REVIEW OF BNL MANAGEMENT SYSTEM SELF-ASSESSMENT PROGRAM

FINAL REPORT

September 2003

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LIST OF ACRONYMS

ATS	Assessment Tracking System
BAO	Brookhaven Area Office
BNL	Brookhaven National Laboratory

EXECUTIVE SUMMARY

Brookhaven National Laboratory (BNL or Laboratory), as part of a fiscal year 2003 contract performance measure, is evaluating the effectiveness of its management system self-assessment programs – using information derived from 11 of its 33 management systems. To provide an appropriate level of independence, the Laboratory requested that an external or Third Party Review Team perform this evaluation. The Review Team developed observations on management system self-assessment program elements, provided an overall evaluation of the program, and furnished recommendations for improving program effectiveness.

The Laboratory has established an overall framework and accompanying guidance for executing the management systems self-assessment program. If implemented and clearly supported by the Laboratory's senior leadership, the program can achieve its objectives over time. Self-assessment planning documents have been developed to implement the requirements of the Laboratory's program. Management System Stewards and Points-of-Contact are only now beginning to integrate systematic, self-assessment planning processes into their business management approach. Collectively, these initial activities suggest a degree of commitment to the management system self-assessment program.

The absence of a clearly identifiable senior management "champion" will impact the overall acceptance, implementation, and maturation of the program. As an example, at operational levels of the Laboratory organization there is not always a clear understanding of the concept, expectations, and benefits of a management systems self-assessment program. Where Management Systems Stewards and Points-of-Contact are engaging the line organization in the planning and deployment of the management system self-assessment process, there is a higher level of line organization confidence in the process and its value. To the extent that there is a lack of full engagement with line organizations, this represents an impediment to program implementation and maturity. There are differing expectations – between the Brookhaven Area Office (BAO) and the Laboratory – regarding what constitutes a comprehensive self-assessment program, which is contributing to a lack of confidence on the part of elements of the BAO in the validity and results of the program. It is essential to the achievement of the strategic objectives of the management system self-assessment program that this disparity of view be addressed and mitigated by senior Laboratory leadership.

The quality and detail of management system self-assessment programs vary leading to a lack of rigor and consistency in deployment of the management system self-assessment program. For example, the self-assessment program associated with the Environmental Management System is fully deployed, quite mature, and has benefited from senior management commitment to this management system, its external registration and the rigors that mechanism entails, and its early exposure to the Management System Maturity Evaluation process. In several of the management systems, the self-assessment process appears to consist primarily of compliance driven reviews. Although such reviews are essential to protecting the Laboratory, its personnel, and the environment, such reviews – in and of themselves – are normally insufficient to enable determination of whether a management system is achieving its fundamental objectives.

Management system self-assessment outcomes are communicated to the affected organization; however, disclosure of information to BAO is not as uniform. Although the corrective action

management process is accomplished using a variety of information tools, there appears to be a commitment to addressing corrective actions in a timely manner. The self-assessment process is not uniformly used to verify that the corrective actions and improvement agendas are achieving the intended objectives. With the exception of the Environmental Management System and to some extent the Work Planning and Control Management System, the institutional trending process is limited to analysis of performance information to demonstrate compliance with the Price-Anderson Amendments Act requirements. Beyond these activities, there does not appear to be a systematic approach for conducting trending and analysis activities based on information derived from management system assessment results.

There is limited evidence that results of management system self-assessment activities are beginning to contribute to improvements in the functionality of the management system(s) and achievement of system objectives. There is a lack of integration of the management system self-assessment program with strategic planning and resource allocation processes. Management system self-assessment results and associated improvement agenda(s) and desired performance levels are not being used to drive strategic plans, priorities, and budget allocation decisions. In the view of the Review Team, this weakness is the single greatest impediment to full maturation and succesful implementation of the management system self-assessment program.

Overall Evaluation. The Review Team examined the full range of information obtained on the Laboratory's management system self-assessment program in light of the 10 evaluation criteria in the protocol. Based on the information, the application of the elements of each criterion, and incorporation of weighting factors, the Review Team rated each dimension (Approach – 2.3, (on a scale of 0 to 4) Deployment – 2.3, and Results – 1.8) as Good, leading to an overall program evaluation of Good (2.2). Given the lack of full program implementation and the corresponding limited information on Results, the Review Team applied less weight to this dimension.

SUMMARY OF RECOMMENDATIONS

1. Identify a senior management "champion" for the management system self-assessment program who will instill a consistent understanding of the expectations and benefits of the management system self-assessment program among Laboratory personnel.

2. Establish a working partnership between the Laboratory and BAO that engenders BAO's full confidence in the management system self-assessment program and the validity of results.

3. Establish clear direct linkage among management system self-assessment planning and out-year budgeting, annual planning, and strategic planning activities.

4. Improve the interface and coordination between Management System Stewards (and Points-of-Contact) and the line organization in the development of self-assessment plans.

5. Ensure management system self-assessment plans establish clear objectives, assessment activities that are aligned with objectives, and measurable performance targets.

6. Establish a strategy for the implementation of an overall approach to trending and analysis processes for identification of institutional-wide issues.

INTRODUCTION

Background. The objectives of the BNL Integrated Assessment Program are to (1) systematically and comprehensively evaluate the performance of both organizations and management systems in their achievement of performance objectives, (2) use the resulting information to establish and implement a prioritized improvement agenda, and (3) provide valuable insights that support strategic and operational planning. For several years, BNL has been assessing the vertical dimension of its organizational performance by conducting line self-assessments, and, through its Independent Oversight Office, has been evaluating and improving the effectiveness of line organization self-assessment activities. More recently, the Laboratory has begun to focus on management system performance. In fiscal year 2003, the Laboratory assessed the performance of 11 of its 33 management systems using a structured process. Recognizing the importance of these assessments and the basic contents of the assessment process to the long-term performance of the Laboratory, BNL and BAO established a contract performance measure for fiscal year 2003, which calls for the review of the effectiveness of the overall management system self-assessment process using an independent entity (or Third Party Review Team).

Scope and Approach. To conduct its review, the Third Party Review Team applied the elements of a pre-established protocol developed by the Laboratory and agreed to by BAO. The protocol defines criteria that the Review Team used in evaluating the effectiveness of the Laboratory management system self-assessment program and describes the process for establishing overall ratings based on application of the criteria. The 10 criteria are organized under an Approach-Deployment-Results construct and represent the attributes or characteristics of a "best-in-class" self-assessment program. The rating process is intended to furnish an aggregate view of the level of development, implementation, and maturity of the management system self-assessment program.

In performing this review, the Third Party Review Team examined a significant number of program documents, conducted numerous interviews, and observed elements of the self-assessment process in action. For each of the 11 management systems of interest, relevant Management System Descriptions, Subject Areas, assessment tools, and assessment reports were reviewed to obtain a sense of the structure and functionality of the management system self-assessment program. BAO and Laboratory managers, Management System Stewards and Points-of–Contact for each of the 11 management systems, subject matter experts, line organization managers and staff, and independent organizational personnel were interviewed to establish organizational commitment, effectiveness of communication, rigor of planning, and the degree of implementation of the self-assessment process. The Review Team also observed conduct of the Facility Safety Management System Maturity Evaluation.

Collectively, this body of information was used to evaluate the Laboratory's performance for each of the 10 criteria – appropriately reflecting the information from each of the 11 management systems of interest. In establishing an overall program rating, the Review Team placed more emphasis on the dimensions of Approach and Deployment, and less emphasis on the dimension of Results. This is a reflection of the degree of maturity and extent of implementation of the management system self-assessment process throughout the Laboratory.

REVIEW RESULTS

The results of the Third Party Review are provided in terms of observations associated with each of the dimensions of Approach, Deployment, and Results. The observations are derived from an examination of each of the 10 criterion statements in the protocol. Where observations could be associated with or highlighted by the performance in specific management system(s), that illustration is noted.

Approach

The thrust of the Approach dimension is to determine the extent to which the management system self-assessment program is comprehensively defined and the structure of the program supports adequate planning activities leading to effective measurement of performance. Four specific criteria are embodied in this dimension addressing – program definition and communication, institutional commitment and overall acceptance, the systematic nature and design of the planning process, and establishment of roles and responsibilities and demonstration of competency.

Observations associated with the Approach dimension include the following:

- The Laboratory has established an overall framework and accompanying guidance for implementation of the management systems self-assessment process. Laboratory senior management and BAO have generally accepted the vision articulated within this framework. This vision, however, has not been fully communicated throughout the organization.

- At the institutional level there is a lack of integration of the management system self-assessment program with strategic planning and resource allocation processes. Management system self-assessment results and associated improvement agenda(s) and desired performance levels are not being used to drive strategic plans, priorities, and budget allocation decisions.

- Most Management System Stewards and Points-of-Contact have developed and provided additional guidance – in the form of guidance cards, survey checklists, question sets, analysis of statistical data, and formal assessment planning and implementation guidance, to assist line organizations in conduct of assessment activities.

- Currently, it is not evident that a senior management "champion" for the overall management systems self-assessment program exists, who would instill the institutional commitment throughout all Laboratory organizations. Several organizational elements have explicit and implicit responsibilities for structural and program elements of the management system self-assessment program (e.g., the Quality Services Division, the Integrated Assessment Program Office, the Office of Management Services, and the Independent Oversight Office). These functions are fragmented and lack senior leadership.

- There are elements at the Laboratory that embrace self-assessment and recognize the process as (1) a value-added business practice supporting the notions of self-identification and continuous improvement, (2) a mechanism to ensure that critical requirements (e.g., contract related or registrations) are achieved, (3) a vehicle to reduce external organization oversight, (4) a mechanism to compare or benchmark performance, and (5) a process for establishing an enhanced level of commitment to results and process improvement. This condition exists when the management system assessment activities are properly coordinated with the line organization and logically scoped using a systematic approach linked to the management system performance objectives. For example, a strong self-assessment philosophy that recognizes the need for a systematic assessment approach linked to the management system overall objectives is engrained in the Life Cycle Asset Management, Facility Operations, Work Planning and Control, and Environmental Management Systems. There are portions of the Laboratory, however, that do not recognize or embrace the value of self-assessment, characterizing it more as a required activity with unclear benefits. This is particularly true when there is inadequate upfront engagement of stakeholders in the process.

- Self-assessment plans are developed for each management system. While some variation is expected, allowed by guidance, and appropriate, it is not evident that all plans are meeting an expected standard of content that would ensure effective measurement of performance and stakeholder acceptance. Because the quality and detail of the plans vary, the overall management system self-assessment program may lack consistency and rigor. For example, not all management system self-assessment plans contain a clear set of management system objectives, proposed assessment activities that are aligned with achievement of those objectives, and performance targets (based on appropriate benchmarks or comparisons).

- Management System Stewards and Points-of-Contact who generally apply a prioritization process to select assessments (based on factors such as: contract critical outcomes and underlying performance measures; DOE direction; previous concerns or issues; and the output of strategic planning activities) enjoy a higher level of customer confidence and value-added benefit. The Facilities & Operations Directorate uses a management retreat construct to review past year assessment results and to prioritize coming year assessment objectives and activities. In other cases, there is a tendency to develop an assessment strategy based primarily on reactions to event conditions or outcomes rather than on a systematic approach that is aligned with the overall objectives of management system.

- The approach to assessment implementation varies depending upon the nature of the management system and the availability of a core or central resource to conduct assessments.

    - The Work Planning and Control Management System uses line-owned Work Control Managers to ensure line ownership, understanding, and to support assessment of the management system. This leveraging of line resource is essential as there is not a (large) core resource to conduct self-assessments. The Review Team concludes that the line organization's Work Planning Coordinators are being effectively leveraged to

expand the reach of the Work Planning and Control management system self-assessment process.

  - The Worker Safety and Health and Radiation Protection Management Systems use primarily – but not exclusively – core resources to conduct assessment activities. Increasingly, line resources are being used to support assessment activities as a mechanism to increase ownership, acceptance, and confidence by the line.
  - The Environmental Management System (i.e., Environmental and Waste Management Services) and uses both line management owned and deployed personnel (Environmental Compliance Representatives) to conduct and drive self-assessment activities directed at achieving environmental compliance and ISO 14001 conformance in line organizations.

- The interface between Management System Stewards (and Points-of-Contact) and the line organization in the development of self-assessment plans is evolving, and there is a high degree of inconsistency. Currently, the Management System Stewards (and Points-of-Contact) provide a required assessment matrix to the line organization. This mechanism appears to be working effectively for the Environmental Management System. In some cases, a perception exists among some line organizations that management system self-assessment planning does not involve adequate partnering. The perception of a lack of full engagement represents a significant impediment to full implementation, maturity, and confidence in and value-added view of the assessment process.

- Currently, BAO lacks confidence in the management system self-assessment process. An exception is noted in the Acquisition Management System where BAO provides guidance on the balanced scorecard criteria, and BNL and BAO together negotiate the plan each fiscal year based on that guidance. There appears to be greater BAO involvement in the design of assessment activities and in partnering during conduct of assessments. The lack of a consistent level of engagement across the management system self-assessment process is inhibiting BAO confidence in the validity of the process and its results.

- There are differing expectations – between BAO and the Laboratory – regarding development of a management systems assessment strategy and what constitutes a comprehensive program. For example, BAO views the Radiological Control Management System self-assessment strategy as being based solely on 10 CFR 835 triennial audit requirements as the exclusive foundation for the assessment program rather than as an element of a systematic assessment review process (which is the view of the Laboratory). This disconnect is undermining BAO confidence in the Radiation Protection self-assessment process.

- Where Management System Stewards and Points-of-Contact customers exhibit a clear understanding of their function, roles, and responsibilities for executing a management system self-assessment program, there is a corresponding increased understanding of its value and acceptance by the line organization. Subject matter experts who have

responsibilities for execution of management system assessment activities demonstrate awareness, understanding, and acceptance of their roles and responsibilities.

- Personnel with appropriate expertise and competency conduct self-assessment activities. The Environmental Management System uses nationally accredited training; a select group of Laboratory personnel receive certification as Lead Assessors. The Facilities & Operations Directorate Self-Assessment Coordinator has received auditor training.

- The Acquisition Management System and the Facility & Operations Directorate are incorporating self-assessment objectives into individual performance measures as a mechanism to highlight individual accountability and establish expectations.

Deployment

The thrust of the Deployment dimension is to determine the extent to which the management system self-assessment program is implemented as designed and effectively measures management system performance. Four specific criteria are embodied in this dimension addressing – execution of self-assessment program plans, achievement of assessment objectives and communication of results to stakeholders, analysis of results for existence of management system and institutional performance trends, and the effectiveness of corrective action management process.

Observations associated with the Deployment dimension include the following:

- Management system self-assessment activities are generally conducted in accordance with the aforementioned plans; when priorities change, plans and schedules are adjusted.

- In certain management systems, the self-assessment process appears to consist of either compliance driven reviews or narrow event-driven reviews rather than systematic performance evaluations. Although such reviews are essential to protecting the Laboratory, its personnel, the environment, and mitigating immediate hazards or deficient conditions, such reviews are not necessarily sufficient to determine whether a management system is achieving its fundamental objectives. The balanced scorecard approach applied by the Acquisition Management System does furnish performance feedback well beyond explicit compliance.

- The maturity evaluation process provides the Management System Steward with customer feedback, which is intended to be translated into broad improvement actions. The Review Team has been unable to judge whether the maturity evaluation process is systematically leading to improvements.

- Management system self-assessment outcomes are communicated to the affected organizational element. BAO working level personnel perceive that they are not receiving essential assessment results. BAO personnel have full access to information entered in the institutional level Assessment Tracking System (ATS). However, they have limited access to information entered in the Family ATS depending on the

individual Laboratory manager's decision to grant access. The lack of full access to self-assessment results impacts BAO's confidence in the validity of the process.

- The Laboratory generally does not analyze management system self-assessment results to determine the existence of institutional performance trends nor use self-assessment results for planning and resource allocation decisions. There is an expectation that assessment owners identify and document the extent to which issues arising within the scope of their functional or programmatic assessment activities exist across the institution. There are also examples of where information is collected and examined in a systematic fashion – notably in the Environmental Management System where Environmental and Waste Management Services uses Environmental Management Reviews to develop a roll-up evaluation of performance information. This organization also conducts meetings of Environmental Compliance Representatives and Environmental Management System Representatives to identify and discuss common performance issues of relevance. The Work Planning and Control Management System has undertaken initiatives to more systematically analyze performance information and to use that information to drive future improvements. The PAAA program evaluates identified conditions and events relevant to Radiological Control and Quality Management Systems. Identified PAAA non-compliances result in corrective actions developed by line management to drive future improvements.

- The Laboratory's approach to corrective action management involves use of an Institutional Assessment Tracking System (ATS), Family ATS, and other line-owned systems – each of which involves assignment of action responsibility and schedules. There appears to be a commitment to addressing corrective actions in a timely manner (e.g., a previous large backlog of legacy corrective actions has been addressed).

- The self-assessment process is not uniformly used to verify that the corrective action and improvement plans are achieving their intended objectives (i.e., are effective).

- There does not appear to be an institutional systematic approach (or overall strategy) for the conduct of trending and analysis activities – especially with regard to identifying systemic issues arising out of management system assessments. This limitation is recognized by a number of personnel responsible for implementing management systems.

- The Laboratory does perform limited trending and analysis of Laboratory-wide performance information. As part of demonstrating compliance with the Price-Anderson Amendments Act requirements, the Laboratory examines Occurrence Reports, Radiological Awareness Reports, internal and external assessments, and Non-Conformance Reports (designated as either A1 or A2). The Independent Oversight Office uses various tools to identify institutional issues as part of establishing its proposed out-year assessment agenda. The Acquisition Management System (Procurement and Property Management Division) is developing data analysis tools in the areas of supplier database, credit card statistics, and inventory review cost. The Environmental and Waste Management Services organization also performs some

trending and analysis of performance information related to the Environmental Management System.

Results

The thrust of the Results dimension is to determine the extent to which the management system self-assessment program outcomes are effectively used to improve operational performance, both in the activities of the management system and in the self-assessment program. Two specific criteria are embodied in this dimension addressing – improvements in operational performance and achievement of near-term and longer-term objectives, and improvement in assessment processes and customer and stakeholder program value. Recognizing that implementation of the management systems self-assessment process only commenced in fiscal year 2003, combined with the wide variability in system implementation (as noted in the prior section), the Review Team has not been able to make significant and readily supportable observations in this area against the protocol criteria.
Observations associated with the Results dimension include the following:

- At this stage of development, results of management system self-assessment activities are sporadicly contributing to improvements in the functionality of the management system(s). Examples provided by interviewees as potentially indicative of improvement include the following. The Review has not validated these improvements through either field observation or data analysis.
    - Improving worker safety and health statistics;
    - A reduction in environmental compliance findings resulting from use of unregulated oils;
    - Increased involvement of the line organization in the management system self-assessment process;
    - Guidance for responding to a Laboratory-wide power loss following a critique of a recent event;
    - Improvements in the Laboratory-wide document management (resulting from extrapolation of the results of an Environmental Management System assessment); and
    - Improvements in supplier evaluations (resulting from a gap analysis).
- In general, improvements in execution of assessment processes were not observed due to the relative immaturity of overall management system self-assessment program.
- There is a disconnect between management system assesment results and out-year budgeting, annual planning, and strategic planning activities. Specifically, management system self-assessment results and associated improvement agenda(s) and desired

performance levels are not being used to drive strategic plans, priorities, and budget allocation decisions. This weakness will limit the extent of maturation and strategic impact of the management system self-assessment program. There is evidence within some management systems of the incorporation of self-assessment results into business planning – notably in the Facility & Operations Directorate (in administration of the Life Cycle Asset Management, Facility and Operations, and Safeguards and Security) and the Environmental Management Systems.

OVERALL EVALUATION

The Review Team examined the full range of information obtained on the Laboratory's management system self-assessment program in light of the 10 evaluation criteria in the protocol. Based on this examination and the application of the specific elements of each criterion, the Review Team concluded the following:

- The dimension of Approach is rated as Good (2.3 out of 4.0);
- The dimension of Deployment is rated as Good (2.3); and
- The dimension of Results is rated as Good (1.8).

The Review Team also applied weighting factors to each of the dimensions – with a weight of 0.4 applied to both Approach and Deployment and a weight of 0.2 applied to Results. Equivalent weighting for Approach and Deployment was recognition of the importance that the Review Team places on ensuring aggressive implementation of the management systems self-assessment program. This weighting distribution resulted in an overall program rating of Good (2.2).

OPERATIONAL IMPROVEMENTS TO THIRD PARTY REVIEW PROCESS

As part of this Third Party Review, the Review Team evaluated the utility and operational effectiveness of the protocol as an instrument to measure the effectiveness of the Laboratory's management systems self-assessment process. Through the course of applying the protocol, several opportunities to improve the protocol as well as the overall assessment process were identified. These are noted below for the Laboratory's consideration.

1. In general, more opportunity to examine specific self-assessment program implementation elements should be provided. This would increase the value of the review and provide a foundation for making judgments on the degree of institutionalization.

2. Additional focus should be placed on interacting with internal customers (i.e., the line organization) to establish the effectiveness of interactions between Management System Stewards (and Points-of-Contact) and the line and to determine how and to what extent the line organization values management system self-assessment activities.

3. Additional implementation and maturity of the management system self-assessment process is necessary before a complete application of the protocol can be achieved. The full range of information necessary to "drive" application is not currently available.

ATTACHMENT 1: LIST OF INTERVIEWEES

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M. Bebon, BNL
J. Boccio, BNL
J. Bond, BAO
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R. Costa, BNL
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K. Dahms, BNL
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M. Davis, BNL
C. Dimino, BNL
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K. Fox, BNL
R. Gill, BNL
G. Goode, BNL
R. Gordon, BAO
J. Granzen, BAO
G. Guadagni, BNL
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P. Heotis, BNL
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ATTACHMENT 2: REVIEW TEAM

Mr. Keith Christopher – Team Leader, Morgan & Lewis

Mr. Gustave (Bud) Danielson, U.S. Department of Energy

Mr. Glenn Hoenes, Pacific Northwest National Laboratory

Mr. Robert Sanator, C.W. Post/Long Island University

Mr. Robert McCallum, McCallum-Turner