Rating Each Category: The following weighted average approach will be used to rate each of the six performance objective categories:

1. For each performance measure, multiply performance percent achieved times the assigned points to arrive at the awarded points.
2. Sum the assigned points and sum the awarded points for all performance measures to arrive at a total for each (*i.e.*, total assigned points and total awarded points).
3. Divide the total awarded points for the category by the total assigned points for the category and convert to a percentage.
4. Arrive at an overall adjectival rating for the category by using the point scale in paragraph (B).

In years where a new indicator, which requires baselining, might be added to the set, the Laboratory evaluation score will be based on paragraph (D) below.

D. Overall Performance Evaluation: The following methodology will be used to determine the overall performance rating:

1. Sum the assigned points and sum the awarded points for each performance measure being scored in the performance period. (For odd years, the same score achieved in Responsible Institutional Management from the prior year will be carried forward and included in the performance evaluation calculation).
2. Divide the awarded points by the assigned points. This percentage of 1045 is the laboratory's overall score for the evaluation period.
3. Arrive at the overall adjectival performance rating for the contract on the point scale, in accordance with paragraph (B).
4. Incorporate the results of the DOE Site Office overlay performance report as described in the paragraph entitled "Performance Report" on p.2 of this Appendix.

Contract Performance Annual Appraisal Timeline

DATE	ELEMENT
7/1/FY-1	Functional teams from DOE and SURA develop Performance Metrics.
9/1/FY-1	Performance Metrics due to the DOE Site Office Manager.
10/1/FY	DOE transmits final Performance Metrics to SURA.
4/15/FY	DOE performs mid-year status review.
9/30/FY	Evaluation period ends.
11/25/FY+1	SURA submits Performance Report
12/10/FY+1	DOE develops draft evaluation and transmits to SURA.
12/17/FY+1	SURA submits comments on draft evaluation.
12/24/FY+1	DOE transmits final report to SURA.

Summary of Performance Measures

1.0 Outstanding Science and Technology				
PM	**Description**	**Goal**	**Point Value**	**Total**
1.1	**Key Indicator - Peer Review**	100%	355	
			Subtotal Peer Review	**355**
1.2 Reliable Experimental and Accelerator Operations				
1.2.1	Delivered Physics Research Operations *Dependent on details of beam schedule	*	100	
1.2.2	Accelerator Downtime	≤15%	40	
1.2.3	Experimental Equipment Availability Hall A Hall B Hall C	 77.5% 80.0% 77.5%	20	
1.2.4	Effectiveness of the Scheduling Process	100%	20	
1.2.5	Overall Operations Effectiveness	27 weeks	20	
			Subtotal Reliable Experimental and Accelerator Operations	**200**
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	1,075	20	
1.3.2	Number Of Advanced Degrees Per Year Based On Jefferson Lab Research	53	35	
1.3.3	Number Of Advanced Degrees Per Year Granted By Minority Universities And Based On Jefferson Lab Research	≥6	5	
1.3.4	Participation Of Students From Groups Traditionally Underrepresented In Physical Science And Engineering Fields	>35%	10	
			Subtotal Production of Scientific and Technical Manpower	**70**
			TOTAL OUTSTANDING SCIENCE AND TECHNOLOGY	**625**

2.0 Corporate Citizenship				
PM	**Description**	**Goal**	**Point Value**	**Total**
2.1 Public Outreach and Improved Scientific Literacy				
2.1.1	**Key Indicator - Public Participation**	90,000	20	
2.1.2	Public Visibility (a) Number of Articles (b) Citations Mentioning DOE	 900 100%	 7 3	
2.1.3	Customer Satisfaction	100%	5	
			Subtotal Public Outreach and Improved Scientific Literacy	**35**
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)**	2.5% of JLab ops budget	20	

2.0 Corporate Citizenship				
2.2.2	Intellectual property generation as indicated by the annual number of (a) Patent applications (b) Patents awarded (c) License agreements	5 or 1 or 2	10	
2.2.3	Benefit to partners based on customer surveys	5.0	10	
			Subtotal Technology Transfer	**40**
			TOTAL CORPORATE CITIZENSHIP	**75**

3.0 Quality Performance in Environment, Health, and Safety				
PM	**Description**	**Goal**	**Point Value**	**Total**
3.1	**Key Indicator - Total Recordable Case Rate (TRC)**	≤1.0 per 100 person years	50	
3.2	**Key Indicator – Days Away, Restricted or Transferred (DART) Case Rate**	≤0.4 per 100 person years	50	
3.3	**Key Indicator - Environmental Exceedances**	4 times as good as the DOE complex average	20	
3.4	Reportable Radiation Exposures	Satisfactory ALARA program; no exposures >80% of ORPS SC3 threshold	4	
3.5	Hazardous Substance Exposures	No exposures above OSHA action level	4	
3.6	Solid Waste Recycled	Exceed FY94 baseline ratio by 44%	6	
3.7	Radioactive Waste Generation	≥.90 of radioactive waste generated for useful purposes	4	
3.8	Pounds of Hazardous Waste Produced	Produce <.25 of maximum useful hazardous waste	4	
3.9	Peer Review of the Radiological Control Program – Even Years; or, Peer Review of Emergency Management Program – Odd Years	Appropriate program = 100	4	

3.0 Quality Performance in Environment, Health, and Safety				
3.10	"Highly Protected Risk" Rating for High-Value Facilities	All facilities meet highly protected risk designation	4	
TOTAL QUALITY PERFORMANCE IN ENVIRONMENT, HEALTH, AND SAFETY				**150**

4.0 Quality of Business and Administrative Practices				
PM	**Description**	**Goal**	**Point Value**	**Total**
4.1	**Key Indicator - Peer Review**	100%	70	
			Subtotal Peer Review	**70**
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	≥ 98%	2	
4.2.2	% of Planned Facility Condition Assessments Completed	≥94%	2	
4.2.3	% of Indirect Projects Completed from the Planned Project List	≥94%	2	
			Subtotal Facilities Management	**6**
4.3 Property Management & Protection				
4.3.1	% of value of property located during the inventory cycle: Capital Property (Odd Years)	≥99%	N/A in FY04	
4.3.2	% of value of property located during the inventory cycle: Sensitive Property	≥99%	4	
			Subtotal Property Management & Protection	**4**
4.4 Financial Management				
4.4.1	Number of CAS violations	0	1	
4.4.2	Dollar % of invoices deemed unallowable	≤1%	1	
4.4.3	% of vendor invoices paid with discounts lost	≤1%	1	
4.4.4	% of annual actual cost variance from budget for each overhead pool	≤3%	1	
4.4.5	Number of occurrences that resulted in the monthly Cost Management Report being resubmitted to Contracting Officer – DOE Site Office	0	1	
4.4.6	Number of audit errors in travel expense reports	≤2%	1	
			Subtotal Financial Management	**6**
4.5 Procurement				
4.5.1	Average procurement cycle time	<10 days	3	
4.5.2	% of total available purchasing dollars awarded to: small business concerns, small women-owned business concerns, and small disadvantage business concerns	≥48% ≥5% ≥6%	SB 1 WO 1 SD 1	
			Subtotal Procurement	**6**
4.6 Human Resources and Services				
4.6.1	% of action oriented diversity commitments as established in the Affirmative Action Plan	≥ 90%	1	

4.0 Quality of Business and Administrative Practices				
4.6.2	Representation of protected classes within each EEO-1 category	100% Maintained	1	
4.6.3	Sustainable EEOC charges	0 charges	1	
4.6.4	Compensation positions aligned with market practices	± 3% of market average	1	
4.6.5	% of 3-year rolling average of annual increases in premium cost relative to market	≥ 5% below market data	1	
			Subtotal Human Resources and Services	**5**
4.7 Information Systems				
4.7.1	Cyber Security Review (5pts, held every 3 years, next one in '05)	>90%	N/A	N/A
4.7.2	Number of times JLab computer systems were compromised or used to attack other systems	≤ 1	2	
4.7.3	% of current year's papers written by JLab staff or Users placed online	≥ 97%	1	
			Subtotal Information Systems	**3**
			TOTAL BUSINESS & ADMINISTRATIVE PRACTICES	**100**

5.0 Responsible Institutional Management				
PM	**Description**	**Goal**	**Point Value**	**Total**
5.1	**Key Indicator - Responsible Institutional Management Peer Review**	100	100	
			TOTAL RESPONSIBLE INSTITUTIONAL MANAGEMENT	**100**

6.0 Project Management				
PM	**Description**	**Goal**	**Point Value**	**Total**
6.1	**Key Indicator - Schedule Performance SNS**	≤ one month behind schedule	35	
6.2	**Key Indicator - Schedule Performance on the CEBAF Center Addition**	≤ one month behind schedule	10	
6.3	Cost Performance on the CEBAF Center Addition Project	≥ 15%	10	
6.4	% of Overrun on all Projects >$100K	≤ 8%	1	
6.5	Variance of Scheduled Completion Time for Projects >$100K	≤ 1.10	1	
			TOTAL PROJECT MANAGEMENT	**57**

Total Appendix B Score on Performance Measures	
	Total
TOTAL APPENDIX B SCORE	**1107**

1.0 Outstanding Science and Technology Overview

Objective: To produce outstanding science and technology, to achieve reliable performance of the accelerator and detectors at required specifications to ensure the scientific success of the Laboratory; and to contribute to the education and training of the future scientific/technical work force for the nation.

Key Indicator

1.1 Peer Review (355 points)

General Charge to the Peer Review Team: Using inputs from other science and technology program managers who sponsor significant work at Jefferson Lab and after consultation with SURA representatives, the DOE Office of Nuclear Physics (SC-90) will issue the charge to the review team. Principally, the charge will be to evaluate Jefferson Lab's contribution to the goals of the National Nuclear Physics Program, to rate the Jefferson Lab nuclear physics program relative to that of other international laboratories, and to evaluate the Lab's User community as well as the likely contributions of the Laboratory's proposed future program to this field and to science in general. The review team also would be asked to assess the effectiveness of laboratory operations, including accelerator operations, and the overall scientific productivity of the laboratory.

As part of this charge, the team would be specifically asked to examine the Laboratory's Advanced Accelerator Research and Development efforts and assess whether they are properly focused to support current and future Laboratory and national goals. The charge to the team also would include a request that it evaluate the quality of the Laboratory's applied science and technology programs, and assess whether the current efforts directed toward them by the Laboratory are justified and whether the planned future direction and magnitude of these efforts appear appropriate relative to the primary mission of the Laboratory.

In addition, the team would be requested to review program management and to evaluate Laboratory management's use of discretion (where such discretion exists) in allocating resources among Laboratory science and technology priorities and whether prudent judgment was exercised in making such allocations.

Point distribution for the areas to be reviewed is included below. More detailed guidance may be developed based on special circumstances at the time of the review.

Nuclear Physics Program	200 points
User Community	35 points
Scientific & Technical Program Management	30 points
Accelerator Operations	45 points
Accelerator R&D	25 points

FEL (Applied Science & Technology) 20 points

Frequency and Duration: Annually, two days plus one day for report writing and closeout.

Review Team Composition: The Director of SC-90 will select a chairperson and, in consultation with SURA and Lab management, as well as with other program managers who fund significant program activities at the Laboratory, and with SURA's concurrence, will appoint a cross-cutting review team of internationally recognized scientists and engineers.

Prior to the selection of the team members, the composition of the team may be adjusted to match the programs and activities of the Laboratory and the special circumstances to be addressed by the review.

In addition to the review team appointed by the SC-90, the Director of SC-90 and/or others whom he may designate also will participate in the review as a member of the team. Consistent with the principles of the DOE+SURA partnership that are expressed in this contract, a representative selected by SURA will observe the deliberations of the review team and participate in panel discussions, including the executive sessions. This will assist SURA in performing its corporate oversight of the Laboratory.

Conduct of the Review: The Director of SC-90, in consultation with SURA and Lab management and with SURA's concurrence, will develop an agenda for the review based on the charge to the review team.

Each team member will be asked to submit individual reports to the chairperson following the review. The chairperson will submit a report to the Director of SC-90 that provides his/her personal assessment of the review and the review results and transmits the individual reports from the other team members. The Director of SC-90 will make the reports available to SURA.

Secondary Indicators (270 points)

1.2 Reliable Experimental and Accelerator Operations (200 points)

1.2.1 Delivered physics research operations, as determined by the number of hours of simultaneous availability of the beams and the experimental equipment delivered. (100 points)

1.2.2 Accelerator Downtime, as defined by the ratio of the time the accelerator is not able either to support the scheduled research program of at least one Hall or to carry out scheduled machine development to the time it is scheduled for use or machine development during that period. (40 points)

1.2.3 Experimental equipment availability, as measured by the ratio of the time the equipment is operational at its design specifications in a particular configuration to the time it is scheduled for use in that configuration. (20 points)

1.2.4 The effectiveness of the scheduling process, as determined by the time that was scheduled to have elapsed between the publication of a firm accelerator schedule and the experiment's scheduled start date divided by the actual time between publication of a firm accelerator schedule and the date an experiment begins taking data. (20 points)

1.2.5 Overall operations effectiveness, defined as the ratio of the total time the accelerator is operated for physics (in weeks) to the total accelerator operations (in weeks) that was identified as the goal for the year during negotiations of the laboratory's operations budget. (20 points)

1.3 Production of Scientific and Technical Manpower (70 points)

1.3.1 Number of student years per year on Jefferson Lab-related research or technical activities. (20 points)

1.3.2 Total number of advanced degrees per year based on Jefferson Lab research. (35 points)

1.3.3 Number of advanced degrees per year (represented by a three-year average) granted by minority universities and based on Jefferson Lab research. (5 points)

1.3.4 Participation of students from groups traditionally underrepresented in physical science and engineering fields. (10 points)

1.0 Outstanding Science and Technology Performance Evaluation Plan

1.1 Peer Review (355 points)

Introduction: It is widely accepted that while various numerical indicators can be useful as inputs, the overall scientific and technical quality of a research institution is best judged by peer review. Among the more reliable criteria on which the judgment of the Peer Review Team should be based are:

1. Quality of the research program as evidenced by seminal experimental or theoretical results.
2. Effectiveness of operations (including an assessment from users) in support of the research program.
3. Major experimental or technological innovations resulting from work at Jefferson Lab.
4. Citations of papers or articles based on research carried out at Jefferson Lab and invited presentations at major international conferences based on Jefferson Lab results.

Other criteria deemed to be relevant also will be examined.

Scoring: Based on the individual reports of the team members (including the chairperson), his/her own assessment, and following consultation with SURA, the Director of the Division of Nuclear Physics will assign an adjectival rating to the performance of the laboratory in producing Outstanding Science and Technology. A percentage of Key Indicator points within the range associated with the assigned rating will be awarded in accordance with the following table.

Adjectival Rating	% of Assigned 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

1.2 Reliable Experimental and Accelerator Operations (200 Points)

Performance in this area is measured quantitatively against performance goals set at the beginning of each evaluation period. These performance goals correspond to the maximum performance desirable in each area given anticipated technical and fiscal restraints for the year. Because some performance goals depend on the details of the beam schedule, which is not known until later in the year, numeric values for these goals cannot be stated at this time. In these cases, the formulae are given and parameters that are known are listed.

The annual performance goals are based on long-range "asymptotic" performance goals for each performance measure (PM), which have been set by a joint Laboratory-DOE team and which are reviewed annually by the team. These long-range goals, as well as the annual goals for the current year, are listed in Table 1.1. Reasons for setting current year goals below the long-range goals are discussed for each PM when appropriate. Because the capabilities of the accelerator following the recovery from Hurricane Isabel will not be known until after this document is first completed, it is impossible to set final goals for the Delivered Physics Research Operations Metric, the Accelerator Downtime Metric, and the Experimental Equipment Availability Metric since the detailed goal for each of those metrics depends on exactly what is scheduled and its anticipated impact on operations. We will revise and update these goals during Q1 of FY04 once the accelerator capabilities have been established and the schedule of planned experiments has been released.

Table 1.1 lists the five performance measures for reliable experimental and accelerator operations along with the corresponding goals—both long-range and for FY04.

Table 1.1 Long Range and Current Year Peak Performance Goals[1]

Performance Measure	Indicator	Total Points Assigned	Description	Asymptotic Performance Goal	FY04 Performance Goal[2]
1.2.1	Delivered Physics Research Operations	100	Hours of physics research operations for which both beam and experimental equipment are simultaneously available	100% of research operations goal	Calculate using the equation in Attachment 1
1.2.2	Accelerator Downtime	40	Percent of the scheduled time for which the beam is not able to support the research program of at least one Hall or planned machine development	$\leq$ 15%	$\leq$ 15%

[1] Performance Goals for each metric are precisely quantified based on specific formulae, definitions, and beam characteristics (Attachment 1).
[2] Current goals assume President's Budget for FY04.

Performance Measure	Indicator	Total Points Assigned	Description	Asymptotic Performance Goal	FY04 Performance Goal[2]
1.2.3	Experimental Equipment Availability	20	Percent of the scheduled time that the experimental equipment is operational	80%	Calculate using the equation in Attachment 1 and the individual hall availability goals: 77.5% Hall A ($E_{a\text{-}goal}$) 80% Hall B ($E_{b\text{-}goal}$) 77.5% Hall C ($E_{c\text{-}goal}$)
1.2.4	Effectiveness of the Scheduling Process	20	How closely an experiment actually starts taking data relative to the scheduled start date	100%	100%
1.2.5	Overall Operations Effectiveness	20	Percent of planned weeks of operations for physics that is delivered	100%	100% (27 weeks planned)

1.2.1 Delivered Physics Research Operations (100 points)

This 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. The formulae for calculating the metric are in Attachment 1.

Long-range goal: 100% of the hours calculated using the long-range goals for the various included parameters.

- Three Hall Accelerator Availability: 75%
- Two Hall Accelerator Availability: 80%
- One Hall Accelerator Availability: 85%
- Experimental Equipment Availability: 80%
- Multiplicity: 2.0
- Scheduled hours: determined when the operations schedule is published during the year

FY04 goal: 100% of the hours calculated using the current year's goals for
Three Hall Accelerator Availability: 71.6%[3]
Experimental Equipment Availability: see metric 1.23

[3] This goal is estimated based on the draft operations schedule; the actual goal will be calculated based on the final schedule.

Multiplicity: 2.0
Scheduled hours: determined when the operations schedule is published during the year

In FY04, we anticipate that delivery of beam with an unusual time structure for the G0 experiment and a significant reduction in the beam energy spread required by the hypernuclear experiment will place significant demands on the accelerator ($N_{cap\text{-}upgrade}$ = 2). The goal for Multi-Hall Beam Availability has been adjusted accordingly.

Scoring: The score for this metric is the ratio of delivered hours of physics research operations to the goal for delivered hours times 100%. Details of how both the delivered hours and the goal for delivered hour are calculated are in Attachment 1. Award assigned points as indicated below:

Performance Level	Adjectival Rating	% of Assigned Points
≥100% of PG	Outstanding	= 100
90% to 100% of PG	Outstanding	= (% of PG achieved)
80% to < 90% of PG	Excellent	
70% to < 80% of PG	Good	
60% to < 70% of PG	Marginal	
50% to < 60% of PG	Unsatisfactory (Poor)	
25% to < 50% of PG	Unsatisfactory (Failing)	= 2 * (% of PG achieved - 25%)
0% to < 25% of PG	Unsatisfactory (Failing)	= 0

1.2.2 Accelerator Downtime (40 points)

This metric compares the actual Accelerator Downtime to the FY04 goal for Accelerator Downtime. Downtime percent is the time during which the accelerator is not able to support either the research program of a least one Hall or machine development work compared to the time scheduled for physics running or machine development.

Long-range goal: ≤ 15%

FY04 goal: ≤15%

Scoring: The score for this metric is the ratio of the value of [1- Downtime] to the goal for [1-Downtime] times 100%. Details of the calculation are in Attachment 1. Award assigned points as indicated below:

Performance Level	Adjectival Rating	% of Assigned Points
≥100% of [1-PG]	Outstanding	= 100
90% to 100% of [1-PG]	Outstanding	= % of [1-PG achieved]

Performance Level	Adjectival Rating	% of Assigned Points
80% to < 90% of [1-PG]	Excellent	
70% to < 80% of [1-PG]	Good	
60% to < 70% of [1-PG]	Marginal	
50% to < 60% of [1-PG]	Unsatisfactory (Poor)	
25% to < 50% of [1-PG]	Unsatisfactory (Failing)	= 2 * (% of [1-PG achieved] - 25%)
0% to < 25% of [1-PG]	Unsatisfactory (Failing)	= 0

1.2.3 Experimental Equipment Availability (20 points)

This metric compares the weighted average availability of experimental equipment in the halls during the year to the weighted average if the availability goal in each hall is met. Because the average is weighted by the scheduled hours of operation in the individual halls, a value for the average availability cannot be set until the operations schedule is finalized later in the year. The formulae for calculating the metric are in Attachment 1.

Long-range goal: 80%

FY04 goal: The weighted average using current year goals for individual halls:
Hall A: 77.5%
Hall B: 80%
Hall C: 77.5%

Scheduled hours: determined when the operations schedule is published during the year and needed only if Hall goals differ from one another. Hall A availability is reduced 2.5% because of the major installation work associated with the installation and commissioning of two magnetic septa. Hall C availability is likewise reduced 2.5% because of the commissioning of the G0 experimental apparatus.

Scoring: The score for this metric is the ratio of actual average availability to the goal for average availability times 100%. Details of how both are calculated are in Attachment 1. Award assigned points as indicated below:

Performance Level	Adjectival Rating	% of Assigned Points
≥100% of PG	Outstanding	= 100
90% to 100% of PG	Outstanding	
80% to < 90% of PG	Excellent	
70% to < 80% of PG	Good	= (% of PG achieved)
60% to < 70% of PG	Marginal	
50% to < 60% of PG	Unsatisfactory (Poor)	
25% to < 50% of PG	Unsatisfactory (Failing)	= 2 * (% of PG achieved - 25%)

Performance Level	Adjectival Rating	% of Assigned Points
0% to < 25% of PG	Unsatisfactory (Failing)	= 0

1.2.4 Effectiveness of the Scheduling Process (20 points)

The effectiveness of the scheduling process is a measure of how closely the average start of experiments matches the scheduled start as given in the "firm" operations schedule. If all experiments started "on-time" as given by the "firm" schedule, the value of this metric would be 100%. Details of the calculation of this metric are in Attachment 1.

Long-range goal: 100%

FY04 goal: 100%

Scoring: The score for this metric is the ratio of actual scheduling effectiveness performance to the goal for scheduling effectiveness times 100%. Details of how both are calculated are in Attachment 1. Award assigned points as indicated below:

Performance Level	Adjectival Rating	% of Assigned Points
≥100% of PG	Outstanding	= 100
90% to 100% of PG	Outstanding	= (% of PG achieved)
80% to < 90% of PG	Excellent	
70% to < 80% of PG	Good	
60% to < 70% of PG	Marginal	
50% to < 60% of PG	Unsatisfactory (Poor)	
25% to < 50% of PG	Unsatisfactory (Failing)	= 2 * (% of PG achieved - 25%)
0% to < 25% of PG	Unsatisfactory (Failing)	= 0

1.2.5 Overall Operations Effectiveness (20 points)

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.

Long-range goal: 100% of goal for physics operating time which is set annually during negotiation of the Laboratory's operations budget.

FY04 goal: 100% of FY04 goal, which will be determined from the run schedule.

Scoring: The score for this metric is the weeks the accelerator is running for physics divided by the goal times 100%. Award assigned points as indicated below:

Performance Level	Adjectival Rating	% of Assigned Points

Performance Level	Adjectival Rating	% of Assigned Points
≥100% of PG	Outstanding	= 100
90% to 100% of PG	Outstanding	= (% of PG achieved)
80% to < 90% of PG	Excellent	
70% to < 80% of PG	Good	
60% to < 70% of PG	Marginal	
50% to < 60% of PG	Unsatisfactory (Poor)	
25% to < 50% of PG	Unsatisfactory (Failing)	= 2 * (% of PG achieved - 25%)
0% to < 25% of PG	Unsatisfactory (Failing)	= 0

1.3 Production of Scientific and Technical Manpower (70 points)

1.3.1 Number of student years per year on Jefferson Lab-related research or technical activities. (20 points)

The data collection process involves two major components: the administration of a Jefferson Lab Users Group Survey and a cross-check against the University Relations student list. Surveys are sent to the complete Users Group. An initial response rate of 10-20% of the group of active users is considered reasonable. An estimate of the full population is made by comparing the number of students reported with the known list of active student users. The best estimates for student research years will be obtained by supplementing the actual student numbers from the initial survey respondents with the expected number of unreported students based on a comparison between the number of identified active students and the number of students reported in the Users Group Survey.

Scoring: Tally the number for each high school, undergraduate, and graduate student involved in Jefferson Lab-related research or technical activities (including computing) at Jefferson Lab and collaborating institutions and apply the following equation:

WSII (Weighted Student Involvement Index) = 1HSS + 2UGS + 4GS

where HSS = High School Students, UGS = Undergraduate Students, and GS = Graduate Students

Performance Level	Adjectival Rating	% of Assigned Points
WSII ≥ 1000 to <1075*	Outstanding	90 to 100
WSII ≥ 925 and <1000	Excellent	80 to < 90
WSII ≥ 850 and < 925	Good	70 to < 80
WSII ≥ 775 and <850	Marginal	60 to < 70
WSII < 775	Unsatisfactory	<60

*Performance level greater than 1075 receives 100% of assigned points.

1.3.2 Total number of advanced degrees per year based on Jefferson Lab research. (35 points)

To estimate the total number of advanced degrees, initially reported and known degrees are supplemented with the expected numbers of unreported degrees based on the number of unreported students and the base of the reported students obtaining such degrees.

Scoring: Tally the number of Master's degrees and PhDs awarded for research based at Jefferson Lab or involving strong interaction with Jefferson Lab and apply the following equation:

CD (Composite Degrees) = MD + 3PHD

where MD = Number of awarded Master's degrees and PHD = Number of awarded PhDs

Performance Level	Adjectival Rating	% of Assigned Points
CD $\geq$ 45 and < 53*	Outstanding	90 to 100
CD $\geq$ 38 and < 45	Excellent	80 to < 90
CD $\geq$ 30 and < 38	Good	70 to < 80
CD $\geq$ 23 and <30	Marginal	60 to < 70
CD < 23	Unsatisfactory	<60

*Performance level greater than 52 receives 100% of assigned points.

1.3.3 Number of advanced degrees per year (represented by a three-year average) granted by minority universities based on Jefferson Lab research. (5 points)

Degrees awarded by minority institutions are collected directly. Participation by underrepresented populations are based on the percentages from the initial survey data. Because statistical analysis of small numbers can result in large percentage variations from year to year, a more accurate assessment can be reached by reporting the average over the past three years.

Scoring: See 1.3.2 scoring scheme, but count degrees granted by minority institutions only (HBCU, MEI, women's colleges) for the past three years, and apply 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 PhDs and $_y$ is the current year.

Performance Level	Adjectival Rating	% of Assigned Points

Performance Level	Adjectival Rating	% of Assigned Points
CMD $\geq$ 6	Outstanding	100
CMD $\geq$ 4 and < 6	Excellent	85
CMD $\geq$ 2 and < 4	Good	75
CMD = 1	Marginal	65
CMD = 0	Unsatisfactory	55

1.3.4 Participation of students from groups traditionally underrepresented in physical science and engineering fields. (10 points)

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

$$\text{Participation} = P = \left(\begin{array}{c} \text{Number of research students who are female,} \\ \underline{\text{African American, Hispanic, or Native American}} \\ \text{Total number of research students} \end{array} \right)$$

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.

Performance Level	Adjectival Rating	% of Assigned Points**
30% to < 35%*	Outstanding	90 to 100
25% to < 30%	Excellent	80 to < 90
20% to < 25%	Good	70 to < 80
15% to < 20%	Marginal	60 to < 70
10% to < 15%	Unsatisfactory (Poor)	50 to < 60
0% to < 10%	Unsatisfactory (Failing)	0 to < 50

*Performance level greater than 35% receives 100% of assigned points.
**Percent of assigned points identified in the table can be calculated directly by the following formulas:

$$\% \text{ of points} = 30 + 200P \text{ for } P \geq .1$$
$$\% \text{ of points} = 500P \text{ for } P < .1$$

2.0 Corporate Citizenship Overview

Objective: As a taxpayer-funded institution, Jefferson Lab should serve the public and the national interest in important areas where it has special competencies which are mission related.

2.1 Public Outreach and Improved Scientific Literacy (35 points)

Objective: Scientific literacy and support are essential for the public to make competent decisions on everyday matters of increasingly complex technical nature. Science and math education are important for today's students if they are to complete high school prepared for college or a worthwhile career. As a workplace where science and math are in the forefront, Jefferson Lab can provide unique educational and motivational opportunities and materials. Public awareness of Jefferson Lab and its DOE-sponsorship is also essential for the future well being of the laboratory and the national science enterprise.

Key Indicator (20 points)

2.1.1 Public participation (in effective person-hours per year): (Number of student hours + number of public hours + 10 * number of teacher hours) per year, including visits, external public talks, science series, tours, open house, BEAMS, etc.

Secondary Indicators (15 points)

2.1.2 Public visibility: Number of newspaper and magazine articles, Web-based news systems, and radio and television programs mentioning Jefferson Lab and its science or technology (7 points); percentage of these citations mentioning DOE (3 points). (10 points total)

2.1.3 "Customer satisfaction" (5 points)

2.2 Technology Transfer (40 points)

Objective: The objective of the Jefferson Lab technology transfer program is the dissemination to industry of key technologies that are developed as the result of Jefferson Lab's primary scientific mission and that are of interest to industry.

Key Indicator (20 points)

2.2.1 Non-DOE investment in Jefferson Lab initiatives (including direct dollars, manpower costs, and contributions in-kind). (20 points)

Secondary Indicators (20 points)

2.2.2 Intellectual property generation as indicated by the annual number of (a) patent applications, (b) patents awarded, (c) license agreements. (10 points)

2.2.3 Benefit to partners based on the results of a mutually agreed customer survey where the customer indicates level of satisfaction on a 1 (lowest) to 5 (highest) scale. (10 points)

2.0 Corporate Citizenship Performance Evaluation Plan

2.1 Public Outreach and Improved Scientific Literacy (35 points)

Introduction: Jefferson Lab's effect on public awareness and literacy is strongest when people have direct personal contact with laboratory personnel and facilities. The typical minimum time to influence a person's awareness and literacy of things that are outside his/her area of expertise is about an hour, and significant learning can occur in this period. Teachers learn not just for themselves but to pass on information and concepts to their students. Typical teachers contact 25-100 students per year, but the literacy transfer to the students is likely to be lower than it would be if the students participated in the Jefferson Lab experience directly. Consequently, the multiplier 10 for teacher participation is a conservative adjustment for the true outreach/literacy impact.

2.1.1 Public participation (in effective person-hours per year): [Number of student hours + number of public hours + 10 * number of teacher hours] per year, including visits, external public talks, science series, tours, open house, BEAMS, etc. (20 points)

Scoring: Count or estimate the number (N_i) of participants or attendees in each event (i). Measure the duration (t_i) in hours of the activity, event, or the typical person's involvement. People counted under Scientific Manpower do not count here; high school students doing research do not count.
Calculate the public participation metric (P)

$$P = \sum_i N_i t_i \quad \text{for all events}$$

Peak Performance Goal (PPG): Good faith efforts will be made to ensure N_i is accurate within 10%; t_i will be measured to the nearest half hour. For FY04 Jefferson Lab's Peak Performance Goal (PPG) will be:

90,000 person-hours broken down as:

- Science and Education – (students, teachers, parents) = 86,000
- Public Outreach = 4,000

Performance Level	Adjectival Rating	% of Assigned Points†
90% to 100% of PPG	Outstanding	90 to 100
80% to < 90% of PPG	Excellent	80 to < 90
70% to < 80% of PPG	Good	70 to < 80
60% to < 70% of PPG	Marginal	60 to < 70
50% to < 60% of PPG	Unsatisfactory (Poor)	50 to < 60
0% to < 50% of PPG	Unsatisfactory (Failing)	0 to < 50

† In each adjectival category, points are assigned by linear interpolation between the ranges listed.

2.1.2 (a) Public Visibility: Number of newspaper and magazine articles, Web-based news systems, and radio and television programs mentioning Jefferson Lab and its science or technology (7 points);
(b) Percentage of these citations mentioning DOE (3 points). (10 points total)

(a) Public Visibility (7 points)

Scoring:

$V = \Sigma W_i$ $W_i = C_i + D_i$ i = each article, radio or TV appearance

Circulation Weighting Factors	(C_i)	Distribution Factor	(D_i)
<10,000	1	Local inside SE Virginia	0
10,000-50,000	2	Local outside SE Virginia	+1
50,000-250,000	3	Regional	+1
>250,000	4	National	+2
		International	+3

Regional is defined as Washington DC, Maryland, West Virginia, Tennessee and North Carolina.

The number counted will be less than or equal to the number occurring, because we would not necessarily be aware of all coverage. If one article is repeated in many publications, add the audience circulation factor and the distribution factors for each. Each article in a series of articles will be counted individually.

Peak Performance Goal (PPG): For FY04 Jefferson Lab's Peak Performance Goal will be 900. Scoring will be determined using the values in the following table.

Performance Level	Adjectival Rating	% of Assigned Points†
90% to 100% of PPG	Outstanding	90 to 100
80% to < 90% of PPG	Excellent	80 to < 90

Performance Level	Adjectival Rating	% of Assigned Points†
70% to < 80% of PPG	Good	70 to < 80
60% to < 70% of PPG	Marginal	60 to < 70
50% to < 60% of PPG	Unsatisfactory (Poor)	50 to < 60
0% to < 50% of PPG	Unsatisfactory (Failing)	0 to < 50

† In each adjectival category, points are assigned by linear interpolation between the ranges listed.

(b) DOE Citation (3 points)

Percent mentioning DOE: Count the articles, broadcasts, exhibits, interviews and videos (A) initiated by Jefferson Lab which feature the Laboratory and the subset (S) of those communications in which the Laboratory mentions DOE. In the case where the Laboratory mentions "DOE" in a proposed article or broadcast and the final version is revised or altered by the media, the Laboratory will receive credit for the article or broadcast since the Laboratory has no control over the final version. Percent = 100 S/A. The score is as follows:

Performance Level	Adjectival Rating	% of Assigned Points†
90% to 100%	Outstanding	90 to 100
80% to < 90%	Excellent	80 to < 90
70% to < 80%	Good	70 to < 80
60% to < 70%	Marginal	60 to < 70
50% to < 60%	Unsatisfactory (Poor)	50 to < 60
0% to < 50%	Unsatisfactory (Failing)	0 to < 50

† In each adjectival category, points are assigned by linear interpolation between the ranges listed.

2.1.3 Customer Satisfaction. (5 points)

Scoring: Normalize all feedback from customers (overall ratings) for selected events and activities (to be determined by the laboratory and the DOE Site Office), with average or neutral being 70. Average all available event scores. For public participation events, at least 15% of the total number of participants will be surveyed. This fraction should be representative of a reasonable cross section of all such public events. For education events, at least 80% of the participants will be surveyed.

Each customer indicates a level of satisfaction on a 1 (lowest) to 5 (highest) scale for each event. After each event, average is calculated, average the event averages resulting in one overall average (A). Normalize the average (A) according to the following formula:

N_A=Normalized Average (A) = [(A - 1)*15] + 40

Performance Level (N_A)	Adjectival Rating	% of Assigned Points†
90 to 100	Outstanding	90 to 100
80 to < 90	Excellent	80 to < 90
70 to < 80	Good	70 to < 80
60 to < 70	Marginal	60 to < 70
50 to < 60	Unsatisfactory (Poor)	50 to < 60
40 to < 50	Unsatisfactory (Failing)	0 to < 50

† In each adjectival category, points are assigned by linear interpolation between the ranges listed.

2.2 Technology Transfer (40 points)

2.2.1 Non-DOE investment in Jefferson Lab initiatives (including direct dollars, manpower costs, and contributions in-kind) (20 points)

Scoring: I = 100% x non-DOE investment/JLab Operations Budget

Performance Level (I)	Adjectival Rating	Assigned Points†
2% to 2.5% operations budget*	Outstanding	18 to 20
1.5% to < 2%	Excellent	16 to < 18
1% to < 1.5%	Good	14 to < 16
0.5% to < 1%	Marginal	12 to < 14
0.25% to < 0.5%	Unsatisfactory (Poor)	10 to < 12
< 0.25%	Unsatisfactory (Failing)	0 to < 10

† In each adjectival category, points are assigned by linear interpolation between the ranges listed.
*Performance level greater than 2.5% receives 20 points.

2.2.2 Intellectual property generation as indicated by the annual number of (10 points):
(a) patent applications
(b) patents awarded
(c) license agreements

Scoring:

Performance Level	Adjectival Rating	Assigned Points
Two licenses granted or one patent award or 5 or more patent applications executed	Outstanding	10
4 patent applications executed	Excellent	8
3 patent applications executed	Good	6
2 patent applications executed	Marginal	4
1 patent application executed	Unsatisfactory (Poor)	2
0 patent application executed	Unsatisfactory (Failing)	0

2.2.3 Benefit to partners based on the results of a mutually agreed customer survey where the customer indicates level of satisfaction on a 1 (lowest) to 5 (highest) scale. (10 points)

Scoring:

Performance Level (Average Rating on Customer Survey)	Adjectival Rating	% of Assigned Points†
4.0 to 5.0	Outstanding	90 to 100
3.5 to < 4.0	Excellent	80 to < 90
3.0 to < 3.5	Good	70 to < 80
2.5 to < 3.0	Marginal	60 to < 70
2.0 to < 2.5	Unsatisfactory (Poor)	50 to < 60
0.0 to < 2.0	Unsatisfactory (Failing)	0 to < 50

† In each adjectival category, points are assigned by linear interpolation between the ranges listed.

3.0 Quality Performance in Environment, Health, and Safety Overview

Objective: Protection of workers, the public and the environment, adherence to the ALARA concept, and compliance with laws, regulations, statutory requirements, and appropriate national initiatives (recycling, waste reduction, etc.) at lowest reasonable cost.

Key Indicators (120 Points)

3.1 Jefferson Lab total recordable case rate (cases per 100 person years worked). (50 points)

3.2 Jefferson Lab DART (Days Away, Restricted or Transferred) rate (cases per 100 person years worked). (50 points)

3.3 Jefferson Lab environmental exceedences per fiscal year. (20 points)

Secondary Indicators (30 points)

3.4 Number of reportable and recordable exposures to radiation as Significance Category (SC) 3 occurrences, plus 5 times this number for SC2 occurrences. (4 points)

3.5 Number of reportable and recordable exposures to hazardous substances as SC3 occurrences, plus 5 times this number for SC2 occurrences. (4 points)

3.6 Solid waste recycled, in tons, divided by (solid waste sent to landfill, in tons + solid waste recycled, in tons). (6 points)

3.7 Pounds of radioactive waste produced by (equipment upgrades + maintenance) divided by pounds of radioactive waste produced by (equipment upgrades + maintenance + unintentional processes). (4 points)

3.8 Pounds of hazardous waste produced divided by pounds of hazardous waste which would have been produced without countermeasures. (4 points)

3.9 Peer review of Emergency Management Program in odd-numbered fiscal years, and of Radiation Control Program in even-numbered fiscal years. (4 points)

3.10 Fraction of high-value facilities rated “Highly Protected Risk.” (4 points)

3.0 Quality Performance in Environment, Health, and Safety Performance Evaluation Plan

3.1 Jefferson Lab total recordable case (TRC) rate (cases per 100 person years worked). (50 points)

Goal: To achieve a performance level which meets or exceeds the Lab TRC target (1.1 in FY05).

Qualifiers:

- Comprises all SURA/Jefferson Lab staff and contractors (except major construction project contractors)
- Includes official travel
- Includes personnel paid under joint salary arrangements

Data collection: EH&S Reporting

Data evaluation: EH&S Reporting

Performance measure custodian: EH&S Reporting

Performance measurement validation: Relevant information is presently collected.

Scoring: Based on the actual TRC rate achieved:

Performance Level	Adjectival Rating	% of Assigned Points[1]
1.0 to <1.3	Outstanding[2]	90 to 100[2]
1.3 to <1.8	Excellent	80 to <90
1.8 to < 2.4	Good	70 to <80
2.4 to < 3.0	Marginal	60 to <70
3.0 to < 3.5	Unsatisfactory (Poor)	50 to <60
≥3.5	Unsatisfactory (Failing)	0 to <50

[1] In each adjectival category, points are assigned by linear interpolation between the ranges listed.

[2] Less than 1.0 is 100%

3.2 Jefferson Lab DART (Days Away, Restricted or Transferred) rate (cases per 100 person years worked). (50 points)

Goal: To achieve a performance level which meets or exceeds the Lab DART target (0.5 in FY05).

Qualifiers:

- Comprises all SURA/Jefferson Lab staff and contractors (except major construction project contractors)
- Includes official travel
- Includes personnel paid under joint salary arrangements

Data collection: EH&S Reporting

Data evaluation: EH&S Reporting

Performance measure custodian: EH&S Reporting

Performance measurement validation: Relevant information is presently collected.

Scoring: Based on the actual DART rate achieved:

Performance Level	Adjectival Rating	% of Assigned Points[1]
0.4 to <0.8	Outstanding	90 to 100[2]
0.8 to <1.0	Excellent	80 to <90
1.0 to < 1.2	Good	70 to <80
1.2 to < 1.6	Marginal	60 to <70
1.6 to < 2.0	Unsatisfactory (Poor)	50 to <60
≥2.0	Unsatisfactory (Failing)	0 to <50

[1] In each adjectival category, points are assigned by linear interpolation between the ranges listed.
[2] Less than 0.4 is 100%

3.3 Jefferson Lab environmental exceedances per fiscal year. (20 points)

Goal: To achieve a performance level which is 4 times as good as the DOE complex average.

Qualifiers:

- Violation points for purely administrative violations caused by late reporting of routine information to the regulatory agency may be waived (for purposes of this performance measure) by agreement of SURA and the DOE Site Office if SURA had all necessary information to the Site Office at least two working days before it was due
- Violation points for multiple related concurrent violations will be treated as a single violation
- Occurrence Reporting and Processing System (ORPS) thresholds are as defined in order DOE 0 231.1A, dated 8/19/03

Data collection: EH&S Reporting, receiving information from the Site Office

Data evaluation: EH&S Reporting

Performance measure custodian: EH&S Reporting

Performance measurement validation: Relevant information is presently collected. Site Office is the permit holder, and receives information directly on Jefferson Lab environmental exceedances.

Scoring: Jefferson Lab's current performance is evaluated against a permanent baseline of DOE and NNSA -wide performance for CY 1995. Performance level is based on the ratio R of Jefferson Lab's performance per FTE to the DOE-wide environmental exceedances performance per FTE, using CY 1995 (as extracted from EH-33 special survey).

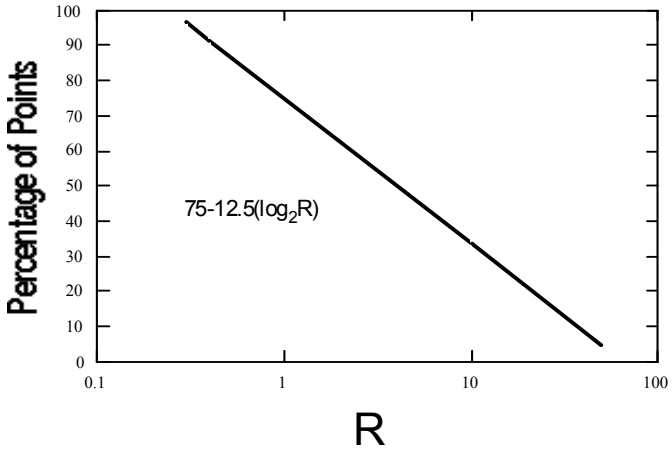
Values assigned as follows:

- A ".1" environmental exceedance for a purely administrative violation that is reportable under the ORPS.
- A ".3" environmental exceedance for an environmentally significant violation that results in no long-term (typically less than 30 days) environmental damage, but the violation is ORPS reportable.
- A "1.0" environmental exceedance for a violation that has a significant environmental impact of $\geq$ 30 days and is ORPS reportable.

The sum of these values is divided by the Jefferson Lab FTEs and compared to the permanent DOE baseline to develop the ratio, R. Note that if 1/R=4, then the Laboratory's goal is met and 100% of the available points are awarded. Other scores are illustrated in the following Table; Figure 3.1 shows the logarithmic interpolation between performance levels listed in the Table:

Performance Level (R)	Adjectival Rating	% of Assigned Points [75-12.5($\log_2$R)]
.436 to .25	Outstanding	90 to 100
.758 to .436	Excellent	80 to <90
1.32 to .758	Good	70 to <80
2.30 to 1.32	Marginal	60 to <70
4.0 to 2.30	Unsatisfactory (Poor)	50 to <60
64.0 to 4.0	Unsatisfactory (Failing)	0 to <50

Figure 3.1 Points awarded v. ratio, R



3.4 Number of reportable and recordable exposures to radiation as SC3 occurrences, plus 5 times this number for SC2 occurrences. (4 points)

Goal: To have a satisfactory ALARA program, with no exposures > 80% of the ORPS SC3 threshold

Qualifiers:

- Includes everyone on site (including adjacent space leased by SURA and those personnel covered by the Jefferson Lab radiation dosimetry program)
- Only the worst exposure is counted in an event involving radiation exposure
- Excludes exposures pre-approved in accordance with the 10 CFR835
- ORPS thresholds are as defined in order DOE 0 231.1A, Dated 8/19/03

Data collection: Radiation Control reports the information to EH&S Reporting

Data evaluation: EH&S Reporting

Performance measure custodian: EH&S Reporting

Performance measurement validation: Relevant information is presently collected

Scoring: Based directly on exposures and program evaluation. Values assigned as follows:

- 0.00 for ALARA program rated better than satisfactory in the most recent internal evaluation (performed by the RadCon Manager during the preceding 12 months)
- 0.01 for ALARA program rated satisfactory in the most recent internal evaluation
- 0.1 for ALARA program rated less than adequate in the most recent internal evaluation
- 0.5 for an event in which the worst whole body exposure is above 80% but below 100% of the ORPS SC3 threshold

- 1.0 for an event in which the worst whole body exposure is above the ORPS SC3 threshold but below the SC2 threshold
- 5.0 for an event in which the worst whole body exposure is above the ORPS SC2 or higher threshold

Performance Level is given by the sum (S) of these values.

Performance Level (S)	Adjectival Rating	% of Assigned Points†
< 0.1 to 0.01	Outstanding	90 to 100
0.5 to 0.1	Excellent	80 to <90
1.0 to > 0.5	Good	70 to <80
5.0 to > 1.0	Marginal	60 to <70
10.0 to > 5.0	Unsatisfactory (Poor)	50 to <60
> 10.0	Unsatisfactory (Failing)	0 to <50

† In each adjectival category, points are assigned by linear interpolation between the ranges listed except performance levels >10.0 are scored by logarithmic extrapolation from Marginal and Unsatisfactory (Poor).

3.5 Number of reportable and recordable exposures to hazardous substances as SC3 occurrences, plus 5 times this number for SC2 occurrences. (4 points)

Goal: To have no exposures above an OSHA action level.

Qualifiers:
- Includes everyone on site (including adjacent space leased by SURA)
- ORPS thresholds are as defined in order DEO 0 231.1A, dated 8/19/03
- No more than three exposures are counted in a single incident

Data collection: Industrial Hygiene Staff report the information to EH&S Reporting

Data evaluation: EH&S Reporting

Performance measure custodian: EH&S Reporting

Performance measurement validation: Relevant information is presently collected

Scoring: Based on exposures. Values assigned as follows:

- 0.1 for an exposure above an OSHA action level, but less than the ORPS SC3 threshold

- 1.0 for an exposure above the ORPS SC3 threshold, but below the SC2 occurrence threshold
- 5.0 for an exposure above the SC2 occurrence threshold

Performance Level is given by the sum (S) of these values

Performance Level (S)	Adjectival Rating	% of Assigned Points†
0.5 to 0.0	Outstanding	90 to 100
1.0 to > 0.5	Excellent	80 to <90
4 to > 1.0	Good	70 to <80
16 to > 4	Marginal	60 to <70
35 to > 16	Unsatisfactory (Poor)	50 to <60
> 35	Unsatisfactory (Failing)	0 to <50

†In each adjectival category, points are assigned by linear interpolation between the ranges listed except performance levels >35 are scored by logarithmic extrapolation from Marginal and Unsatisfactory (Poor).

3.6 Solid waste recycled, in tons, divided by (solid waste sent to landfill, in tons + solid waste recycled, in tons). (6 points)

Goal: To exceed the FY94 baseline recycling ratio (0.021) by 44%

Qualifiers:
- Includes solid waste in dumpsters on the Jefferson Lab site
- Includes solid waste picked up for recycling from the Jefferson Lab site
- Weights are measured by the subcontractors as part of the subcontract requirements
- Additional waste streams may be added if they are found to be significant

Data collection: The solid waste and recycling subcontractors report the information to Facilities Management, which consolidates the data and forwards it to EH&S Reporting

Data evaluation: EH&S Reporting

Performance evaluation: EH&S Reporting

Performance measurement validation: Relevant information is presently collected

Scoring: Based directly on current year's recycling ratio.

Performance Level (Ratio)	Adjectival Rating	% of Assigned Points†
0.026 to ≤ 0.030*	Outstanding	90 to 100
0.020 to < 0.026	Excellent	80 to <90
0.010 to < 0.020	Good	70 to <80
0.005 to < 0.010	Marginal	60 to <70

Performance Level (Ratio)	Adjectival Rating	% of Assigned Points†
0.002 to < 0.005	Unsatisfactory (Poor)	50 to <60
< 0.002	Unsatisfactory (Failing)	0 to <50

†In each adjectival category, points are assigned by linear interpolation between the ranges listed except performance levels <0.002 are scored by logarithmic extrapolation from Marginal and Unsatisfactory (Poor).
* Performance level greater than 0.030 receives 100% of assigned points

3.7 Pounds of radioactive waste produced by (equipment upgrades + maintenance) divided by pounds of radioactive waste produced by (equipment upgrades + maintenance + unintentional processes). (4 points)

Goal: To limit generation of radioactive waste by unintentional processes to 10% of total radioactive waste generated

Qualifiers:

- Equipment upgrades includes the removal of equipment which is no longer in use
- Maintenance includes repairs necessitated by spontaneous failures
- Unintentional processes exclude radioactive waste caused by spontaneous failures
- Only accelerator and experimental equipment components are included
- Unintentional processes include thermal damage caused by the beam and mechanical damage, plus other processes only if the information is available to the Radiation Control Group without investigation by that group
- If no radioactive waste is transported off-site in a fiscal year, a rating of 95% will be assigned

Data collection: The Radiation Control and Operability Groups collect this information and forwards it to EH&S Reporting

Data evaluation: EH&S Reporting

Performance measure custodian: EH&S Reporting

Performance measurement validation: Relevant information is readily collectible

Scoring: Based directly on ratio

Performance Level (Ratio)	Adjectival Rating	% of Assigned Points†
0.80 to ≤ 0.90*	Outstanding	90 to 100
0.70 to < 0.80	Excellent	80 to <90
0.60 to < 0.70	Good	70 to <80
0.50 to < 0.60	Marginal	60 to <70
0.40 to < 0.50	Unsatisfactory (Poor)	50 to <60

Performance Level (Ratio)	Adjectival Rating	% of Assigned Points†
0.00 to < 0.40	Unsatisfactory (Failing)	0 to <50

† In each adjectival category, points are assigned by linear interpolation between the ranges listed.
* Performance level greater than 0.90 receives 100 % of assigned points.

3.8 Pounds of hazardous waste produced divided by pounds of hazardous waste which would have been produced without countermeasures. (4 points)

Goal: To reduce hazardous waste generation by a factor of 4 relative to the amount which would be produced without countermeasures

Qualifiers: None

Data collection: Pounds of hazardous waste are determined by the Hazardous Waste Coordinator. Pounds of hazardous waste which would have been produced without countermeasures is determined jointly by the Hazardous Waste Coordinator and the hazardous waste producer.

Data evaluation: EH&S Reporting

Performance measure custodian: EH&S Reporting

Performance measurement validation: The criteria used for determining pounds of hazardous waste which would have been produced without countermeasures are reviewed by EH&S Reporting to ensure validity

Scoring: Based directly on ratio

Performance Level (Ratio)	Adjectival Rating	% of Assigned Points†
0.4 to ≥ 0.25*	Outstanding	90 to 100
0.5 to > 0.4	Excellent	80 to <90
0.6 to > 0.5	Good	70 to <80
0.7 to > 0.6	Marginal	60 to <70
0.8 to > 0.7	Unsatisfactory (Poor)	50 to <60
1.0 to > 0.8	Unsatisfactory (Failing)	0 to <50

† In each adjectival category, points are assigned by linear interpolation between the ranges listed.
*Performance level less than 0.25 receives 100% of assigned points

3.9 Peer review of the Emergency Management Program in odd-numbered fiscal years, and of the Radiation Control Program in even-numbered fiscal years. (4 points)

Goal: Program (including planning and response services and facilities) is appropriate for a low-hazard, non-nuclear accelerator facility.

Qualifiers:

- Factors considered by Emergency Management Review Committee:
  - Gaps or redundancies relative to services available in surrounding communities
  - Appropriate balance between costs and potential benefits
  - Efficient use of resources applied
- Factors considered by Radiological Control Review Committee:
  - Management and control of exposures to workers and the public
  - Control of radiological damage to the environment
  - Achievement of exposures which are as low as reasonable, considering cost
  - Compliance with laws, regulations, and other appropriate consensus standards
  - Results of DOELAP review when conducted since the last Radiation Control Program review
  - Efficient use of resources applied

Data collection: The Emergency Management Manager and RadCon Manager, respectively, provide appropriate data to the Review Committee.

Data evaluation:

- Performed by the Review Committee
- Duration of review one to two days
- Emergency Management Review Committee:
  - Membership:
    - Emergency management professional from the surrounding community
    - Emergency management professional from a low-hazard DOE laboratory
    - Line manager from Jefferson Lab
    - Line manager from an industrial organization in surrounding community
  - Observer from DOE
  - Members and chairperson selected by Emergency Management Manager, subject to DOE Site Office concurrence
- Radiation Control Review Committee:
  - Membership:
    - Two radiological professionals from DOE laboratories
    - Line manager, active or recently retired, from an organization with substantial accelerator experience (excluding Jefferson Lab)
  - Line manager from Jefferson Lab
  - Members selected by RadCon Manager, subject to DOE Site Office concurrence
  - Professionals from DOE laboratories are expected to be familiar with applicable laws, regulations, and other appropriate consensus standards
- The Review Committee is asked to assign a percentage rating to the extent to which the goal, as qualified above, is achieved

- The Review Committee is asked to point out noteworthy strengths and also opportunities for improvement in effectiveness or efficiency

Performance measure custodian: EH&S Reporting

Performance measurement validation: The independence of the majority of the members assures the validity of the results

Scoring: Based directly on percentage rating by Review Committee (The non-linear relationship to the percentage of assigned points reflects the subjectivity necessarily associated with a small review committee.)

Performance Level (Score, %)	Adjectival Rating	% of Assigned Points†
80 to ≥ 100	Outstanding	90 to 100
70 to < 80	Excellent	80 to <90
60 to < 70	Good	70 to <80
50 to < 60	Marginal	60 to <70
40 to < 50	Unsatisfactory (Poor)	50 to <60
0 to < 40	Unsatisfactory (Failing)	0 to <50

† In each adjectival category, points are assigned by linear interpolation between the ranges listed.

3.10 Fraction of high-value facilities rated "Highly Protected Risk." (4 points)

Goal: All high-value facilities meet insurance carrier criteria for Highly Protected Risk designation

Qualifiers:

- A facility is a separate building and its contents
- A facility is high-value if it has a maximum credible fire loss of $1 million or more
- A facility is high-value if it is mission essential
- A facility is mission essential if its maximum credible fire loss would result in more than a three month programmatic delay

Data collection: Facilities which are high-value are determined by the Facilities Management Director, with DOE Site Office concurrence. Information required to classify the level of fire protection is collected by representatives from the technical services group of SURA's fire and property insurance carrier.

Data evaluation: Performed by representatives from the technical services group of SURA's fire and property insurance carrier. Evaluations are scheduled in even-numbered fiscal years only, and the same score is used in the succeeding odd-numbered fiscal year. Evaluations may

be conducted in an odd-numbered fiscal year if either SURA or DOE believes that there has been a substantive change in the Highly Protected Risk status; in this event, the new score will be used in the odd-numbered year.

Data collection: SURA/Jefferson Lab Risk Manager

Data evaluation: SURA/Jefferson Lab Risk Manager

Performance measure custodian: EH&S Reporting

Performance measurement validation: Site Office concurrence ensures that the high-value facilities are correctly identified. The fact that the same insurance carrier classifies the fire protection risk and provides SURA's fire coverage assures accuracy in the classification.

Scoring: Based directly on fraction of high-value facilities meeting criteria

Performance Level (Score)	Adjectival Rating	% of Assigned Points†
0.95 to 1.00	Outstanding	90 to 100
0.90 to < 0.95	Excellent	80 to <90
0.85 to < 0.90	Good	70 to <80
0.80 to < 0.85	Marginal	60 to <70
0.75 to < 0.80	Unsatisfactory (Poor)	50 to <60
0.00 to < 0.75	Unsatisfactory (Failing)	0 to <50

† In each adjectival category, points are assigned by linear interpolation between the ranges listed.

4.0 Quality of Business and Administrative Practices Overview

Objective: Maintaining effective and efficient business and administrative practices at Jefferson Lab.

Key Indicator
4.1 Peer Review (65 or 70 points[4])

General Charge to Peer Review Panel: With DOE concurrence, SURA will issue the charge to the Panel. Generally, the charge will be to assess the overall strengths and weaknesses of the Laboratory's business and administrative infrastructure, with a special focus each review on one of these Secondary Indicator Areas below. More detailed guidance will be developed based on special circumstances at the time of the review. To achieve this objective, review each major overhead/indirect cost area. Areas to be reviewed include:

- Self assessment
- Contractual requirements and performance standards
- Annual objectives
- Internal audits
- External reviews
- Benchmarking efforts

The Panel will have access to Secondary Indicators as input to its review.

Frequency and Duration: Annual, two days, with final report due 30 days from last day of review.

Panel Composition: A five to six member panel (including chair), selected by mutual agreement of SURA and DOE, and generally consisting of Chief Administrative Officer (CAO) equivalents from private industry, national laboratories and the scientific community (including one from the Jefferson Lab user community).

Secondary Indicators (30 points)
4.2 Facilities Management (6 points)

Objective: Manage non-capital and GPP construction projects to maximize the expenditure of funds on actual construction and complete these projects on time and within budget; to ensure real properties usage is optimized and facilities are adequately maintained and operated to minimize life cycle costs.

[4] Beginning with the next Cyber Security Peer Review in FY05, that review will be reported as a PM worth five points in the years it is held. Available points for the Administrative Peer Review will be reduced by five in those years.

4.2.1 Asset Condition Index (ACI) defined as one (1) minus the ratio of Deferred Maintenance to Replacement Plant Value. (2 points)

4.2.2 Percentage of planned facility condition assessments completed during the fiscal year. (2 points)

4.2.3 Percentage of indirect projects completed from the planned project list for the fiscal year. (2 point)

4.3 Property Management and Protection (4 points)

Objective: Establish, implement and maintain effective management practices for the control, utilization and disposal of personal property, promote cost economies and efficiencies that result in improved processes, customer satisfaction and the elimination of waste. Such practices cross programmatic lines and contribute to the mission accomplishment of DOE and/or the Laboratory. The Laboratory will, in addition, ensure effective protection of proprietary information, personnel, property and the general public in an effective, cost efficient, risk based and graded manner.

Percentage of value of property located during the inventory cycle for each of the inventories conducted: capital equipment (biennial - odd fiscal years only) and sensitive items (annual). (4 points)

4.4 Financial Management (6 points)

Objective: Assure effective planning, execution, and monitoring of budgets. Assure effective cash and debt management. Assure cost accounting system is in compliance with Cost Accounting Standards and that Disclosure Statement is current, complete, accurate, and reflective of the accounting system; assure financial practices are in conformance with the approved Disclosure Statement. Assure indirect cost activities are well managed. Assure SURA's internal audit control program maintains accuracy of the financial data, safeguards DOE assets, and prevents fraud, waste, and abuse.

4.4.1 Number of Cost Accounting Standards violations resulting from nonconformance with the approved Disclosure Statement, unless following DOE directives. (1 point)

4.4.2 Dollar percentage of invoices presented for payment deemed unallowable by the Contracting Officer as highlighted in the annual transaction testing audit and any IG audits that take place during the year. (1 point)

4.4.3 Percentage of vendor invoices paid with discounts lost. (1 point)

4.4.4 Percentage of annual actual cost variance from budget for each overhead pool. (1 point)

4.4.5 Number of occurrences that resulted in the monthly Cost Management Report (533M) being resubmitted to the DOE Contracting Officer to correct erroneous data reported by the Lab. (1 point)

4.4.6 Number of travel expense reports taken from a 10% random sample of Department audited expense reports that contained an error exceeding $100 that was not detected at the time the expense report was originally audited by Business Services. (1 point)

4.5 Procurement (6 points)

Objective: Assure procurement functions are carried out so as to be cost effective, meet contractual requirements, satisfy customers' needs, and meet socioeconomic goals.

4.5.1 Average procurement cycle time to award a simplified purchase order ($0 <$100,000). (3 points)

4.5.2 Percent of total available purchasing dollars awarded to: small business concerns; small women-owned business concerns; and small disadvantaged business concerns. (3 points)

4.6 Human Resources and Services (5 points)

Objective: Attract and retain a diverse workforce capable of successfully executing Jefferson Lab's mission. Provide a workplace environment conducive to employee well-being and growth. Maintain innovative compensation practices aligned with the market place to attract and retain a diverse, well-trained workforce. Maintain innovative and cost-effective health care programs aligned with the commercial market place for similarly situated workforce programs.

4.6.1 Percent of action oriented diversity commitments, as established in the Affirmative Action Plan (AAP), completed during the fiscal year. (1 point)

4.6.2 Representation of protected classes (PC) within each EEO-1 category at the end of the fiscal year compared to the beginning of the fiscal year (adjusted for voluntary separations). (1 point)

4.6.3 Sustainable EEOC charges. (1 point)

4.6.4 Achieve compensation positions aligned with market practices to reflect the Lab's mid-market compensation philosophy. (1 point)

4.6.5 Percent of three-year rolling average of annual increases in premium cost relative to market. (1 point)

4.7 Information Systems (3 or 8 points)[5]

Objective: Assure appropriate level of cyber security risk assessment and program planning and that Jefferson Lab computer systems are not compromised or used in attacks on other Internet locations. Provide a comprehensive program of library, publications, and records management services in support of Lab activities.

4.7.1 Peer Review (5 points)

A peer review of Jefferson Lab's cyber security program is mandated by applicable DOE documents (N205.1 as of December, 2002) and established as operational procedure in the Lab's Cyber Security Program Plan (CSPP), last updated in April, 2002. Peer reviews are conducted triennially with the next review scheduled for FY05.

General Charge to Peer Review Panel: Evaluate conformance to the Lab's DOE-approved Cyber Security Program Plan (CSPP), as well as the current risk assessment, with consideration of the following points:

- Is the approach to cyber security appropriate to the environment, user community, and mission of the Laboratory? Is the balance between science and security correct?
- Has the Laboratory correctly assessed the scope and magnitude of the risks that it faces?
- Are the cyber security measures taken and planned adequate to address those risks?
- Does the program make the best use of available resources, and are those resources adequate?

The results of the review will be provided to the Jefferson Lab Director, the DOE Site Office, and SURA.

Frequency: The Cyber Security Peer Review will be performed every three years, with a final report due 30 days from last day of review.

Panel composition: The peer review panel will have three to five members selected from Office of Science laboratories and other members as appropriate. The members of the review panel will be drawn from the senior management of the Computing or IT groups and will have an understanding of the type of work and environment at the laboratory. Review panel members will be selected by the Jefferson Lab Computer Center Manager and Cyber Security Officer with the concurrence of the Jefferson Lab CIO and Contract Steering Committee.

[5] In years cyber security peer reviews are held, the additional five points allocated will be taken from the Peer Review of Business and Administrative Practices.

4.7.2 Number of times Jefferson Lab computer systems were compromised or were used to attack other systems. (2 points)

4.7.3 Percent of current year's papers written by JLab staff or Users placed on-line. (1 point)

4.0 Quality of Business and Administrative Practices Performance Evaluation Plan

4.1 Peer Review (65 or 70 Points)[6]

Introduction: The "Key Indicator" for this performance objective will be based on a "peer review" of the Laboratory's administrative system. Associated with the peer review are a set of secondary indicators (performance measures 4.2.1 - 4.7.3 listed below) that will be used to monitor the Laboratory's administrative performance in a more detailed way and to extend the validity of the peer review.

Scoring: The Peer Review Panel will assign an adjectival rating to the performance of the laboratory in producing quality business and administrative practices, and an associated percentage of the Key Indicator points within the ranges associated with that rating, according to the following Table:

Adjectival Rating	% of Assigned Points
Outstanding	90 to 100
Excellent	80 to < 90
Good	70 to < 80
Marginal	60 to < 70
Unsatisfactory (Poor)	50 to < 60
Unsatisfactory (Failing)	0 to < 50

4.2 Facilities Management (6 points)

4.2.1 Asset Condition Index (ACI) defined as one (1) minus the ratio of Deferred Maintenance to Replacement Plant Value (2 points).

Scoring:
The ACI is one (1) minus the Facility Condition Index (FCI). FCI is the ratio of Deferred Maintenance to Replacement Plant Value. The FCI is derived from data in FIMS.

$$ACI = 1 - FCI$$

The goal is for the ACI to approach one (1). The ACI will increase and approach one (1) as the condition of facilities improves at Jefferson Lab.

[6] Beginning with the next Cyber Security Peer Review in FY05, that review will be reported as a PM worth five points in the years it is held. Available points for the Administrative Peer Review will be reduced by five in those years.

Performance Level	Adjectival Rating	% of Maximum Assigned Points
≥ 98%	Outstanding	100
≥ 95% to < 98%	Excellent	80 to < 90
≥ 90% to < 95%	Good	70 to < 80
≥ 75% to < 90%	Marginal	60 to < 70
≥ 60% to < 75%	Unsatisfactory (Poor)	50 to < 60
< 60%	Unsatisfactory (Failing)	0

4.2.2 Percentage of planned facility condition assessments completed during the fiscal year (2 points)

Scoring:

$$\text{Performance Level} = \frac{\text{Facility condition assessments completed}}{\text{Facility condition assessments scheduled}} \text{ X } 100$$

Condition assessments on trailers and shipping containers, smoke shacks, and small modular storage shed are not scheduled but are performed only as deemed prudent. Facilities not accessible due to operations are so documented and will be rescheduled. All applicable facilities are scheduled for assessment on a three (3) year rotating schedule.

Performance Level	Adjectival Rating	% of Maximum Assigned Points
≥ 94%	Outstanding	100
≥ 90% to < 94%	Excellent	80 to < 90
≥ 84% to < 90%	Good	70 to < 80
≥ 79% to < 84%	Marginal	60 to < 70
≥ 75% to < 79%	Unsatisfactory (Poor)	50 to < 60
< 75%	Unsatisfactory (Failing)	0

4.2.3 Percentage of indirect projects completed from the planned project list for the fiscal year. (2 point)

Scoring:

$$\text{Performance Level} = \frac{\text{Indirect projects completed from list}}{\text{Planned indirect projects}} \text{ X}100$$

Indirect projects completed include those that are procured as well as those that have been closed out. The planned project list is determined after the budget has been finalized. Projects delayed by operations, including those displaced by higher priority

projects, and so documented will be rescheduled. The new completion date will be used for performance level calculation.

Performance Level	Adjectival Rating	% of Maximum Assigned Points
≥ 94%	Outstanding	100
≥ 90% to < 94%	Excellent	80 to < 90
≥ 80% to < 90%	Good	70 to < 80
≥ 70% to < 80%	Marginal	60 to < 70
≥ 60% to < 70%	Unsatisfactory (Poor)	50 to < 60
< 60%	Unsatisfactory (Failing)	0

4.3 Property Management and Protection (4 points)

Introduction: Percentage of value of property located during the inventory cycle for each of the inventories conducted: capital equipment (biennial - odd fiscal years only) and sensitive items (annual).

Scoring: Performance Level = **[**(Value of property located during each of the inventories / Corresponding value of property for each class inventoried) * 100**]**

	Submeasure	Frequency	Odd Years	Even Years
4.3.1	Capital Equipment	biennial	2 points	0 points (not conducted in FY04)
4.3.2	Sensitive	annual	2 points	4 points

Performance Level	Adjectival Rating	% of Maximum Assigned Points
≥ 99%	Outstanding	100
≥ 98.5% to < 99%	Excellent	80 to < 90
≥ 98% to < 98.5%	Good	70 to < 80
≥ 97% to < 98%	Marginal	60 to < 70
≥ 96% to < 97%	Unsatisfactory (Poor)	50 to < 60
< 96%	Unsatisfactory (Failing)	0

4.4 Financial Management (6 points)

4.4.1 Number of Cost Accounting Standards violations resulting from nonconformance with the approved Disclosure Statement, unless following DOE directives. (1 point)

Scoring:

Performance Level	Adjectival Rating	% of Maximum Assigned Points
no violations	Outstanding	100
one violation	Excellent	85
two violations	Good	70
three violations	Marginal	55
four violations	Unsatisfactory (Poor)	40
five violations	Unsatisfactory (Failing)	0

4.4.2 Dollar percentage of invoices presented for payment deemed unallowable by the Contracting Officer as highlighted in the annual transaction testing audit and any IG audits that take place during the year. (1 point)

Scoring:

Performance Level	Adjectival Rating	% of Maximum Assigned Points
0% to 1%	Outstanding	90 to 100
> 1% to 2%	Excellent	80 to < 90
> 2% to 3%	Good	70 to < 80
> 3% to 4%	Marginal	60 to < 70
> 4% to 5%	Unsatisfactory (Poor)	50 to < 60
> 5%	Unsatisfactory (Failing)	0 to < 50

4.4.3 Percentage of vendor invoices paid with discounts lost. (1 point)

Scoring: The measure of percentage of invoices available for discount and not successfully taken as a percentage of invoices processed with discounts plus invoices with discounts lost are:

Performance Level	Adjectival Rating	% of Maximum Assigned Points
0% to 1%	Outstanding	90 to 100
> 1% to 2%	Excellent	80 to < 90
> 2% to 3%	Good	70 to < 80
> 3% to 4%	Marginal	60 to < 70
> 4% to 5%	Unsatisfactory (Poor)	50 to < 60
> 5%	Unsatisfactory (Failing)	0 to < 50

4.4.4 Percentage of annual actual cost variance from budget for each overhead pool. (1 point)

Scoring:

Performance Level	Adjectival Rating	% of Maximum Assigned Points
0% to 3.0% variance	Outstanding	90 to 100
3.1% to 6.0% variance	Excellent	80 to < 90
6.1% to 9.0% variance	Good	70 to < 80
9.1% to 12.0% variance	Marginal	60 to < 70
12.1% to 15.0% variance	Unsatisfactory (Poor)	50 to < 60
> 15% variance	Unsatisfactory (Failing)	0 to < 50

4.4.5 Number of occurrences that resulted in the monthly Cost Management Report (533M) being resubmitted to the DOE Contracting Officer to correct erroneous data reported by the Lab. (1 point)

Scoring:

Performance Level	Adjectival Rating	% of Maximum Assigned Points
0 occurrences	Outstanding	100
1 occurrence	Excellent	85
2-3 occurrences	Good	75
4-5 occurrences	Marginal	65
6-7 occurrences	Unsatisfactory (Poor)	55
≥ 8 occurrences	Unsatisfactory (Failing)	0

4.4.6 Number of travel expense reports taken from a 10% random sample of Department audited expense reports that contained an error exceeding $100 that was not detected at the time the expense report was originally audited by Chief Finance Officer. (1 point)

Scoring:

Performance Level	Adjectival Rating	% of Maximum Assigned Points
0% -2.0%	Outstanding	90 to 100
2.1% - 5.0%	Excellent	80 to < 90
5.1% - 10%	Good	70 to < 80
10.1% - 15%	Marginal	60 to < 70
15.1% - 20%	Unsatisfactory (Poor)	50 to < 60
> 20%	Unsatisfactory (Failing)	0 to < 50

4.5 Procurement (6 points)

4.5.1 Average procurement cycle time to award a simplified purchase order ($0 <$100,000). (3 points)

Procurement cycle time is based on the date the purchase requisition is received in Procurement until the action is awarded, but does not include the time required to establish new vendors or time required by Jefferson Lab requisitioners to correct deficient requisition documentation.

Scoring:

Performance Level	Adjectival Rating	% of Maximum Assigned Points
≤ 10 Days	Outstanding	90 to 100
≥ 11 to ≤ 14 Days	Excellent	80 to < 90
> 14 to ≤ 18 Days	Good	70 to < 80
>18 to ≤ 22 Days	Marginal	60 to < 70
> 22 to ≤ 26 Days	Unsatisfactory (Poor)	50 to < 60
Greater than 26 Days	Unsatisfactory (Failing)	0 to < 50

4.5.2 Percent of total available purchasing dollars awarded to: small business concerns; small women-owned business concerns; and small disadvantaged business concerns. (3 points)

- Total estimated dollar value of available dollars that are planned subcontracting (to Large and Small Business concerns): $26,900,000.
- "Total Available Purchasing Dollars" excludes: (i) government agencies; (ii) universities (research); and (iii) decentralized credit card purchases.
- Awards to women-owned business concerns and small disadvantaged business concerns will be counted for every Submeasure that is applicable.

FY04 Peak Performance Goals (PPG):

- Submeasure 4.5.2a: Award at least 48% of total available purchasing dollars (est. $12,912,000) to small business concerns. (1 point)
- Submeasure 4.5.2b: Award at least 5% of available purchasing dollars (est. $1,345,000) to women owned business concerns. (1 point)
- Submeasure 4.5.2c: Award at least 6% of available purchasing dollars (est. $1,614,000) to small disadvantaged business concerns. (1 point)

Scoring: In each submeasure, scoring relative to peak performance goals will be:

Performance Level	Adjectival Rating	% of Maximum Assigned Points
100%	Outstanding	100
95% to < 100%	Excellent	95 to 99
90% to < 94%	Good	90 to 94
85% to < 89%	Marginal	85 to 89
80% to < 84%	Unsatisfactory (Poor)	80 to 84
< 80%	Unsatisfactory (Failing)	0

4.6 Human Resources and Services (5 points)

4.6.1 Percent of action oriented diversity commitments, as established in the Affirmative Action Plan (AAP), Section VII-C, completed during the fiscal year. (1 point)

Scoring: AAP Assessment Factor = $\frac{\text{\# of action oriented diversity commitments completed}}{\text{Total \# of action oriented diversity commitments}}$

Performance Levels	Adjectival Rating	% of Maximum Assigned Points
Achieve ≥ 90% of diversity commitments	Outstanding	90 to 100
Achieve 80% to < 90% of diversity commitments	Excellent	80 to < 90
Achieve 70% to < 80% of diversity commitments	Good	70 to < 80
Achieve 55% to < 70% of diversity commitments	Marginal	60 to < 70
Achieve less 55% of diversity commitments	Unsatisfactory	50 to < 60

4.6.2 Representation of protected classes (PC) within each EEO-1 category at the end of the fiscal year compared to the beginning of the fiscal year (adjusted for voluntary separations). (1 point)

Scoring:

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

where:

Total Workforce = Total number of regular and term employees (excludes casuals, temps, and students)
EEO-1 Category = Occupational job categories as defined by EEOC (N=10)
Protected Classes (PC) = Women and minorities as defined by EEOC (N = 20): 2PC * 10 EEO-1 CATEGORIES

Note: EEO-1 categories where Utilization percentages meet or exceed Availability percentages are determined to be fully in compliance with this metric.

Performance Levels	Adjectival Rating	% of Maximum Assigned Points
Maintain beginning PC factor in 100% of protected classes	Outstanding	100
Maintain 85% to < 100% of protected classes	Excellent	80 to < 90
Maintain 70% to < 85% of protected classes	Good	70 to < 80
Maintain 50% to < 70% of protected classes	Marginal	60 to < 70
< 50% of protected classes	Unsatisfactory	50 to < 60

4.6.3 Sustainable EEOC charges. (1 point)

Scoring:

Performance Level	Adjectival Rating	% of Maximum Assigned Points
0 charges	Outstanding	100
1 charge	Good	80
> 1 charge	Unsatisfactory	0

4.6.4 Achieve compensation positions aligned with market practices to reflect the Lab's mid-market compensation philosophy. (1 point)

Scoring:

$$\text{Compensation Factor} = \frac{\sum \text{(weighted average salary within each classification)}}{\sum \text{(weighted salary range midpoint* within each classification)}}$$

*Assumes salary range midpoints reflect mid-market position

Performance Level	Adjectival Rating	% of Maximum Assigned Points
Average salaries within ±3.0% of market average	Outstanding	90 to 100
Average salaries within ±3.1% to ±5.0% of market average	Excellent	80 to < 90
Average salaries within ±5.1% to ±7.0% of market average	Good	70 to < 80
Average salaries within ±7.1% to ±10.0% of market average	Marginal	60 to < 70

Performance Level	Adjectival Rating	% of Maximum Assigned Points
Average salaries greater than ±10.0% of market average	Unsatisfactory	50 to < 60

4.6.5 Percent of three-year rolling average of annual increases in premium cost relative to market. (1 point)

Scoring:

Performance Level	Adjectival Rating	% of Maximum Assigned Points
5% or more below market data	Outstanding	90 to 100
Up to 4.9% below market or no more than 2.0% above market	Excellent	80 to < 90
2.1% to 5.0% above market	Good	70 to < 80
5.1% to 8.0% above market	Marginal	60 to < 70
8.1% to 12.0% above market	Unsatisfactory (Poor)	50 to < 60
12.1% or more above market	Unsatisfactory (Failing)	0 to < 50

4.7 Information Systems (3 or 8 points)[7]

4.7.1 Peer Review of the Laboratory's Cyber Security Program. (5 points in years review is held, 0 points in other years.)

A peer review of the Lab's cyber security program will be held every three years. The next review is scheduled to take place in FY05.

Scoring: The Peer Review Panel will assign an adjectival rating to the performance of the Laboratory in producing quality cyber security practices and results, and a percentage of Key Indicator points within the ranges associated with that rating, according to the following Table:

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

[7] In years cyber security peer reviews are held, the additional five points allocated will be taken from the Peer Review of Business and Administrative Practices.

Adjectival Rating	% of Assigned Points
Unsatisfactory (Failing)	0 to < 50

4.7.2 Number of times JLab computer systems were compromised or were used to attack other systems. (2 points)

Potential Cyber Security Incidents (CSI) considered in this metric include system level (root) compromises on Computer Center and Accelerator Controls managed systems, as well as situations where nodes in the jlab.org domain are used to carry out cyber attacks on other locations on the Internet. Computer Center and Accelerator Controls staff will track incidents and report on them at the end of the fiscal year.

Scoring: CSI = RC + .5(CA) where
RC = the number of incidents of system level (root) compromises on Computer Center or Accelerator Controls managed systems per year
CA = the number of incidents in which a node in the jlab.org domain is used to carry out a cyber attack on other locations on the Internet

Performance Levels	Adjectival Rating	% of Maximum Assigned Points
CSI = $\leq$ 1	Outstanding	100
CSI > 1 and $\leq$3	Excellent	80 to < 90
CSI > 3 and $\leq$6	Good	70 to < 80
CSI > 6 and $\leq$9	Marginal	60 to < 70
CSI > 9 and $\leq$12	Unsatisfactory (Poor)	50 to < 60
CSI > 12	Unsatisfactory (Failing)	0

4.7.3 Percent of current year's papers written by JLab staff or Users placed online. (1 point)

"Paper" is defined as any paper that is published in a journal or proceedings, or presented at a conference, or any technical note written by researchers that are employees of Jefferson Lab. "User Paper" is defined as any journal-published paper, written and reported to JLab by a User, using research results from Jefferson Lab.

Scoring: Performance on the Science and Technical Information program is measured by the percentage of papers placed online during the fiscal year.

Performance Level	Adjectival Rating	% of Maximum Assigned Points
97-100% of papers placed online	Outstanding	90 to 100
94-96% of papers placed online	Excellent	80 to < 90

Performance Level	Adjectival Rating	% of Maximum Assigned Points
91-93% of papers placed online	Good	70 to < 80
88-90% of papers placed online	Marginal	60 to < 70
85-87% of papers placed online	Unsatisfactory (Poor)	50 to < 60
82-84% of papers placed online	Unsatisfactory (Failing)	0 to < 50

5.0 Responsible Institutional Management Overview

Objective: To manage and operate Jefferson Lab in accordance with generally accepted quality management principles so as to achieve its mission goals in a cost effective manner while satisfying its customers, and providing a culture which builds trust and facilitates continuous improvement in all areas of the institution.

Key Indicator
5.1 Peer Review (100 points)

General Charge to Peer Review Panel: With DOE concurrence, SURA will issue the charge to the Panel. Generally, the charge will be to assess overall institutional management of Jefferson Lab with emphasis on the three criteria of strategic planning, managerial effectiveness, and organizational culture. More detailed guidance will be developed based on special circumstances at the time of the review. All other metrics provided for in this Appendix are made available to this committee as well as the results of external and internal reviews during the performance period.

Frequency and Duration: Biennial (even years), two days, divided between presentations, site tours/inspections, and report drafting. The final report is due 30 days from conclusion of review.

Panel Composition: A panel and chair selected by mutual agreement of SURA and DOE, and generally consisting of:

- 1 DOE Lab Director
- 1 CAO
- 1 Industrial Chief Scientist
- 1 University Provost or President with Scientific/Engineering Credentials
- 1 International Lab Director
- Chairs and/or a representative of the Outstanding Science and Technology Peer Review Team and of the Quality of Business and Administrative Practices Peer Review Panel.

Prior to the selection of the panel members, the composition of the panel may be adjusted, by mutual agreement of SURA and DOE, to match the programs and activities of the Laboratory and the special circumstances to be addressed by the review.

Note: The score from each review is carried forward to the subsequent year and is included in that year's performance evaluation calculation.

5.0 Responsible Institutional Management Performance Evaluation Plan

5.1 Peer Review (100 points)

Criteria:

Strategic Planning: (40%)

- Responsiveness to national scientific and technical priorities, to the DOE Strategic Plan and other DOE guidance, and to user community requirements in the development of the Jefferson Lab scientific program. Also includes "institutional citizenship" within the DOE lab system and with respect to the state and local communities.
- Identification and cultivation of core competencies that eliminate unnecessary duplication and overlap in advancing the national/international knowledge and resource base.
- Leadership on national/international scale in mission related competencies.

Managerial Effectiveness: (40%)

- Cost effective use of available resources to optimize benefits for the nation's scientific agenda.
- Consistently meets or exceeds established commitments
- Responsible programmatic, EH&S and administrative balance
- Cost reductions through process improvement and reengineering

Organizational Culture (20%)

- Advocacy of quality principles to enhance staff performance
- Open, accurate, timely internal and external communications, including communications with the DOE Site Office, state, and local communities
- Promotes diversity
- Sustained high morale and productivity

6.0 Project Management Overview

Objective: Ensure effective and successful project management on Congressionally authorized, DOE sponsored projects assigned to Jefferson Lab.

Performance Indicators (57 points):

6.1 Schedule Performance on the SNS Project (35 points)

6.2 Schedule performance on the CEBAF Center Addition project (10 points)

6.3 Cost Performance on the CEBAF Center Addition Project (10 points)

6.4 Percentage of Overrun on Projects Greater than $100K (Contracted Price) (1 point)

6.5 Variance of Scheduled Completion Time for Projects Greater than $100K and of Annual Milestones of Multi-Year Projects Greater than $100K (1 point)

6.0 Project Management Performance Evaluation Plan

Introduction: This section includes Congressionally authorized, DOE sponsored projects, GPP and other projects greater than $100K assigned to Jefferson Lab. Such projects are important to the Lab and to DOE, and the Lab's performance on them is measured and reported within the context of this contract. Each of these projects has a clear scope and cost and is to be completed in a specified period of time (i.e., not ongoing) and within a specified budget. Therefore, appropriate performance measures and points are added to the Performance Evaluation Plan for each project for a discrete period of time. Thus performance on these projects is measured and reported via the contract without reallocating points from other metrics.

Performance Measures

6.1 Schedule performance on the SNS project. (35 points)

Methodology: The metric will measure the average completion date of cryomodules versus the scheduled completion date.

Scoring: The percentage of available points earned shall be numerically equal to 100 plus (minus) 10 times the number of months (including fractions thereof) that the average completion date for the cryomodules is ahead (behind). The result will be constrained to lie between 0 and 100, and no points will be awarded if the average completion date is more than five months behind schedule. For the mid-year score, the coefficient shall be 20 rather than 10. The Contracting Officer may make allowance for project plan changes and/or schedule adjustments associated with causes beyond JLab's control. The dates used in evaluating performance at midyear and end-of-year are the project schedule dates in place at the time of evaluation.

Performance Level	Adjectival Rating	% of Assigned Points
Ahead of or on schedule	Outstanding	100
Behind schedule by no more than 1 month	Excellent	90 to < 100
Behind schedule by more than 1 month but not more than 2 months	Good	80 to < 90
Behind schedule by more than 2 months but not more than 3 months	Marginal	70 to < 80
Behind schedule by more than 3 months but not more than 4 months	Unsatisfactory (Passing)	60 to < 70
Behind schedule by more than 4 months	Unsatisfactory (Failing)	0

6.2 Schedule performance on the CEBAF Center Addition project. (10 points)

Methodology: Specific milestones will be selected for the purpose of measuring Jefferson Lab performance, as mutually agreed by the DOE Contracting Officer and the SURA/Jefferson Lab Director of Facilities Management. For FY04 the selected milestones are:

- Complete Final Design
- Award FPSC Contract
- Begin Construction
- Piles and Excavation Complete

The metric will measure the average completion of the selected milestones at the mid-point and end of the fiscal year for which they were selected.

Scoring: The percentage of available points earned shall be numerically equal to 100 plus (minus) 10 times the number of months (including fractions thereof) that the average completion of the selected milestones is ahead (behind). The result will be constrained to lie between 0 and 100, and no points will be awarded if the project is more than five months behind schedule. For the mid-year score, the coefficient shall be 20 rather than 10. The Contracting Officer may make allowance for project plan changes and/or schedule adjustments associated with causes beyond JLab's control.

Performance Level	Adjectival Rating	% of Assigned Points
Ahead of or on schedule	Outstanding	100
Behind schedule by no more than 1 month	Excellent	90 to < 100
Behind schedule by more than 1 month but not more than 2 months	Good	80 to < 90
Behind schedule by more than 2 months but not more than 3 months	Marginal	70 to < 80
Behind schedule by more than 3 months but not more than 4 months	Unsatisfactory (Passing)	60 to < 70
Behind schedule by more than 4 months	Unsatisfactory (Failing)	0

6.3 Cost performance on the CEBAF Center Addition project (10 points)

Methodology: The metric will measure percent of remaining construction contingency to completion of the project using remaining contingency divided by the Estimate to Complete (ETC) as the basis for scoring.

Performance Level = [(Remaining Contingency / ETC) * 100]

Scoring:

Performance Level	Adjectival Rating	% of Assigned Points
≥ 15%	Outstanding	100
≥ 14.0% to < 15%	Excellent	90 to 99
≥ 12.0 to < 14%	Good	80 to 89
≥ 10.0% to < 12.0%	Marginal	70 to 79
≥ 8.0% to < 10.0%	Unsatisfactory (Passing)	60 to 69
< 8.0%	Unsatisfactory (Failing)	0

6.4 Percentage of overrun on all projects greater than $100K (contracted price) (1 point)

Maintain level of construction control to limit change orders and cost overruns to only those which bring added value to the project or are appropriate to produce the desired end product.

Scoring: Performance level will be calculated from the initial bid (contracted) amounts compared to the final contract amounts considering all applicable funding increases for all appropriate contracts closed out during the rating period. Increases considered not applicable are those whose root cause is:

- Post-design programmatic change by user (physical or schedule)
- New technology deemed a value-added inclusion (post-award)
- Value engineering proposals accepted (both additive and deductive)

Value determined will be expressed as a percent overrun.

Performance Level = [(Applicable Final Contract Cost/Initial Contract Amount) - 1] * 100

Performance Level	Adjectival Rating	% of Maximum Assigned Points
≤ 8%	Outstanding	100
> 8% to ≤ 12%	Excellent	80 to < 90
> 12% to ≤ 18%	Good	70 to < 80
> 18% to ≤ 25%	Marginal	60 to < 70
> 25% to ≤ 35%	Unsatisfactory (Poor)	50 to < 60
> 35%	Unsatisfactory (Failing)	0

6.5 Variance of scheduled completion time for projects greater than $100K and of annual milestones of multi-year projects greater than $100K. (1 point)

Calculation of performance toward this goal will be made by comparing the actual number of days to completion of an identified project (or to a designated milestone) to the number specified by the original contract. This will be expressed as a coefficient of actual divided by contracted. Additional time attributed to the following categories will not be included for the purpose of this metric:

- Acts of God (as contractually accepted)
- Labor disputes/strikes
- Documented material unavailability (contractually accepted)
- User desired post-award change orders for which additional time is appropriate

Scoring: For purposes of this report, "completion" shall be when the project is physically complete; turned over to user or beneficial occupancy taken.

Performance Level	Adjectival Rating	% of Maximum Assigned Points
≤ 1.10	Outstanding	100
> 1.10 to ≤ 1.25	Excellent	80 to < 90
> 1.25 to ≤ 1.30	Good	70 to < 80
> 1.30 to ≤ 1.40	Marginal	60 to < 70
> 1.40 to ≤ 1.50	Unsatisfactory (Poor)	50 to < 60
> 1.50	Unsatisfactory (Failing)	0

Attachment 1
Reliable Experimental and Accelerator Operations Performance Metrics

Introduction

While the body of Appendix B contains general definitions for the five metrics used to assess Reliable Experimental and Accelerator Operations performance, this Attachment provides the precise definitions in terms of formulae used to compute the metrics.

For convenience all of the parameters used in the formulae are defined in Table A1.1.

Table A1.1 Definitions

Quantity	Definition
$A_{accel\text{-}goal}$	The goal for three-hall accelerator availability—percent of scheduled time for which the beam is useful—nominally 80% at a multiplicity of 2.0 and modified (according to the formula) whenever a significant new capability is being commissioned
E_i	The experimental equipment availability for experiments in Hall i as determined by the criteria defined below
$E_{i\text{-}goal}$	The experimental equipment availability goal for experiments in Hall i; nominally 80%, but may be modified in the contract whenever a significant new capability is being commissioned
M_{goal}	The goal for multiplicity—the number of halls running simultaneously—nominally 2.0, but may be changed in the contract whenever unusual major hall installations are expected to impact the achievable multiplicity
M_{actual}	The actual multiplicity—the average number of halls running simultaneously during the year
$N_{cap\text{-}upgrade}$	The number of major accelerator capability upgrades performed during the year
S_{ad}	The total number of hours of accelerator development activities scheduled for the accelerator
$S_{ad\text{-}actual}$	The number of hours the accelerator is actually able to support scheduled accelerator development activities
S_{beam}	The total number of hours in the published schedule that the accelerator is to provide beam for physics experiments
$S_{beam\text{-}actual}$	The number of hours that the accelerator actually provides beam for scheduled physics experiments in at least 1 hall
S_i	The total number of hours assigned in the published schedule for experiments in Hall i
$S_{i\text{-}actual}$	The actual number of hours when both the beam and experimental equipment are available and being used to carry out the planned scientific program in Hall i
S_j	The total number of hours assigned to the j^{th} experiment in the published schedule
t_{bs}	The date on which a firm beam schedule is released
t_{sa}	The actual date on which an experiment begins taking data
t_{ss}	The date on which an experiment is scheduled to begin taking data as published in the firm beam schedule

Table A1.2 defines the nominal beam parameters referenced in the metrics.

Table A1.2 Beam Requirements - General Characteristics

Parameter	Nominal Value and Range	Stability (during 8 hours) *(note 1)*	Helicity Correlated Unbalance Averaged Over 1 Hour
rms spot size at the target	A: $\sigma_{x \text{ and } y}$ = 50 to 200μm; B: 50 < $\sigma_{x \text{ and } y}$ < 250μm; C: $\sigma_{x \text{ and } y}$= 100 to 500μm A & C may request specific sizes *(note 2)*	A & C: 25% of requested value; B: any value within nominal range	A & C: 100% of nominal size; B: 60μm
Angular divergence at the target	$\sigma_{x'}$, $\sigma_{y'}$ < 100 μr	50% of value	100% of beam divergence tolerance
Beam position	any value requested by experiment within 3 mm of optics axis	Drifts A: < 50% of spot size; B: < 120 μm; C: < 250 μm; transients A, B, C: < 1mm	A & C < 10μm; B < 60 μm
Beam direction	any value requested by experiment within 1mr of optics axis to dump center	< 50μ r (1/2 beam divergence tolerance)	100% of beam divergence tolerance
Energy (average)	multipass operation: 0.63 to 5.75 GeV; 1 pass 1 hall dedicated operation: 0.33 GeV to 0.63 GeV	A or C: ΔE/E < 1E-4 B: ΔE/E < 5E-4 and ΔE/E < 1E-3 over days for all	100% of energy spread tolerance
Energy Spread (1σ)	A & C: σ_E/E < 5E-5 for E>1GeV B: σ_E/E < 4E-4	A & C: σ_E/E < 5E-5 for E>1GeV B: σ_E/E < 4E-4	X
Background (Beam halo) close to the target	A, B, C: < 1 E-4 outside of a 5 mm radius *(note 3)*	any value within the nominal range	100% of nominal halo tolerance
CW average current *(notes: 4 & 5)*	1 μA < A < 120 μA 1ηA < B < 1 μA 1μA < C < 120μA A+C < 180μA ; A + C < 800 KW A or C < 180 μA (single hall)	Within +/- 5% of nominal value (includes high frequency fluctuations)	A < 200 ppm; B & C< 1000 ppm 3 Halls: excursions of 5 second samples up to 5 times the nominal value are acceptable.
Polarization (current range to be determined between Physics and Accelerator Divisions)	> 70% all halls with currents up to 100μA in A or C	Polarization > 70%	X
Effective duty factor DF	loss (1-DF) including trips: < 5% @ 0.33 to 5 GeV (5 + (E-5)*20) % @ 5 to 6 GeV	X	X

Note 1) With continuous monitoring the beam is good when within tolerances. With invasive diagnostics, one does not know the beam quality between measurements. The user accepts the uncertainty except if he can provide a continuous non-invasive diagnostic.

Note 2) Some beam size requests in the range will preclude the Moller optics to be the same as the beam-delivery-on-target optics

Note 3) After the halo monitors for halls A and C are operational.

Note 4) Lower currents can be delivered with relaxed tolerances

Note 5) Proper impingement on beam dump has to be checked with accelerator operation (centering on dump face, current density on dump face, visibility on dump viewer, amount of radiation in the hall, on the site, etc.)

Development of Goals and Scoring of Performance Metrics

Each of the five metrics is scored relative to a performance goal (PG) set each year during contract negotiations. The percent of points assigned is determined from Table A1.3 where the Performance Level is the percent of the performance goal actually achieved.

Table A1.3 Points Assigned per Performance Level[8]

Performance Level	Adjectival Rating	% of Assigned Points
≥100% of PG	Outstanding	= 100
90% to 100% of PG	Outstanding	= (% of PG achieved)
80% to < 90% of PG	Excellent	
70% to < 80% of PG	Good	
60% to < 70% of PG	Marginal	
50% to < 60% of PG	Unsatisfactory (Poor)	
25% to < 50% of PG	Unsatisfactory (Failing)	= 2 * (% of PG achieved - 25%)
0% to < 25% of PG	Unsatisfactory (Failing)	= 0

The discussion of each metric includes the formulae used in calculating the Performance Goal and the Actual Performance.

PM 1.2.1: Delivered Physics Research Operation, $S_{physics\ research}$, is determined by the number of hours the accelerator beam and experimental equipment are simultaneously available. [120 points]

Performance Goal: $S_{physics\ research\text{-}goal} = S_{beam}A_{sim\text{-}goal}M_{goal}$ (hours), the scheduled hours times the goal for simultaneous availability of the accelerator beam and experimental equipment times the multiplicity goal.

S_{beam} is obtained from the published schedule.

$A_{sim\text{-}goal} = A_{accel\text{-}goal}E_{t\text{-}goal}$, the product of the three hall accelerator beam availability goal and the weighted average of the equipment availability in the halls. Three Hall Accelerator Availability is defined as the percent of scheduled beam time that the beam meets all experimental specifications; it is nominally 80% for a multiplicity of 2.0. Represented as $A_{accel\text{-}goal}$, it is calculated assuming an 80% availability goal for two hall operation, increasing the availability

[8] The table is altered for PM 1.12. Points are awarded based on [1-PG].

goal by 5% when only one hall is operated and decreasing the availability goal by 5% when three halls are operated simultaneously. In addition, the goal is adjusted for commissioning of major new accelerator capabilities ($N_{cap\text{-}upgrade}$) and other significant demands (e.g., energies near 6 GeV) that may negatively impact accelerator availability. Each such upgrade is expected to reduce accelerator availability by 10% for one quarter, corresponding to 2.5% for the year. Thus $A_{accel\text{-}goal} = 90\% - (M_{actual} * 5\%) – (N_{cap\text{-}upgrade} * 2.5\%)$. The average availability of experimental equipment is given by $E_{t\text{-}goal} = \Sigma E_{i\text{-}goal}S_i/\Sigma S_i$, the average of the hall goals for experimental equipment weighted by the scheduled hours in the halls. $E_{i\text{-}goal}$ is nominally 80%, but may be reduced by agreement in the contract for a hall in which new equipment is to be installed or commissioned.

The multiplicity, M_{goal}, is the average number of halls that are running any time the accelerator beam is available for physics. This is nominally 2.0, but may be reduced by agreement in the contract when extended hall downs make it appropriate.

Note: Because the PG depends on details of the published beam schedule, which is not finalized until after the start of the year, a numerical value for the PG is not included in the contract.

Actual Performance: $S_{physics\ research} = S_{beam\text{-}actual}A_{sim\text{-}actual}M_{actual}$.

PM 1.2.2: Total Accelerator Downtime, D_t, is the percent of time the accelerator is not able either to support the scheduled research program of at least one hall or to carry out scheduled machine development studies. [20 points]

Performance Goal: The goal for Total Accelerator Downtime is $\leq$ 15% but may be adjusted by agreement in the contract when atypical demands on the accelerator (*e.g.*, energies near 6 GeV) will negatively impact accelerator performance.

Actual Performance: $D_t = 100\%\ X\ [(S_{beam} - S_{beam\text{-}actual}) + (S_{ad} - S_{ad\text{-}actual})]/(S_{beam} + S_{ad})$, the percent of time beam is actually unavailable either to support the scheduled research program of at least one hall or to carry out the scheduled accelerator development work compared to the time scheduled for those activities.

PM 1.2.3: Total availability of the base experimental equipment, E_t is the weighted average over all halls of the availability of experimental equipment. [20 points]

Performance Goal: $E_{t\text{-}goal} = \Sigma E_{i\text{-}goal}S_i/\Sigma S_i$, where $E_{t\text{-}goal}$ is nominally 80% for each hall but may be reduced by agreement in the contract when the learning curve associated with new equipment in the hall impacts the availability of the equipment.

Note: Because the Performance Goal depends on details of the published beam schedule, which is not finalized until after the start of the year, a numerical value for the Performance Goal is not included in the contract.

Actual Performance: $E_t = \Sigma E_i S_i / \Sigma S_i$, where E_i is the actual availability of experimental equipment in the hall.

PM 1.2.4: Effectiveness of the scheduling process, ε_{sched} is the average performance with respect to scheduled experimental start times weighted by the length of the experiment. [20 points]

Performance Goal: $\varepsilon_{sched\text{-}goal} = 1$, corresponding to all experiments starting on time.

Actual Performance: $\varepsilon_{sched} = \Sigma S_j R_j / \Sigma S_j$, where S_j is the scheduled length of the j^{th} experiment and $R_j = (t_{ss} - t_{bs})/(t_{sa} - t_{bs})$, the ratio (for the j^{th} experiment) of the number of days between the scheduled start and the publication of the schedule to the number of days between the actual start and the publication of the schedule. If the experiment starts on time, the ratio is 1; if the experiment starts late, the ratio is less than 1 and grows smaller the longer the delay.

PM 1.2.5: Overall operations effectiveness, ε_{ops} is defined as the ratio of total time the accelerator is operated for physics to the total time for accelerator operations that was identified as the joint expectation for the year during negotiations of the Laboratory's operation budget. [20 points]

Performance Goal: 100%

Actual Performance: ε_{ops} = 100% X (actual weeks of accelerator operations for physics/weeks of accelerator operations for physics in contract).