

Performance Appraisal

Fermi National Accelerator Laboratory

January 1, 2002 through September 30, 2002

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Introduction

On December 27, 2001, the Universities Research Association (URA) and the U.S. Department of Energy (DOE) executed a new, 5-year, performance-based contract for the management and operation of Fermi National Accelerator Laboratory (Fermilab). This contract includes a performance fee based on a set of performance measures for critical outcomes. The performance measures are established at the beginning of each performance period as standards to be used in evaluating URA's performance, both for the Critical Outcomes and the System Assessment Measures.

The DOE Chicago Operations Office (CH) uses the URA Self-Assessment Report, the DOE Headquarters (HQ) performance evaluation, input from the CH staff that directly supports the Fermi Area Office (FAO), and the FAO Operational Awareness Program to determine DOE ratings for the six Critical Outcomes and the System Assessment measures.

The performance period for this evaluation extends from January 1, 2002, through September 30, 2002. This 9-month performance period resulted from the conversion of the contract from a fixed-fee basis to a performance-fee basis. The new 5-year contract began January 1, 2002.

Performance Fee Earned

In accordance with Appendix B, Attachments 2 and 2a, following is a summary of earned performance fee based on the performance ratings contained in this appraisal:

Performance Measure	Rating	Fee Earned
Science	Excellent	\$560,175
Leadership	Excellent	\$24,008
ES&H	Excellent	\$96,030
Mission Support/Infrastructure	Outstanding	\$64,020
Self Assessment	Excellent	\$48,015
Stakeholder Relations	Outstanding	\$32,010
TOTAL		\$824,258

Contract Clause I.102, Payment and Advances, includes a provisional fee payment based on a rating of Outstanding in Science and Excellent in Operations that resulted in a provisional fee payment of \$986,976. The total fee pool available was \$1,067,000. The fee earned as outlined above amounted to \$824,258. The overpayment of \$162,718 will be re-deposited to the payments cleared financing arrangement in accordance with Contract Clause I.102.

Overall Performance

This section summarizes overall performance ratings for the contract performance measures. DOE rates URA overall performance as **Excellent**. The following ratings reflect DOE's overall assessment of URA's performance, including all sources of input and information such as activities, performance measures, and the 2002 URA Self-Assessment Report.

Functional Area	DOE Rating
PERFORMANCE AREA 1: CRITICAL OUTCOMES	
I. Science Programs (70%)	
A. Science	Excellent
1.1 Quality of Research – 24.5%	Outstanding
1.2 Relevance to DOE Missions and National Needs – 7%	Outstanding
1.3 Success in Constructing and Operating Research Facilities – 28%	Good
1.4 Effectiveness and Efficiency of Research Program Management – 10.5%	Excellent
II. Operations Management (30%)	
B. Leadership – 3%	Excellent
1. Management of Systems & Processes	
2. Resolution of Issues	
3. Identify Opportunities for Improvement	
4. Response to Review Team	
5. Promotion of Viable Future Work Force	
C. Environment, Safety and Health – 12%	Excellent
1. Type A Investigation Report (6%)	Outstanding
2. ISMS Assessments/Tripartites (3%)	Outstanding
3. Injury Cost Index - Fermilab (#s 3-7: 3%)	Good
4. Injury Cost Index – Subcontractors	Marginal
5. Lost Workday Case Rate – Fermilab	Good
6. Lost Workday Case Rate – Subcontractors	Unsatisfactory
7. Total Effective Dose Equivalent	Excellent
D. Mission Support/Infrastructure - 6%	Outstanding
1. Scheduled Maintenance	Outstanding
2. Small Projects	Outstanding
3. Energy Requirements Accomplished	Outstanding
4. Energy Efficiency – Federal Buildings	Not Rated
5. Energy Use Reductions	Outstanding
6. Alternatively-Financed Energy Efficiency Projects	Outstanding
7. Subcontractors – Best Value	Outstanding
E. Self-Assessment - 6%	Excellent
1. Peer Reviews	Outstanding
2. Self-Assessment	Good
3. Improvements from Previous Assessments	Not rated
4. Operations Visiting Committee Review	Not rated
F. Stakeholder Relations - 3%	Outstanding

1. Community Involvement Plan	Outstanding
2. Annual Peer Review	Outstanding
PERFORMANCE AREA 2: SYSTEM ASSESSMENT	
III. Business Operations	
A. Waste Reduction (P/F)	Pass
B. Real Estate	Outstanding
C. Facilities	
1. Continuous Improvement	Outstanding
2. Construction Safety – Time & Materials and Fixed-Price Contractors (P/F)	Pass
D. Cyber Security (P/F)	Pass
E. Human Resources - FY02 Bal. Scorecard	Outstanding
F. Training	
1. Evaluation of ES&H Training Needs	Outstanding
2. Verify ES&H Training Completion	Outstanding
G. Diversity	Excellent
1. Increase % of Professional Women	
2. Increase % of Professional Minorities	
H. Property	Outstanding
1. FY 2002 Balanced Scorecard	Outstanding
2. % Improvements Implemented	Excellent
3. Certified Property Management System (P/F)	Pass
I. Procurement	Outstanding
1. FY 2002 Balanced Scorecard	Outstanding
2. Completion of Corrective Actions	Outstanding
3. Certified Procurement System (P/F)	Fail
4. Subcontract Administration (P/F)	Pass
J. Intellectual Property	Good
1. Intellectual Property – Timeliness of Invention Administration	Marginal
2. Subcontracts Reviewed for IP Considerations	Outstanding
K. Science & Technology Information (P/F)	Pass
L. Financial Management	
1. Uncosted Balances	Outstanding
2. Delinquent Receivables	Excellent/Outstanding
M. Safeguards and Security Self-Assessment (P/F)	Pass
N. Counterintelligence	
1. Foreign Travel Notification (P/F)	Fail
2. Employee Counterintelligence Briefing (P/F)	Pass
O. Legal Management	
1. Number of Legal Non-Compliances	Outstanding
2. ADR Consideration	Outstanding
3. Number of Improvements	Outstanding
4. Sound Analysis	Outstanding
5. On-time Responses	Outstanding

Performance Area 1: Critical Outcomes

I. Science Programs

A. SCIENCE REVIEW

Critical Outcome: Advance the understanding of the fundamental nature of matter and energy by conducting research at the frontier of high-energy physics and related disciplines.

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| <ol style="list-style-type: none">1. Quality of Research2. Relevance to DOE Missions and National Needs3. Success in Constructing and Operating Research Facilities4. Effectiveness and Efficiency of Research Program Management |
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DOE Rating: DOE rated overall performance in the Science Review measures as **Excellent**. Attachment 1 contains the DOE Assessment.

II. Operations Management

B. LEADERSHIP

Critical Outcome: Provide the leadership to ensure operational excellence and foster responsible stewardship of the DOE resources.

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| <ol style="list-style-type: none">1. Management of Systems and Processes2. Resolution of Issues3. Identification of Opportunities for Improvement4. Response to Review Team5. Promotion of Viable Future Work Force |
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DOE Rating: The DOE rating for the Leadership Critical Outcome is **Excellent**. URA has strengthened and continues to strengthen its leadership through new management appointments and improvements to management systems. URA could have been more proactive in addressing its significant programmatic and operational challenges – particularly with respect to Run II. In addition to Run II, there are challenges in developing future plans and balancing a broad program within difficult budgetary constraints.

URA effectively used directed management reviews that assess key Fermilab operations functions and management systems. In April 2002, a URA Visiting Committee performed a key review of all major programmatic areas, including Run II luminosity plans. Regarding Run II luminosity, the Visiting Committee stated that, “Lab management is fully engaged in the Run II problem, and well aware that not enough progress has been made.” The Visiting Committee made a number of recommendations that have been either acted upon or are in the process of implementation.

URA addressed administrative and operational issues, e.g. flow-down of ES&H requirements to subcontractors, implementation of a new Project Accounting System, and the need to supplement Beams Division resources. The laboratory Director consistently made it clear that he considers a strong ES&H emphasis in the planning and execution of all laboratory operations. ES&H flow-down requirements to subcontractors were strengthened significantly. Although it did not go into effect during the rating period, URA took important steps to initiate a new Project Accounting System and paid for a portion of it out of its annual fee. The new system is an effort to improve financial management and to manage complex projects that involve different organizations within the laboratory more effectively. DOE notes that steps were taken to supplement Beams Division resources from both within and outside of the Fermilab organization.

URA further made good use of peer reviews to strengthen administrative and operational areas. The April 2002 peer review of the Fermilab public affairs function is an example. The peer review team included both national and international representatives and made constructive recommendations, which URA is addressing.

URA also has a Visiting Committee for Fermilab Administrative and Operations Support. Although this Visiting Committee did not meet during the nine-month rating period (it convened in November 2001 and October 2002), there is evidence that the Visiting Committee is having a positive influence on laboratory operations. For example, URA has progressed in addressing Visiting Committee recommendations related to overall organizational strategy by working with DOE to establish and document critical operational goals and objectives. Although more work is necessary to refine the measures associated with the goals and objectives, an important start began during the 2002 rating period. Beyond strategy development, however, many of the Committee's November 2001 recommendations remain unaddressed. These recommendations span major crosscut issues such as productivity improvement and organizational renewal.

Regarding another important DOE expectation, URA promoted operational and management system excellence by consistently and conscientiously addressing recommendations from various DOE review teams. URA management instituted its own internal reviews (Director's Reviews) which have provided additional structure and discipline to Fermilab programs and projects. The NuMI, CDF and D0 upgrade projects, for example, benefited greatly by the Director's Reviews and made strong progress during the rating period.

Despite these achievements, operational and management system excellence could benefit from a more proactive approach. Although the Director's Reviews and the Project Accounting System discussed above are important steps in this direction, more is needed. URA's self-assessment of Leadership identified neither opportunities for improvement nor a path forward. The Self-Assessment section of this appraisal notes that the same is true for other URA self-assessments. When an organization identifies no opportunities for improvement (or does not look for such opportunities), the feedback and corrective action portions of the management process is less effective, and the organization's ability to promote operational and management system excellence will be limited.

A proactive leadership is also critical to the health of an organization. One of the performance measures for the rating period was that URA management would promote a viable future workforce by conducting workforce planning and by strengthening staff capabilities through training, management development assignments, and succession planning. URA did not address this measure in its Self-Assessment Report, and it is not clear to DOE what efforts are being made in this area. DOE recommends that URA pursue workforce planning and other efforts that are needed for a viable future workforce.

In summary, URA has provided effective leadership in many areas and is continuing to strengthen its leadership. Additional effort needs to be made in identifying problems and taking appropriate action before they become larger issues.

C. ENVIRONMENT, SAFETY, AND HEALTH

Critical Outcome: Protect the safety and health of the Fermilab workforce, subcontractors, the community, and the environment in all Office of Science (SC) program activities.

1. Type A Investigation Action Plan
2. Integrated Safety Management System (ISMS) Assessments/Tripartites
3. Injury Cost Index – Fermilab Employees
Injury Cost Index – Subcontractor Employees
4. Lost Workday Case Rate – Fermilab Employees
Lost Workday Case Rate – Subcontractor Employees
5. Total Effective Dose Equivalent (TEDE)

DOE Rating: The overall DOE rating for the Environment, Safety, and Health (ES&H) Critical Outcome is **Excellent**. The performance measures and metrics for ES&H were selected and weighted to focus URA’s attention on timely and effective implementation of the Consolidated Corrective Action Plan (CAP) to address the Type A Investigation Report. Full implementation of this CAP required a thorough review and revision of several aspects of the Fermilab construction safety program. As such, this metric was assigned 50% of the total ES&H rating.

The second highest weighting (i.e., 25%) was assigned to a metric for completing specified Integrated Safety Management (ISM) System Tripartite reviews assessing effectiveness of ISM implementation within Fermilab Divisions and Sections and completing a Fermilab Construction Safety Program Assessment. DOE believes that significant future ES&H improvements would result from emphasis on these two key metrics. The remaining 25% of the ES&H rating was allotted to what are considered more “lagging indicators” of safety performance (i.e., items 3-5 below).

1. Type A Investigation Action Plan: DOE rates performance in this area as **Outstanding** based upon the completion of required performance indicators. URA satisfactorily documented on-schedule completion of all 35 actions in

the approved Consolidated Corrective Action Plan. A March 2002 mid-course review showed clear progress in addressing weaknesses identified in the Type A report. The review resulted in suggestions, but no “findings”. FAO participated in a subsequent Tripartite review in August-September 2002, which identified additional opportunities for improvement and reached positive conclusions regarding URA’s progress following the Type A investigation.

2. Integrated Safety Management System (ISMS) Assessments/Tripartite Reviews: DOE rates performance in this area as **Outstanding** based upon the completion of all of the required performance indicators for this measure. The first three performance indicators consisted of completing ISMS Assessments in the Beams, Particle Physics, and Technical Divisions and preparation of any associated corrective action plan and schedule for implementation by September 30, 2002. Operational oversight by FAO in the way of monthly representation at Senior Safety Officers’ meetings, participation in each of the ISMS reviews, and review of all of the ISMS Assessment Tripartite reports satisfies DOE that these performance indicators have been met.

The fourth performance indicator was the completion of a Fermilab Construction Safety Program Assessment and preparation of any associated corrective action plan and schedule for implementation by September 30, 2002. FAO also participated on this review and determined that URA successfully completed the related actions on schedule.

3. Injury Cost Index (ICI): This measure consists of two parts, namely the ICIs for Fermilab employees and for subcontractor employees. DOE rates performance for Fermilab employees as **Good**, based upon an ICI of 13.05 (Good: 12.0 -15.9). DOE rates performance for subcontractors’ employees as **Marginal** based upon an ICI of 33.9 (Marginal: 30.0-35.0).
4. Lost Workday Case Rate (LWCR): This measure consists of two parts, namely the LWCRs for Fermilab employees and for subcontractor employees. DOE rates performance for Fermilab employees as **Good**, based upon an LWCR of 1.4 (Good: 1.4-1.9). DOE rates performance for subcontractors’ employees as **Unsatisfactory**, based upon an LWCR of 6.7 (Unsatisfactory: > 4.5).
5. Total Effective Dose Equivalent (TEDE): DOE rates performance in this area as **Excellent** based upon a realized TEDE of 10.6 person-rem (Excellent: 10.6 - 12). URA submitted its Self-Assessment Report of the external radiation dosimetry program as supportive information for the TEDE metric.

DOE recognizes that the TEDE alone does not sufficiently characterize the quality of the overarching radiation protection program at Fermilab. In fact, DOE considers overall program performance and compliance to be very strong. We base this conclusion upon DOE document reviews, field observations of work activities, and interactions with members of the radiological control organization.

The Self-Assessment Report adequately discusses observations and recommendations for ensuring the quality of exposure data that determines the numeric value of the TEDE. DOE also is interested in future innovative practices that effectively control doses as low as reasonably achievable (ALARA) and would like to see more attention given to these opportunities. It would be helpful if future Self-Assessment Reports include correlations between the accelerator mode of operations, significant work activities, and the protective measures taken to achieve the TEDE rating. Such correlations will involve summarizing post-ALARA reviews available from the Fermilab Divisions and Sections.

D. MISSION SUPPORT/INFRASTRUCTURE

Critical Outcome: Manage and enhance business and management systems, work processes, and facility support to provide an effective and efficient work environment that enables the execution of Fermilab's mission.

1. **Scheduled Maintenance**
2. **Small Projects**
3. **Energy Requirements Accomplished**
4. **Energy Efficiency – Federal Buildings**
5. **Energy Use Reductions**
6. **Alternatively Financed Energy Efficiency Projects**
7. **Subcontractors – Best Value**

DOE Rating: The DOE rating for the Mission Support/Infrastructure Critical Outcome is **Outstanding**, based upon performance against the following metrics:

1. **Scheduled Maintenance:** DOE rates performance in this area as **Outstanding** based upon a numerical score of >80%. Monthly data presented to DOE ranged from 86 to 96%, which is well within the range for an Outstanding rating.
2. **Small Projects:** DOE rates performance in this area as **Outstanding**. The metric addressed the completion rates within three categories of small projects: 1) General Plan Projects (GPP); 2) In-House Energy Management (IHEM); and 3) Accelerator Improvement Projects (AIP). URA accomplished all GPP completion milestones on schedule. There were no IHEM projects scheduled for completion during the review period. URA completed all AIPs (MiniBooNE and 8 GeV Beamline) on schedule.

The Self-Assessment Report also addressed overall milestone performance for projects managed by the Facilities Engineering Services Section (FESS). This assessment included all project milestones, not just completion milestones, and performance for all project milestones also was outstanding.

3. **Energy Requirements Accomplished:** DOE rates performance in this area as **Outstanding** based upon a numerical score of >95%. All elements of the plan were accomplished during the year.

4. Energy Efficiency – Federal Buildings: DOE concurs with URA that **expectations continue to be met** in this area. This measure did not have a qualitative metric requiring an adjectival rating. URA assessed its performance in determining which buildings qualify for the EPA Energy Star Building Label, in incorporating sustainable design guidelines and in replacing incandescent lamps. Performance in FY2002 has improved in the area of Energy Star Buildings, and additional incandescent lamps have been replaced. Staff has been trained in the principles of sustainable design.
5. Energy Use Reductions: DOE rates performance in this area as **Outstanding** based upon URA's 43% energy reduction from the baseline year 1985, versus the 30% reduction goal by 2005 and the 35% reduction goal by 2010. URA has identified areas for improvement, including increasing the amount of sub-metering of buildings to allow for better energy load management.
6. Alternatively-Financed Energy Efficiency Projects: DOE rates performance in this area as **Outstanding** based upon the number of projects that URA has completed using the Utility Incentive Program, which is an alternative financing vehicle. URA identified areas for improvement, including better communications between contractors and the affected Fermilab Divisions. Communications could improve with using more detailed meeting agendas.
7. Subcontractors – Best Value: DOE rates performance in this area as **Outstanding**. URA undertook an initiative to ensure that subcontractor performance was evaluated consistently for subcontracts greater than \$100,000. This initiative was intended to address a previous problem where subcontractors with poor prior performance records at Fermilab were selected for new subcontracts. During the rating period, URA closed a total of 8 (of 8) subcontracts greater than \$100,000. Closeout completion was 100%. As part of the closeout review process, an average of 8 employees from affected Divisions and Sections attended closeout sessions to perform a checklist review and rate performance. The system appears to be working, which should improve URA's ability to select top quality subcontractors. DOE observed no instances where URA selected a previously poorly-performing subcontractor for a new subcontract.

DOE recognizes that URA made important and significant improvements to its process for evaluating subcontractor performance during 2002 (see Section I. 4. of this appraisal). One example is that URA developed an excellent Request for Proposal in support of service buildings and outfitting. URA should continue vigorous efforts toward improving the effective and efficient delivery of the best value products and services by URA subcontractors, e.g., correcting billing deficiencies identified during the 2002 cafeteria audit.

E. SELF-ASSESSMENT

Critical Outcome: The self-assessment process will evaluate URA's ability to meet critical outcomes and meet performance objectives, measures and expectations, and to control its processes.

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| <ol style="list-style-type: none">1. Peer Reviews2. Self-Assessment Report |
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DOE Rating: DOE rates performance for the Self-Assessment Critical Outcome as **Excellent**. This rating is based on the fact that URA fully met its objective of undertaking a self-assessment for all organizational elements of the laboratory, and that peer reviews were conducted as planned. The rating also takes into consideration the quality of the Self-Assessment Report which was, overall, uneven. A number of laboratory organizations conducted thoughtful and well-done assessments. Other organizations did not meet expectations, and their assessments need improvement.

URA performed a self-assessment in accordance with its Self-Assessment Plan for FY 2002, which DOE approved. The requirement to perform a comprehensive self-assessment deliberately did not specify a detailed process and format. The intent was to provide flexibility that will allow the individual managers to complete an assessment that would provide a useful management tool. The value of a self-assessment is in what management does with the gathered data, i.e. management uses the data to improve performance outcomes.

DOE agrees that URA met its objective of undertaking a self-assessment for all organizational elements of the laboratory. URA completed all planned peer reviews, developed a Self-Assessment Report for the systems and activities of all Divisions and Sections, and assessed 33% of the systems and activities in a timely manner. DOE notes that this is the first year that URA has attempted to perform a comprehensive self-assessment, and that streamlining of the process to reduce the required level of effort appears to be appropriate.

In evaluating the effectiveness of URA's Self-Assessment Report, DOE considered the following:

- The soundness of the basis for evaluating performance, bolstered by any or all of the following by reference: a) supporting documentation of reports, reviews, databases, customer feedback, etc.; b) operational awareness and management oversight and accountability; c) management systems; and d) work practices;
- Identification of achievements, strengths, and notable work practices;
- Identification of challenges, weaknesses, and opportunities for improvements;
- Consideration of a path forward, or plan for implementing necessary changes or for making no changes; and
- Identification of a bottom-line assessment of overall performance.

The individual self-assessments performed by the various laboratory organizations presented a wide range in quality. Some provided strong

performance evaluations that contained all or almost all of the above-listed attributes. Others were deficient. An overall assessment of how a particular process or function was performing in support of the laboratory's mission was weak or missing in a number of the assessments. A credible basis for the self-assessment grade was often missing, and/or there was no clear demonstration of having performed a thoughtful evaluation. Some assessments did not identify opportunities for improvement or a path forward. Identifying opportunities for improvement and a path forward is especially important in the self-assessment process. Some assessments did not provide a performance rating, which, if present, would indicate for line management an overall performance level for that activity. Detailed notes of the FAO review of the Self-Assessment Report can be made available informally if desired.

DOE notes that the URA Administrative and Operations Visiting Committee reviewed and provided an evaluation of the quality, effectiveness and completeness of the self-assessment process and the resulting Self-Assessment Report. DOE commends URA for taking this initiative and assembling a very qualified committee. Although the Committee's focus was on URA's four Administrative Sections, its observations on the Self-Assessment Report have validity beyond these four Sections. DOE believes that the Committee's observations were on target, and DOE supports the committee's recommendations. One area that DOE considers to be of particular importance is the need to separate performance measurement results from process improvement. In some cases the information in the URA Self-Assessment Report focused solely on process improvement with little or no information on performance assessment.

F. STAKEHOLDER RELATIONS

Critical Outcome: The laboratory is regarded as a good corporate citizen and conducts its affairs in a manner that leads to public confidence in the laboratory.

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| <ol style="list-style-type: none">1. Community Involvement Plan2. Self-Assessment |
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DOE Rating: DOE rates performance for both the Community Involvement Plan and the Self-assessment as **Outstanding** based upon URA achieving at least 95 percent of the milestones in the 2002 Communications Plan and completion of a peer review of communication and public involvement activities required by performance measures. URA has shown considerable leadership by initiating and supporting communications activities that support DOE objectives, particularly in international collaboration in science education.

Also noteworthy is the collaboration between URA and the Stanford Linear Accelerator Laboratory to partner creatively on a new internal newsletter to serve both laboratories. DOE hoped that URA would make more progress in establishing the Community Advisory Group on Fermilab's Future, although progress made during the performance period appears to be yielding results during the current year.

Performance Area 2: System Assessment

III. Business Operations

A. WASTE REDUCTION

Objective: Minimize waste and promote recycling.

1. **Pollution Prevention/Waste Minimization (P2/WMin) incorporated into work planning and experimental review**
2. **Employee/experimenter involvement in P2/WMin opportunities**
3. **Divisions and Sections demonstrate participation in P2/WMin efforts**

DOE Rating: DOE rates performance in this area as a **Pass** based upon consistently outstanding program implementation as demonstrated by a thorough self-assessment; documented procedures, practices, and regulations; external inspection results; regulatory compliance; personnel qualifications; programmatic achievements; and FAO field observations.

URA continues to make considerable strides in the areas of waste management and reduction. With few overhead resources, the Divisions and Sections have found opportunities for reducing waste generation, reusing materials, purchasing materials with recycled content, and recycling. During the performance period, construction projects and experiments have benefited from one or more P2/WMin-related initiatives that have reduced or avoided costs. Space management has benefited from the cleanup and removal of unneeded materials, much of which was recycled or reused.

Each Division and Section has demonstrated commitment to P2/WMin by its active participation on the Environmental Protection Subcommittee (EPS) of the Laboratory Safety Committee. FAO, by attending monthly meetings, has observed that the EPS provides a beneficial forum for raising, discussing and resolving environment-related issues, including P2/WMin, and serves as a significant resource for collaborative waste reduction efforts.

1. **P2/WMin in Work Planning and Experimental Review:** During the performance period, the ES&H Section and the EPS membership made significant progress bringing a waste reduction ethic to the general workforce. Continuing challenges include bringing this same ethic to visiting experimenters and routinely incorporating appropriate relevant language and expectations into construction and other contracts. We would like to see continued energy applied in this area.

2-3. **Employee/Experimenter Involvement and Division/Section Participation:** Divisions and Sections increasingly consider environmental implications, including waste generation, when planning work as well as procurements. Efforts in this area have been very successful, although DOE perceives that consistency continues to be a challenge with respect to work planning and/or involving the experimenter community in P2/WMin planning and implementation. Additional achievements noted in the URA Self-Assessment Report are evidence

of continuing efforts by Divisions and Sections to reduce wastes from normal operations and to identify opportunities for improved operations, equipment and procedures that result in less waste. Finally, the division of part of the former ES&H waste operations budget among the operational budgets of other Divisions and Sections presents a challenge to those organizations to apply sufficient funding and priority to worthwhile waste reduction initiatives.

The Self-Assessment Report for waste reduction and waste management identified worthy practices and evaluated needs for improvement. It also demonstrates thoughtful consideration of program merits and needs, which provides useful insight to outstanding program execution. DOE has observed that program implementation in both areas strives for excellence and improved performance. Implementation of the overall waste management program, including waste reduction, demonstrates noteworthy organization, effort, performance and responsiveness.

B. REAL ESTATE

Objective: Effective and efficient real estate management

1. Management systems reflect the classification and square footage of DOE facilities
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DOE Rating: DOE rates performance in this area as **Outstanding**, based upon a 100% accuracy rating for all square footage data reconciling between the Federal Information Management System (FIMS) and the Energy Management System 4 (EMS4) databases. As changes occur in URA's real property area, including facility capitalization, demolition, etc., the EMS4 and FIMS databases are updated and reconciled with each other to ensure accuracy and consistency. In September 2002, URA performed an internal audit of the performance measure and identified no major deficiencies. The audit results provided a reasonable assurance that the real estate performance measure is working as intended and that the internal control system appears to be functioning adequately.

The Self-Assessment Report identified areas for improvement, including a review of changes in the tunnels and enclosures category, development of a process for evaluation of unused facilities, and a review of trailers.

C. FACILITIES

Objective: Efficient and effective facility management

1. Continuous improvement for facility maintenance and engineering
2. Effectiveness of construction safety programs

DOE Rating:

1. Continuous Improvement - DOE rates performance in this area as **Outstanding**, based upon over \$300,000 of savings and improvements in

productivity, service, and efficiency. URA substantiated this determination with detailed documentation of dollar savings and improvements, including a reduction of six maintenance workers, saving over \$300,000; implementation of a selective interviewing process to select personnel with the best fit of skills, experience, knowledge, and temperament; organizational changes; storeroom improvements; improvements in the predictive maintenance area; cooling tower water treatment improvements, saving \$35,000 per year; upgrading the computerized maintenance system; upgrading the lubrication program; and contracting out the cleaning of HVAC (Heating, Ventilation, Air Conditioning) coils.

2. Effectiveness of Construction Safety Programs: DOE rates performance in the area of Construction Safety Programs as a **Pass**. URA has made significant improvements to the construction safety program during this performance period. This assessment is based on a range of DOE operational awareness activities including two planned reviews of the URA construction safety program during 2002 (i.e., in March and September). The reviews examined specific changes URA made to various facets of the program during implementation of the Consolidated Corrective Action Plan and evaluated their overall effectiveness. URA made improvements in the following areas: contract clauses and contract administration; clarification and reinforcement of the roles and responsibilities of task managers (TM) and construction coordinators (CC); hazard analysis process; lessons learned program; TM/CC safety program training; and tracking of identified construction site safety issues.

Despite improved program performance, DOE concludes that the Self-Assessment Report for these programs was inadequate. Although the self-assessment activity met the methodology described in Section 4 of the write-up, it did not produce any new, original analysis by the Facilities Engineering Services Section of the effectiveness of the URA construction safety program in general.

DOE believes that thoughtful consideration of the impact of operational changes on the overall construction safety program could: 1) provide useful feedback to both URA and the Department regarding the value and effect of implementing such changes; and 2) prevent the recurrence of circumstances that led to identifying concerns with the program.

D. CYBER SECURITY

Objective: Maintain a cyber security program in accordance with applicable DOE orders and policies.

1. Implementation of prior self-assessment and peer review recommendations

DOE Rating: DOE rates performance in this area as a **Pass**, based upon URA's completion of five recommendations from the Self-Assessment and Peer Review of URA's Computer Security Program, February 27-28, 2001. URA completed the computer security policy and posted it on the Web; maintained the Fermilab

Computer Incident Response Team effort at less than 1/month; completed the Strong Authentication project; and adopted a vulnerability scanning program. URA previously installed a firewall protection of business services critical systems in July 2001.

E. HUMAN RESOURCES

Objective: Fermilab implements a Human Resources performance system which contains goals tied to the organizational mission and which provides feedback on the impact of, and value added by, Human Resources.

1. FY 2002 Balanced Scorecard Plan

DOE Rating: DOE rates performance in this area as **Outstanding** based upon the Balanced Scorecard Plan designed to show progress toward specific goals. The Balanced Scorecard data reflect that URA met all goals identified with one exception, i.e. "Revise the Personnel Policy Guide", which is scheduled for FY 2003.

In the Self-Assessment Report, the individual Process Assessment Reports from Fermilab Divisions and Sections provide substantiating information for the performance assessment. These reports provide insight into the experiences of the Divisions and Sections in administering Human Resources programs, including aspects of the recruitment process for a large range of positions, performance reviews, salary increases and disciplinary and removal actions. The Process Assessment Reports consistently indicate that the Human Resources staff have made a user-friendly personnel guide available via the Internet and are available to respond verbally to surfacing issues. The documentation clearly supports the conclusion that the Human Resources staff maintains awareness of regulatory updates to federally mandated benefits and program-specific expertise.

F. TRAINING

Objective: Employees receive appropriate training.

1. Supervisors complete ES&H-related training needs assessment 2. Verification of ES&H training completion

DOE Rating:

1. Complete ES&H Training Needs Assessment: DOE rates performance in this area as **Outstanding** based upon a percentage of employees who have training plans developed of >95%. The realized completion rate for the Individual Training Needs Assessment was 99.2%.
2. Verification of ES&H Training Completion: DOE rates performance in this area as **Outstanding** based upon the percentage of employees who completed required training of >95%. The realized ES&H training completion rate was 95.7%.

G. DIVERSITY

Objective: A diverse professional workforce

1. Offers in the Professional Job Group made to women and underrepresented minorities
2. Percent increase in offers to minorities in the Professional Job Groups

DOE Rating: DOE rates overall performance in this area as **Excellent**. In the Self-Assessment Report, URA rated its performance as Outstanding based upon the metrics, and information provided by URA supports this rating. The information provided in the Self-Assessment Report is limited respecting background data and how this metric was achieved. For example, URA uses FY 2001 as the baseline, but provides no data indicating the percentage of offers made to women and underrepresented minorities in FY 2001. URA also provides no information regarding data collection, e.g., whether applicants self-identified their race/national origin. The information provided in the Self-Assessment Report does not indicate how many job offers were accepted. The indicator for the measure states that diversity is increased or maintained as compared to the prior measurement period; however URA has not demonstrated whether the percent of offers actually impacted workforce diversity.

A brief discussion of recruitment and advertisement activities concentrated on increasing diversity; however, there is no discussion of outreach activities designed to strengthen the Science, Math, Engineering and Technology pipeline for underrepresented minorities. The Self-Assessment Report identifies no opportunities for improvement; instead it offers only a statement regarding extremely low projected hiring.

H. PROPERTY

Objective: Deliver Laboratory support functions in a manner consistent with applicable laws, regulations, and contract terms and conditions.

1. FY 2002 Balanced Scorecard Plan
2. Percent of improvements implemented that were identified in the opportunities for improvement from the prior performance period
3. Maintenance of a Property Management System

DOE Rating: The DOE overall rating in the area of Property is **Outstanding**, based upon performance against the following metrics:

1. FY 2002 Balanced Scorecard (BSC) Plan: DOE rates overall performance on the BSC as **Outstanding**, based upon overall performance within four prescribed perspectives: a) the customer; b) internal business processes; c) learning and growth; and d) finance. The purpose of the BSC Program is to provide a system for oversight and analysis of the property activities within these perspectives. The BSC Plan uses a series of formulas to measure progress toward achieving goals and milestones established at the beginning

of the reporting period. Many of the goals are established by DOE Headquarters, and some are established locally.

- a. Customer Perspective – DOE rates performance in this area as **Excellent**. URA achieved the following percentages versus established national targets:

Achievement	URA Score	National Target
External Customer Satisfaction	100%	80%
Internal Customer Satisfaction	86.6%	80%
Accuracy of Property Assignments	99.2%	98%
Accuracy of Warehouse Storage Locations for Equipment Held for Future Projects	96.3%	Local Target 98%

During the reporting period, URA replaced the Personal Property Management System with the new Sunflower Asset Management System. URA also closed an off-site warehouse and transferred the contents to on-site warehouse locations.

- b. Internal Business Processes Perspective – DOE rates performance in this area as **Outstanding**, based upon actual performance against established targets:

Achievement	URA Score	National Target
Physical Inventory Accuracy – Equipment (Acquisition Value)	99.4%	99%
Physical Inventory Accuracy – Equipment (Line Items)	98.4%	98%
Physical Inventory Accuracy – Sensitive Property (Acquisition Value)	99.8%	99%
Physical Inventory Accuracy – Sensitive Property (Line Items)	99.5%	98%
Physical Inventory Accuracy – Stores Inventory (Acquisition Value)	99.3%	99%
Physical Inventory Accuracy – Stores Inventory (Line Items)	99.4%	98%
Utilization Standards (% of vehicles meeting utilization standards)	97.6%	90%
Outstanding Property Disposal Efficiency (% of items disposed within 180 days) * Reference DOE-imposed moratorium on disposals.	42%	90%

- c. Learning and Growth Perspective: The DOE rating in this area is **Excellent**.

Achievement	URA Score	National Target
Percent of scheduled training, supporting BSC objectives, completed by Property and Stores Inventory Management employees	100%	90%
Percent of Property and Stores Inventory Management employees with an Individual Development Plan based upon BSC objectives	50%	90%
Percent of Property and Stores Inventory Management employees that received an annual review of performance against BSC objectives	100%	90%

- d. Finance Perspective: The finance perspective currently is not reportable. URA still is collecting data for the required trending.
2. Percent of Improvements Implemented: The DOE rating for this measure is **Excellent**. URA has completed approximately 90% of the 2001 recommendations and continues to make good progress.
3. Maintenance of a Property Management System: The DOE rating for this measure is a **Pass**. URA has maintained an approved property system for nearly three years, beginning December 18, 2000.

I. PROCUREMENT

Objective: Deliver best value products and services to Fermilab Procurement customers in a manner consistent with applicable laws, regulations, and contract terms and conditions.

<ol style="list-style-type: none"> 1. FY 2002 Balanced Scorecard Plan 2. Percent of improvements implemented that were identified in the opportunities for improvement from the prior performance period 3. Maintenance of a certified procurement system 4. Subcontract administration

DOE Rating: The DOE rating in the area of Procurement is **Outstanding**, based upon performance against the following metrics:

1. FY 2002 Balanced Scorecard Plan: DOE rates overall performance on the BSC as **Outstanding**, based upon the analysis of procurement activities in four prescribed perspectives: a) the customer; b) internal business processes; c) learning and growth; and d) finance. The BSC Plan uses a

series of formulas to measure progress toward achieving goals and milestones established at the beginning of the reporting period.

- a. Customer Perspective – The DOE rating for performance in this area is **Excellent**. URA received an 88% customer satisfaction versus a target of 92-100%. Though lower than the desired target, a customer satisfaction of 88% is within an acceptable range. The DOE averages have been 90%. The Fermilab Procurement Department has responded to all customer comments received.
- b. Internal Business Processes Perspective – The DOE rating for performance in each of the following areas is **Outstanding**.

Effective Internal Controls – Senior Procurement Administrators reviewed selected purchase orders against a pre-developed compliance checklist. The target for compliance was 95%, and the reviewed purchase orders showed 94% compliance, which indicates the Procurement Department has effective internal controls.

Effective Supplier Management – This function tracks on-time deliveries. The target was 83%, and Fermilab on-time deliveries were 82%.

Effective Utilization of Alternate Procurement Approaches – URA's use of procurement credit cards has increased steadily since inception in May 1996. The local target was 50%, and the percentage of actions placed by users in FY02 was 72%.

Acquisition Excellence through Timely Support – This function measures procurement cycle time. The targets were fewer than 9 days for procurement less than \$100,000, fewer than 35 days for procurement greater than \$100,000, and 12 days for all other actions. URA met all of the targets.

Good Corporate Citizenship through Purchasing – The goals for Small, Small Disadvantaged, and Woman-owned Businesses are 50%, 5%, and 5%, respectively. The BSC indicates that the Purchasing Department achieved 61%, 14%, and 14%, respectively. According to the PRO-Net, no HUBZone-certified firms are in the Fermilab area.

- c. Learning and Growth Perspective -

Employee Satisfaction – DOE rates performance in this area as **Outstanding**. The target for this measure is 90%. Results of surveys indicated that 100% of the employees were satisfied with the Procurement Department as a place to work.

Employee Alignment – DOE rates performance in this area as **Excellent**. The target for this measure is 97%. The Procurement Department uses a survey to verify that 100% of employee performance is in alignment with the Procurement Department's goals for learning and growth. DOE considers that the survey is insufficient and that the Procurement

Department needs to take a different approach, such as personnel evaluations, to obtain a more realistic or comprehensive view of whether employee performance aligns with the Procurement Department goals.

Information Availability – DOE rates performance in this area as **Outstanding**. The target was 90%. The results of the employee survey rating were 93%, which exceeded the target.

- d. Finance Perspective – DOE rates performance in this area as **Outstanding**. This function evaluates the optimum cost efficiency of Procurement Operations. The target is < \$.02. The Fermilab cost to spend ratio for Procurement is \$.014.
2. Percent of improvements implemented that were identified in the opportunities for improvement from the prior performance period: DOE rates performance in this area as **Outstanding**, based upon URA having completed all six corrective actions (100%) from the prior performance period. The target for an Outstanding rating was >95%.
 3. Maintenance of a Certified Procurement System: DOE rates performance in this area as a **Fail**. During the performance period, URA did not provide its Procurement Policy and Procedure Manual for review and approval by DOE. The Procurement Department did self-assess one-third of the processes that are related to maintaining a certified procurement system as part of the overarching contractual requirement to perform a lab-wide self-assessment. The remaining two-thirds will be assessed by the end of the performance period for 2004. DOE considered the remainder of URA's Procurement System and granted approval in October 2002.
 4. Subcontract Administration: DOE rates performance in this area as a **Pass**. During FY 2002, URA implemented several upgrades to its procurement process. These included:
 - a. Developing and implementing a detailed tracking system for contractual documents (In prior performance periods, the Procurement Department did not have an extensive tracking system for contractual documents on the NuMI project);
 - b. Coordinating systematic input from Divisions and Sections to evaluate and rate subcontractor performance at contract closeout (A finding in the 2001 Joint FAO and Fermilab Review of the Construction Subcontract Program had identified a lack of coordination between the Procurement Department and other laboratory organizations and a lack of input from those organizations for rating subcontractor performance);
 - c. Implementing a self-assessment checklist for reviewing all contract files (an initial checklist had not covered post-award subcontract actions, so the Procurement Department expanded the checklist during the performance period to include these actions and obtained DOE concurrence); and
 - d. Establishing (and meeting) goals for Davis-Bacon field audits (During the prior performance period, URA had failed to perform sufficient Davis-Bacon field audits).

URA prepared several evaluations of different procurement activities as part of its Self-Assessment Report. Most of these evaluations minimally met the expectations to provide the results of the self-assessment, identify opportunities for improvement, and identify a plan and schedule for implementing improvements (i.e., a path forward). DOE would like to see a more rigorous attempt in the Self-Assessment Report to demonstrate the Procurement Department's thoughtful and critical evaluation of its own performance.

J. INTELLECTUAL PROPERTY

Objective: URA promotes utilization and development of inventions and discoveries in support of the laboratory's science and technology transfer missions.

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| <ol style="list-style-type: none">1. Timeliness of invention administration2. Protection of intellectual property rights |
|---|

DOE Rating: DOE rates overall performance in this area as **Good**.

1. **Timeliness of Invention Administration:** URA filed zero of four invention disclosures on time, translating to a performance rating for this individual metric of **Marginal** (<88%). Although URA has not always been timely in reporting inventions, the lateness has had no adverse impact on the intellectual property (IP) rights associated with those inventions.
2. **Percent of Subcontracts Reviewed for IP Considerations:** The URA Self-Assessment Report indicates that 100% of subcontracts were reviewed for IP consideration, translating to a performance rating for this individual metric as **Outstanding** (Outstanding \geq 97%).

K. SCIENCE & TECHNOLOGY INFORMATION

Objective: Improve the number of electronic deliverables submitted to the Office of Scientific and Technical Information (OSTI)

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| <ol style="list-style-type: none">1. Percent of deliverables submitted to OSTI electronically |
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DOE Rating: DOE rates performance in this area as a **Pass**, (Pass >95%) based upon URA having exceeded the metric by submitting 100% of its scientific and technical information deliverables to the Office of Science and Technical Information electronically.

Despite the 100% achievement, the Self-Assessment Report identified areas for improvement, including improving the capture of publications that should be sent to OSTI and decreasing the time it takes to post publications on the Fermilab file server.

L. FINANCIAL MANAGEMENT

Objective: A financial system that is sound, responsive, and has economical financial management programs to safeguard DOE financial assets

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| <ol style="list-style-type: none">1. Uncosted balances2. Delinquent receivables |
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DOE Rating:

1. **Uncosted Balances:** DOE rates performance in this area as **Outstanding** based upon the percentage of uncosted balances to funds received in the financial plan at fiscal year end of 0-6% for Operating funds and 0-29% for Capital Equipment and Construction.
2. **Delinquent Receivables:** DOE rates performance in this area as **Excellent/Outstanding** based upon a small amount of delinquent receivables in excess of 180 days for every quarter during 2002.

The Self-Assessment Report for these areas described the assessment results in general terms but did not provide a summary conclusion of performance rating. The Self-Assessment Report provided a basis for determining performance, identified successes and weaknesses, and a plan to begin improvements in FY 2003, although it provided no anticipated completion/implementation dates for improvements.

M. SAFEGUARDS & SECURITY

Objective: Implement a safeguards and security program to ensure internal monitoring of compliance and performance with safeguards and security requirements.

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| <ol style="list-style-type: none">1. Self- assessment2. Implementation of corrective actions or mitigative measures for deficiencies involving nuclear materials or security interests3. Monitoring of corrective actions |
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DOE Rating: DOE rates performance in this area as a **Pass**, based upon DOE's evaluation of URA's Self-Assessment Report, which addresses achievement in three topical areas of URA's Safeguards and Security Program. The DOE reviewers identified a number of opportunities for improvement and a schedule for completion within FY 2003. The Self-Assessment Report also included a status of improvements from prior assessments. There has been no degradation of the program for nuclear material control and no discrepancy in the inventory records. URA has maintained the Nuclear Materials Accounting System accurately during the performance period.

N. COUNTERINTELLIGENCE

Objective: A counterintelligence program which is in accordance with applicable DOE orders and policies

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| <ol style="list-style-type: none">1. Notification of foreign travel2. Annual employee counterintelligence briefing |
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DOE Rating:

1. Notification of Foreign Travel: DOE rates performance in this area as a **Fail** (Pass >90%), based upon URA meeting the notification requirements for foreign travel for only 29% (5 of 17) of the trips to sensitive countries routed in the DOE-Federal Travel Management system. Despite less than stellar performance in this narrow function, **overall program implementation has been satisfactory.**
2. Annual Employee Counterintelligence Briefing: DOE rates performance in this area as **Pass**, based upon URA having met the expectations for the annual Counterintelligence briefing 100% of the time (Pass = 100%). URA achieved this rating using a memorandum to all employees dated July 10, 2002, which DOE deemed appropriate for a facility with no classified or proprietary work.

The Self-Assessment Report recognizes program strengths, weaknesses, and the need to develop a path toward implementing improvements. DOE agrees with URA conclusions that a performance measure that fits the existing programmatic circumstances more realistically is warranted.

O. LEGAL MANAGEMENT

Objective: Ensure quality, timely, and cost-effective legal services; promote the protection and utilization of inventions and Fermilab-generated data in support of the Research and Development mission.

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| <ol style="list-style-type: none">1. Management of legal services2. Alternative Dispute Resolution3. Innovation4. Sound analysis and counsel5. On-time responses to DOE-requested legal work products |
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DOE Rating:

1. Management of legal services: DOE rates performance in this area as **Outstanding** based upon there being no major non-compliances identified in FY02. During FY02, URA again had no new cases filed. In addition, DOE approved URA's Legal Management Procedures in accordance with the new DOE Legal Management Rule. The Fermilab Legal Office does not have a *documented* process for reviewing outside counsel invoices; nevertheless, the review process utilized appears to be adequate for the low volume of litigation historically experienced by URA. The Fermilab General Counsel's

performance in advising DOE of significant new events in the remaining actions against URA has been exemplary.

The Self-Assessment Report addresses the concerns identified in the FY01 performance assessment, namely: 1) URA's failure to utilize its Fermilab Legal Office fully; and 2) retaining outside legal services by other Fermilab elements, without prior discussion with or involvement of the Fermilab Legal Office. The Self-Assessment Report correctly recognizes the need for continued improvement in this area.

The Self-Assessment Report does not expressly discuss notable achievements and challenges. Opportunities also exist for improving the Self-Assessment Report itself. For example, the description of the "methodology used to assess this process" was a description of the process rather than a description of how the self-assessment was performed.

Despite citing checklists and other records, the Self-Assessment Report relies heavily on the recently-approved Legal Management Plan for assuring continued improvement in inter-departmental coordination of outside legal services. The Plan only applies to the Fermilab Legal Office. To be persuasive, further explanation is needed of how this requirement has been implemented at the laboratory to assure the conformance of other laboratory departments. Also, the Self-Assessment Report claims "marked improvement" in this area, but provides no concrete examples.

2. Alternative Dispute Resolution (ADR): DOE rates performance in this area as **Outstanding** based upon the application of thoughtful consideration to ADR techniques. Results this fiscal year evidence that increased inter-departmental coordination of legal matters also has been accomplished through increased involvement of the Fermilab Legal Office in resolution of pre-litigation claims and disputes. This and the establishment of the NuMI Dispute Resolution Board have resulted or have the potential to result in measurable improvement in the consideration of ADR at the point – pre-litigation – when it is most efficient and cost-effective.
3. Innovation: DOE rates performance in this area as **Outstanding** based upon its subjective evaluation of the number and significance of innovative improvements to URA's litigation management program resulting from a survey of best industry practices. The benchmarking, individual and organizational development opportunities and proactive efforts of the Fermilab Legal Office described in the Self-Assessment Report demonstrate an amount of effort devoted to process-improvement and innovation that is commensurate with the level of risk of conflict attributable to management and operation of Fermilab. The Fermilab General Counsel has demonstrated the dedication of an appropriate level of effort to identify areas of improvement, and the Self-Assessment Report demonstrates that URA has achieved some benefit from the improvements implemented.
4. Sound Analysis and Counsel: DOE rates performance in this area as **Outstanding** based upon its subjective evaluation of work products submitted by URA for DOE approval or use. DOE evaluated performance

considering proactiveness and timeliness of identifying legal issues for review; timeliness of work products; results obtained by the work products; and the level of satisfaction expressed by URA management and staff.

The Self-Assessment Report contains examples that suggest the Fermilab Legal Office is doing an outstanding job of providing timely, sound, and thoroughly researched legal advice. The identified opportunities for improvement are valid for most internal legal offices. Obviously, despite its capabilities, the legal staff cannot provide outstanding legal services if such services are not invited. Consequently, an appropriate focus will be on increased proactivity and mechanisms for determining what customers want and expect.

5. On-time Responses to DOE-requested Legal Work Products: DOE rates performance in this area as **Outstanding** based upon the percentage of on-time responses being 95% or better. DOE makes this determination using information in the Self-Assessment Report and the experience of DOE organizations requesting legal work products.

Attachment 1

**DOE Office of Science
Division of High Energy Physics
FY 2002 Performance Appraisal for
Fermi National Accelerator Laboratory**



Department of Energy
Washington, DC 20585

February 4, 2003

Mr. Marvin E. Gunn, Jr.
Manager
U.S. Department of Energy
Chicago Operations Office
9800 South Cass Avenue
Argonne, IL 60439

Dear Mr. Gunn:

For the period January 1, 2002 through September 30, 2002, the overall performance of the Fermi National Accelerator Laboratory (Fermilab) on Office of Science (SC) science and technology programs is rated as Excellent. This summary rating represents the overall performance evaluation for program areas supported by the SC Office of High Energy Physics, as required by the contract for the maintenance and operation of Fermilab.

In each of the two separate areas of Quality of Research and Relevance to DOE Missions and National Needs, the performance of Fermilab is rated as outstanding. Fermilab is the flagship of U.S. high energy physics and its experimental results make unique and important contributions to high energy physics worldwide.

In the area of Effectiveness and Efficiency of Research Management, the rating remains the same as last year, namely excellent, but the numerical score has increased from 3.0 to 3.2. This reflects the creation of the Office of Project Management Oversight which organizes the Director's Reviews of projects, and which has significantly improved the outcome of Lehman reviews of them.

Despite significant improvements in the NuMI project and in luminosity during the rating period, the area of Success in Constructing and Operating Research Facilities continues to be rated as good, with a score of 2.5. This reflects our continuing and overriding concern with the management of the Tevatron luminosity problem. Even though the luminosity has improved by a factor of about 4 during the rating period, it still has a very long way to go, and the concerted attention of

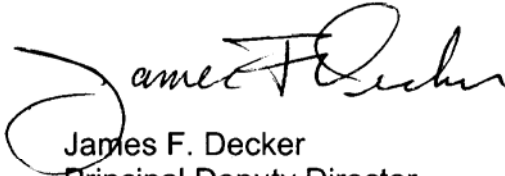


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management is needed in order to meet the goal of 15 fb-1 integrated luminosity by FY 2008.

Enclosure 1 provides a breakdown of the four Performance Measures, as well as the ratings for each and an overall rating. Also enclosed is the full narrative evaluation from the High Energy Physics Program.

Sincerely,

A handwritten signature in black ink, appearing to read "James F. Decker". The signature is fluid and cursive, with a large initial "J" and "D".

James F. Decker
Principal Deputy Director
Office of Science

Enclosures

Office of Science
Division of High Energy Physics
FY 2002 Performance Appraisal for Fermi National Accelerator Laboratory

1.1 Quality of Research

The Fermilab (FNAL) science program is a flagship effort of the national high energy physics (HEP) program and makes unique and important contributions to the worldwide advancement of the field. In the past year, the CDF and D-Zero experiments took their first physics quality data with upgraded detectors and presented their first physics results from Run II at international conferences. Publications on Run II data should begin appearing soon.

A small number of physics results from CDF and D-Zero from Run I were published in 2002, which are likely to be the last ones from Run I. Physics results from the 800 GeV fixed-target program, which concluded in 1999, are still being published. The KTeV, E791, NuTeV, FOCUS, and SELEX collaborations have published results on neutrinos, CP violation, and charm physics. Of particular note are the large number of publications on charm physics by the FOCUS Collaboration, which makes them the premier charm experiment in the world, and the first observation of a doubly charmed baryon by the SELEX Collaboration.

Physics results from other FNAL efforts, particularly in particle astrophysics, have also been major accomplishments of FY2002:

- The Cold Dark Matter Search has published the world's best limits on WIMP cross sections.
- The Pierre Auger Project has observed the first cosmic ray shower using both a ground array and a fluorescence telescope. This technique promises to settle the controversy on the energy spectrum of the highest energy cosmic rays.
- The Sloan Digital Sky Survey has published large number of papers including fundamental discoveries like the observation of the most distant object in the universe and weak gravitational lensing measurement of the dark matter density.

Overall, the quality of the research is very similar to 2001 with the mix beginning to shift more to the collider experiments. When the collider experiments begin to publish next year this rating should go up.

Rating: 3.5 (Outstanding)

1.2 Relevance to DOE Missions and National Needs

There have been no significant program shifts in the last year, so the relevance to DOE missions and national needs is unchanged. The comments are only slightly modified from last year reflecting this fact. The lab's physics priorities are still well aligned with those of the national HEP program, as they should be for a flagship program. Tevatron Run II

is one of the highest national HEP priorities due to its potential for significant physics discoveries. FNAL is also the center of U.S. effort in neutrino physics, and maintains important efforts in kaon and B-meson physics, complementary to the SLAC B-factory. FNAL also provides management and research expertise to several forefront experiments in particle astrophysics. Efforts in accelerator R&D and detector and information technologies are providing the tools needed for next-generation experiments. Maintaining this strong and diverse program in the face of budget constraints is a continuing challenge for lab management.

As host laboratory for the U.S. CMS experiment, as well as the future U.S. CMS computing center, the lab has carried out an important leadership role for this vital future experiment at the LHC over the last few years. FNAL is also host laboratory for the U.S. LHC accelerator effort, and is making important contributions of magnets for the LHC accelerator project

Rating: 3.8 (Outstanding)

1.3 Success in Constructing and Operating Research Facilities

Fermilab is involved in the construction of NuMI/MINOS, CMS, and the LHC accelerator. Its largest effort is the operation of the Tevatron collider, and these form the core of this section of the appraisal. On the construction projects, Fermilab has had a very productive year with progress on all projects.

The DOE approved a new baseline for the NuMI project in December 2001. In FY 2002 FNAL has achieved major project milestones an average of 5 months in advance of the new baseline schedule, and actual costs have averaged several percent below the new baseline estimate. The associated MINOS detector project, also managed by FNAL, has also progressed very well and is meeting all project milestones.

The progress of the LHC construction projects, CMS and the accelerator, has continued smoothly in the last year. The CMS detector is also on schedule and is comfortably within its budget. The same is true for the Fermilab contribution to the LHC accelerator components.

Turning to the operation of the Tevatron, the luminosity performance was below expectations at the beginning of the fiscal year. In January, the lab presented a plan to improve the luminosity, but fell a factor of 2 short of their goals through the rest of the fiscal year. At the very end of the fiscal year, the rate of progress improved, and a new, more detailed, and better scrutinized improvement plan was developed. While these recent developments are promising, the overall performance on Tevatron luminosity has been disappointing.

Based on the metrics for the Tevatron of running hours (outstanding), peak luminosity (excellent), and integrated luminosity (good), an evaluation of excellent would seem appropriate, and the qualitative data agrees with this.

The final rating in this category is based on balancing the success the construction projects against the failure of the Tevatron to perform up to expectations. The very high importance of the Tevatron requires that it weigh more heavily than the other projects.

Rating: 2.5 (Good)

1.4 Effectiveness and Efficiency of Research Program Management

In 2001, the Fermilab Directorate created an Office of Project Management Oversight. It is charged with handling the internal review process for projects at the lab, and to supply project management expertise and training to project management teams at the lab. Thorough technical, cost, schedule, and management reviews are conducted by the lab using a mix of outside and Fermilab experts before the DOE reviews a project. The result has been well prepared project teams and highly successful reviews by the DOE. A couple of examples are the recent baseline readiness review of the Run IIb detector upgrades and the NuMI review, which were very successful.

While the Tevatron performance was disappointing there was notable improvement in the planning for implementing the needed accelerator improvements. The plan completed at the end of the fiscal year was significantly better than that done earlier in the year, and the Office of Project Management Oversight aided in its development. This should feed directly into improvements of the Tevatron operations next year.

FNAL is also effectively managing the large software and computing efforts for US CMS, is taking a leading role in developing the CMS research program for the future, and is preparing to make its participation in LHC a central part of the laboratory's long-range program. Fermilab has taken the lead in developing an LHC Accelerator Research Program which is promising effort but it is still too early to evaluate.

The new MiniBooNE neutrino beam line and experiment were completed, and data-taking has begun.

Fermilab also maintains a strong tradition of user involvement and participation in all aspects of the lab's programs. The FNAL User Group is active, vocal and effective. Recent user concerns mostly reflect frustration with the slow pace of Tevatron luminosity improvement and concerns on proton intensity for the neutrino programs. The FNAL Program Advisory Committee, made up of eminent physicists mostly from outside the lab, evaluates all research proposals to the lab and provides high-quality peer review and advice to lab management on programmatic issues.

Overall program management has improved in 2002 and the rating is increased to reflect this.

Rating: 3.2 (Excellent)

Enclosure

OFFICE OF SCIENCE
FY 2002 APPRAISAL OF
FERMI NATIONAL ACCELERATOR LABORATORY

Measure 1: Quality of Research

Rating: **Outstanding**

Measure 2: Relevance to DOE Missions and National Needs

Rating: **Outstanding**

Measure 3: Success in Constructing and Operating Research Facilities

Rating: **Good**

Measure.4: Effectiveness and Efficiency of Research Program Management

Rating: **Excellent**

OVERALL RATING: EXCELLENT