

BROOKHAVEN
NATIONAL LABORATORY

managed by Brookhaven Science Associates
for the U.S. Department of Energy

Memo

date: June 11, 2003

to: Tom Sheridan

from: James Tarpinian 

subject: Evaluation of BNL's Radiological Control Management System

Enclosed is the report documenting the evaluation of BNL's Radiological Control Management System, which took place on March 20, 2003. The objective of this evaluation was to evaluate the performance of the management system with respect to the Definition, Implementation and Planning, Assessment & Improvement criteria, and to provide the Radiological Control Management System Steward and Point of Contact with information on the strengths and areas for improvement for this system.

This evaluation is part of the FY03 Critical Outcome Performance Measure 3.2 – Planning & Assessment.

The MS POC is required to develop a response to this evaluation that includes actions to improve the MS performance. These actions shall be entered into the Institutional ATS within 45 days of the date of this report.

The Quality Programs & Services Office will use the feedback on this evaluation process to further refine the Management System evaluation methodology.

cc:
H. Kahnhauser
R. Lebel

BNL RADIOLOGICAL CONTROL MANAGEMENT SYSTEM EVALUATION

Submitted June 11, 2003

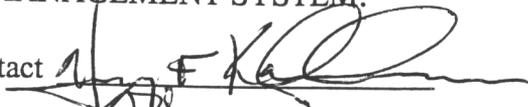
QUALITY PROGRAMS & SERVICES OFFICE:

Jessica R. Wilke, Facilitator

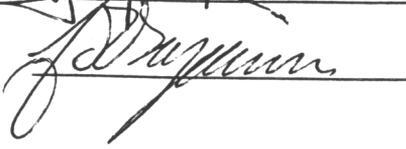


RADIOLOGICAL CONTROL MANAGEMENT SYSTEM:

Henry Kahnhauser, Point of Contact



James Tarpinian, Steward



LIST OF ATTACHMENTS

- Attachment 1 Radiological Control Management System Evaluation Team Members
- Attachment 2 Presentation given by the Radiological Control Management System POC at the Evaluation Workshop
- Attachment 3 Pre-Evaluation Workshop Meeting Presentation

EVALUATION REPORT BNL RADIOLOGICAL CONTROL MANAGEMENT SYSTEM

Introduction

The purpose of the evaluation of the Laboratory's Radiological Control Management System that took place on March 20, 2003 was to provide the Radiological Control Management System Steward and Point of Contact (POC) with information on the strengths and areas for improvement for the Management System (MS), in order for them to continue to improve the MS.

This evaluation is part of the recently developed Laboratory Management System Assessment Process, and is part of the FY03 Critical Outcome Performance Measure 3.2.

Scope

This evaluation focused on the Radiological Control MS as defined and described in the Radiological Control Management System description in the Standards Based Management System (SBMS) as well as its implementation throughout Laboratory organizations. The key purposes of the Radiological Control MS are:

- Protect staff from unnecessary exposure to ionizing radiation
- Protect facilities and equipment from contamination with radioactive materials
- Promote compliance with applicable regulatory and contractual requirements
- Maintain exposures to radiation and radioactive materials As Low As Reasonably Achievable (ALARA)

The MS accomplishes these objectives through the development of program documents that define BNL's Radiological Control requirements and implementing procedures, and through provision of technical services in support of the line operations.

Evaluation Method

The evaluation method consisted of the following steps:

- 1) The process Point of Contact (POC) selected a representative team of stakeholders (Attachment 1).
- 2) The POC developed and distributed an Information Package that contained a description of the process, information about its operation, and data to be reviewed prior to the evaluation workshop. The information was prepared in response to a standard set of questions provided by the Quality Programs & Services Office and organized to address the three criteria, Definition, Implementation, and Planning, Assessment & Improvement. The document was distributed on March 14, 2003.
- 3) Team members reviewed the Information Package as well as their own internal data about the Radiological Control MS in preparation for the Evaluation Workshop.
- 4) A Pre-Workshop briefing was held on March 17, 2003 to familiarize team members with the evaluation process and the criteria (Attachment 3).
- 5) The POC sponsored an Evaluation Workshop on March 20, 2003 to evaluate the maturity of the Radiological Control MS in each criterion –Definition, Implementation, and Planning, Assessment & Improvement. The workshop was facilitated.
 - a) The facilitator presented the workshop agenda.

- b) The POC gave a presentation that discussed the purpose, recent history, and future direction of the Radiological Control MS (Attachment 2).
- c) The team then used the Management System Evaluation Guide to score the process' maturity in each of the three criteria –Definition, Implementation, and Planning, Assessment & Improvement.
- d) The scoring process included a discussion/clarification of the information on the Radiological Control Management System pertinent to the criteria prior to the individual scoring. After the scoring, the team discussed the differences in individual scores and worked toward developing a consensus score. This discussion resulted in the identification of strengths and areas for improvement for the management system.
- e) A closing discussion was held to gather feedback about this evaluation method.
- f) A report documenting the evaluation is generated for all team members as well as the Radiological Control MS Steward and POC.

The Evaluation Team consisted of 10 members representing science and technology, support organizations, a member of the Radiological Control organization at Oak Ridge National Laboratory, and the BNL Radiological Control Division. Observers included DOE BAO, and two facilitators- in- training. All members spent time reviewing the Information Package provided by the Radiological Control MS POC. Those who were not familiar with this evaluation process attended the Pre-Workshop meeting.

Results

The Radiological Control MS was found to be fairly mature. Out of a possible high score of 5, Definition was rated at 4, Implementation was rated at 3.5/4, and Planning, Assessment & Improvement was rated at 3.

It takes time for a process to be developed and fully deployed, or *mature* – the point at which behavioral and performance results are realized. The life cycle of a system consists of five phases of maturity:

- Development: documentation of policies and procedures
- Implementation: Policies and procedures are put into use
- Verification: Demonstrated wide-spread use and acceptance
- Behavioral Impacts: Change in culture, attitudes, and work habits
- Performance Results: Improved operational performance

The Development phase is captured primarily in the Definition criteria; the other phases are captured jointly by the Implementation and Planning, Assessment & Improvement criteria.

The MS POC, also the manager of the Radiological Control Division, gave a presentation that discussed the major role of the Radiological Control MS and the recent history of the MS.

Based on external evaluations conducted in 1997 an 1998, it was evident that the Radiological Control Program at BNL was not effective – there was no Radiological Control Management System. In 1999 the Laboratory established a separate, dedicated organization, the Radiological Control Division (RCD) and began building the MS, the RCD, and the necessary programs and documents from the ground up. The following actions were undertaken:

1. Focused on defining the program
2. Developed a technically competent infrastructure
3. Improved performance in the field
4. Defined and implemented corrective action programs
5. Started initiatives to sustain performance

In the past four years, much has been accomplished; performance has greatly improved at the activity level (ISMS) and those improvements are being sustained. The next steps for the MS are to further expand its integration with other MS, and to focus on facility level efforts and integration with Laboratory level plans and initiative.

The evaluation workshop results are summarized in the following table. Each asterisk represents an individual team member's score.

Score	Approach/ Definition	Deployment/ Implementation	Assessment/ Improvement
0			
1			
2			*
3		*****	**** *****
4	***** ***	*****	
5			

Discussion - Definition

The evaluation team came to a consensus rank of 4.

The following Strength was noted:

1. The MS is well defined and clearly proceduralized - web availability and easy-to-use format.
2. The Radiological Control MS is well developed at the Activity level of the ISMS framework.

The following Area for Improvement was noted:

1. The Radiological Control MS could be better defined regarding its involvement in the Facility and Laboratory levels of the ISMS framework. As the POC noted in his presentation, the next steps for the Radiological Control MS is to shift emphasis to the Facility Level, by improving integration with related management systems (Quality, Facility Safety) and other facility level processes such as Facility Use Agreements and Radiological Waste Management. In addition, Radiological Control issues, need to be reflected as appropriate in Laboratory level planning processes and documents such as the Environmental, Safety, Health & Quality Strategic Plan, the Critical Outcomes, and Institutional Planning.

Discussion – Implementation

After some discussion, there was a split between 3.5 and 4.

The following Strengths were noted:

1. The training and qualification of RCD staff is very good, and the scope of their training has been increased to include environmental aspects.
2. The Radiological Protection Working Group is effective - there is lab -wide representation and integration of processes.
3. Having the Facility Support Staff located in their assigned buildings is very helpful.
4. The Radiological Control MS is well integrated with the Work Planning Process (1.3.5/1.3.6).
5. There is a high degree of consistency in the implementation of the Radiological Control Program and the performance of RCD personnel. The existence of site-wide procedures and the rotation of FSS throughout the line organizations aid this.

The following Areas for Improvement were noted:

1. The Plant Engineering has difficulty charging their customers for the cost of Training & Qualification for Bioassay in advance of the work.
2. There is a lag in TLD data processing and analysis of the Area TLDs that are kept in place for a 3-month period. This information needs to be available on a timelier basis. There has been an improvement recently.
3. The conduct and completion of Exposure Investigations for TLDs that are missing, lost, etc. takes too long.
4. Line organizations should have input to RCD staff appraisals (a year or so back they did; this past year they did not).
5. R2A2s do not specifically include the RAP duties. There was concern on the part of the team about the amount of RCD resources that go to support the RAP effort and that this effort is not separately accounted/budgeted for. The result is that “often” RCD Staff is not able to fulfill onsite duties because they are responding for RAP activities. This has delayed BNL work.
6. Implementation of the Radiological Control Program in small departments and divisions is inconsistent in isolated areas.
7. Need to build/develop high-level health physics talent.

Planning, Assessment & Improvement

The evaluation team reached consensus at 3.

The following Areas for Improvement were noted:

1. A better plan for the RAP effort is needed – 1 to 2 people are taken away from BNL work every day. This impacts Lab costs and resources.
2. Radiological Control MS is not plugged in to Laboratory level plans.
3. The Radiological Control MS does not have a strategic plan, the Tactical Plan is very good, but a longer-range plan regarding maintenance of the current program versus expanding the scope of the program is not apparent.

There was considerable discussion regarding the inadequate strategic planning processes in at the institution level, which inhibits all MS Stewards/POCs in their ability to develop a plan that is realistic, and reflects a balanced approach across all MS.

Evaluation of the Management System Evaluation Methodology

The team discussed the evaluation method and provided the following Strengths and Areas for Improvement.

What Worked:

- Having the supporting documents included in the Information Package was helpful.

What Needs Work:

- Questions in the preparation material did not focus on the meat of what a good Radiological Control program should be.
- Short time to digest the material
- Consider weighting the criteria statements/elements.
- There should be better guidance to the POC regarding his presentation – what it should cover, and its objective.
- Consider planning for the workshop to take a full day.

The following points were made regarding the overall evaluation process:

- Relatively minor “negatives” seemed to dominate the ranking process, BUT the Strengths noted after the ranking captured all the “big ticket”/“key” elements of an effective Radiological Control Program.
- Consider having the team members submit questions to the POC in advance of the workshop.
- Sometimes it is hard to distinguish between a MS and an organization – Radiological Control MS is exclusively owned and operated by the RCD.

Conclusion

This evaluation did assess the maturity of the Radiological Control MS. The results indicate very good system definition and effectiveness at the activity level, and significant improvement in implementation over the past three years.

As a result of this evaluation, the Radiological Control MS POC has information that will lead to improvements to the system. This process also provides a good baseline of system effectiveness that will be useful in subsequent evaluations to show improvements and/or declines in performance.

The MS POC is required to develop a response to this evaluation that includes actions to improve the MS performance. These actions shall be entered into the Institutional ATS within 45 days of the date of this report.

The Quality Programs & Services Office will use the feedback on this evaluation process to further refine the Management System evaluation methodology.

**RADIOLOGICAL CONTROL MANagements SYSTEM
EVALUATION TEAM MEMBERS**

Patricia Bender	Facilities & Operations
John Boccio	Energy, Environment & National Security
Tom Daniels	Environmental Restoration
Charlie Dimino	Independent Oversight/PAAA Coordinator
Nick Gmur	National Synchrotron Light Source
Steve Layendecker	Radiological Control Division/MS POC
Ed Lessard	Collider Accelerator
Rich Lykins	Radiological Control Division
Bruce Miller	Office of Management Services
Dale Perkins	Oak Ridge National Laboratory Radiological Control

Jessica Wilke Quality Programs & Services Office/ Facilitator

Observers:

Stephen Musolino	Radiological Control Division
Chuck Schaefer	Radiological Control Division
Stasia Scocca*	Quality Programs & Services Office
Cathy Wehrmann*	Human Resources

*These individuals were observing in preparation to facilitate future MS Evaluations

ATTACHMENT 2

Radiological Control Management System Maturity Evaluation

By the

Radiological Control Division

Stephen J. Layendecker, CHP, Manager

On

March 20, 2003

Presentation Format

- Where we were
- What we've done
- Where we're going
- How we scored ourselves

Where we were:

- August 1998, EH-2 Office of Oversight, "Follow-up Review of the 1997 Integrated Safety Management Evaluation at the Brookhaven National Laboratory"
- October 1998, RCPWG, "Evaluation of the 'Follow-up Response of the 1997 Integrated Safety Management at the Brookhaven National Laboratory'"
- Conclusion 1: "There is a significant performance problem in the Radiation Protection Program that needs immediate attention at the highest management level"
- Conclusion 2: BNL has the worst Radiological Control Program in the DOE complex

Where we were:

Key issues:

- Strong leadership is needed
- R2A2s and expectations are not defined
- A comprehensive program to improve is needed
- Documents are not clear, flow-down is inconsistent, procedures are missing
- RWP program is inconsistent
- Corrective action programs are ineffective
- RCD personnel do not have ownership of the program

Where we were:

There was no Radiological Control
Management System

What we've done:

- Started from the ground up with the basics
 - Strong management support
 - Dedicated organization
 - Re-engineering of the Radiation Protection Program Project
 - Laboratory-wide support
- Prioritized actions and used Performance Based Management

What we've done:

- Action 1: Focused on defining the program
 - Management System
 - Program Description
 - Site-wide Procedures
 - Subject Areas
 - Standard Operating Procedures

What we've done:

- Action 2: Put in place a technically competent infrastructure
 - Qualified personnel
 - Technical basis documents
 - Better equipment/facilities
 - More protocols
 - Better scores

What we've done:

- Action 3: Improved performance in the field
 - Consistent and better Radiological Work Permits
 - Better training programs
 - Shared accountability for all levels
 - Higher expectations for RCD personnel
 - First responders

What we've done:

- Action 4: Defined, embraced and implemented corrective action programs
 - Radiological Awareness Reports
 - PAAA
 - Management action
 - Aggressive attitude

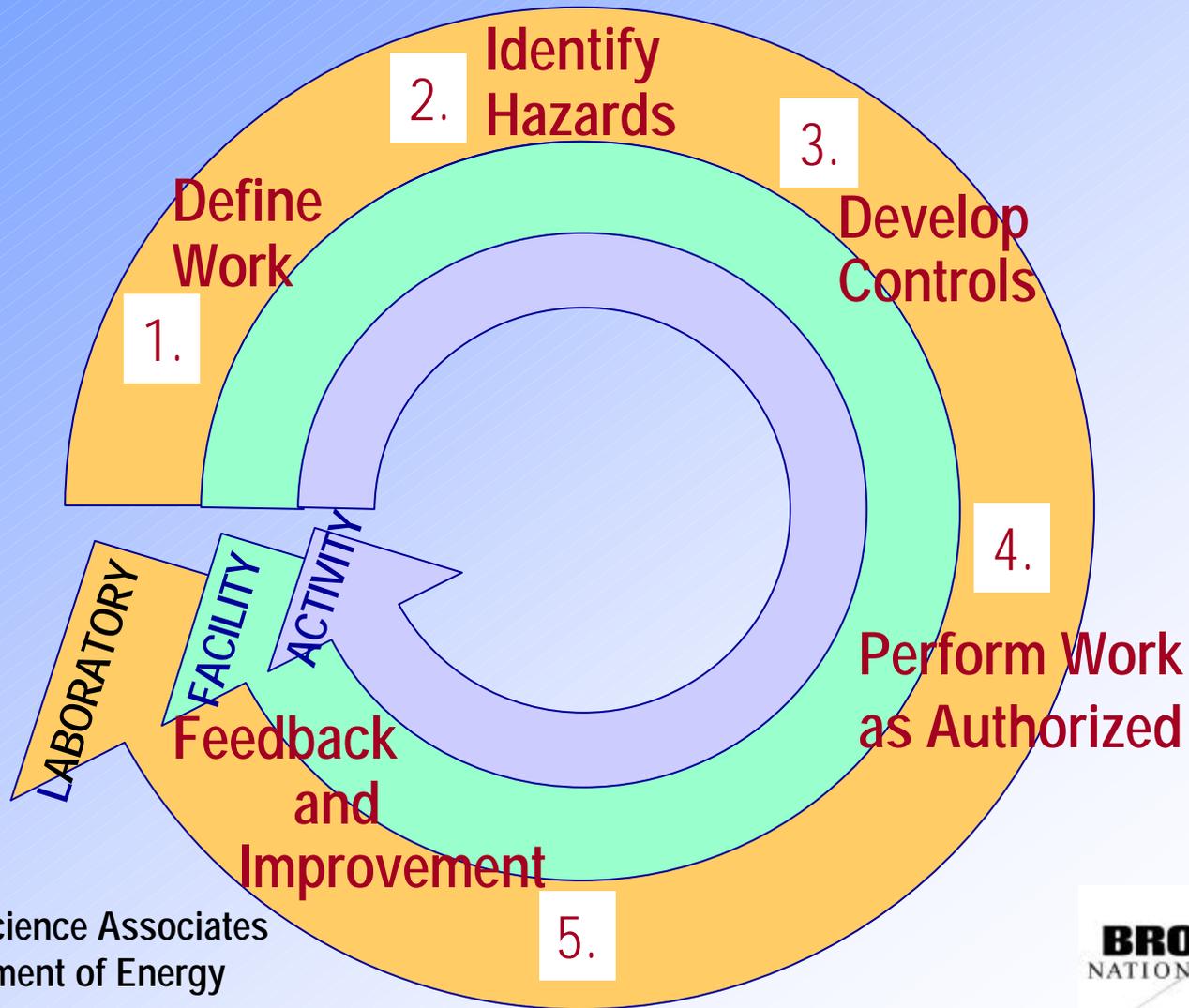
What we've done:

- Action 5: Start initiatives to sustain performance
 - Self-assessment
 - Risk management
 - Periodic review of the program documents

Where we're going:

- Take the program to the next level (or circle)

Where we're going:



Where we're going:

- Focus on related Management Systems (Facility Level)
 - Quality Assurance
 - Facility Safety
 - Facility Use Agreements
 - Radiological Waste Management
- Focus on the future (Laboratory Level)
 - Institutional Planning
 - Critical Outcomes
 - ESH&Q Strategic Planning

Where we're going:

- Focus on continuous improvement
 - Rightsizing Analysis
 - Lessons Learned
 - Self-assessment
 - Customer satisfaction

How we scored ourselves:

- The Radiological Control Management System is right where it should be at this time in the improvement cycle
- There is work to be done

How we scored ourselves:

Definition: Rank 4.67

Documentation 5

Requirements Management 5

Alignment/Integration 4

How we scored ourselves:

Implementation: Rank 4.5

Awareness 5

Implementation 4.5

Acceptance Indicators 4

How we scored ourselves:

Planning, Assessment, and Improvement:
Rank 3.75

Planning 3.5

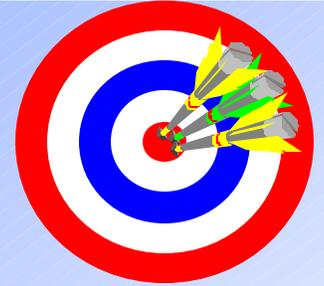
Assessment/Improvement 4

Summary

- Worst-to-First is within reach

ATTACHMENT 3

Assessment & Improvement



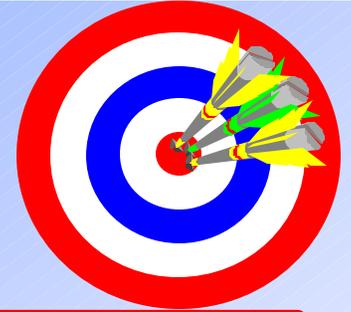
Management System Maturity Evaluations

Quality Programs & Services Office

Jessica R. Wilke

March 17, 2003

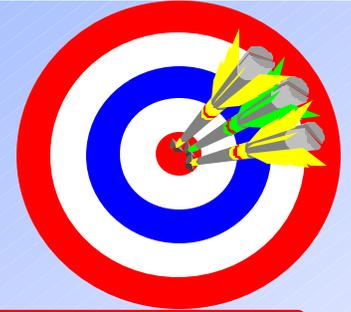
Management Systems



What is a management system?

- BNL's highest level operating/business process.
- Designed to translate/integrate external requirements into staff work practices.
- May cut across dept/div lines
 - Ex: Env'l MS includes ES, WM divisions
 - Ex: Acquisition MS is used lab-wide

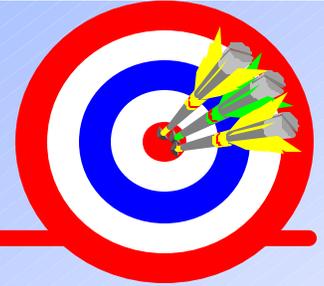
Management Systems



Management System Ownership

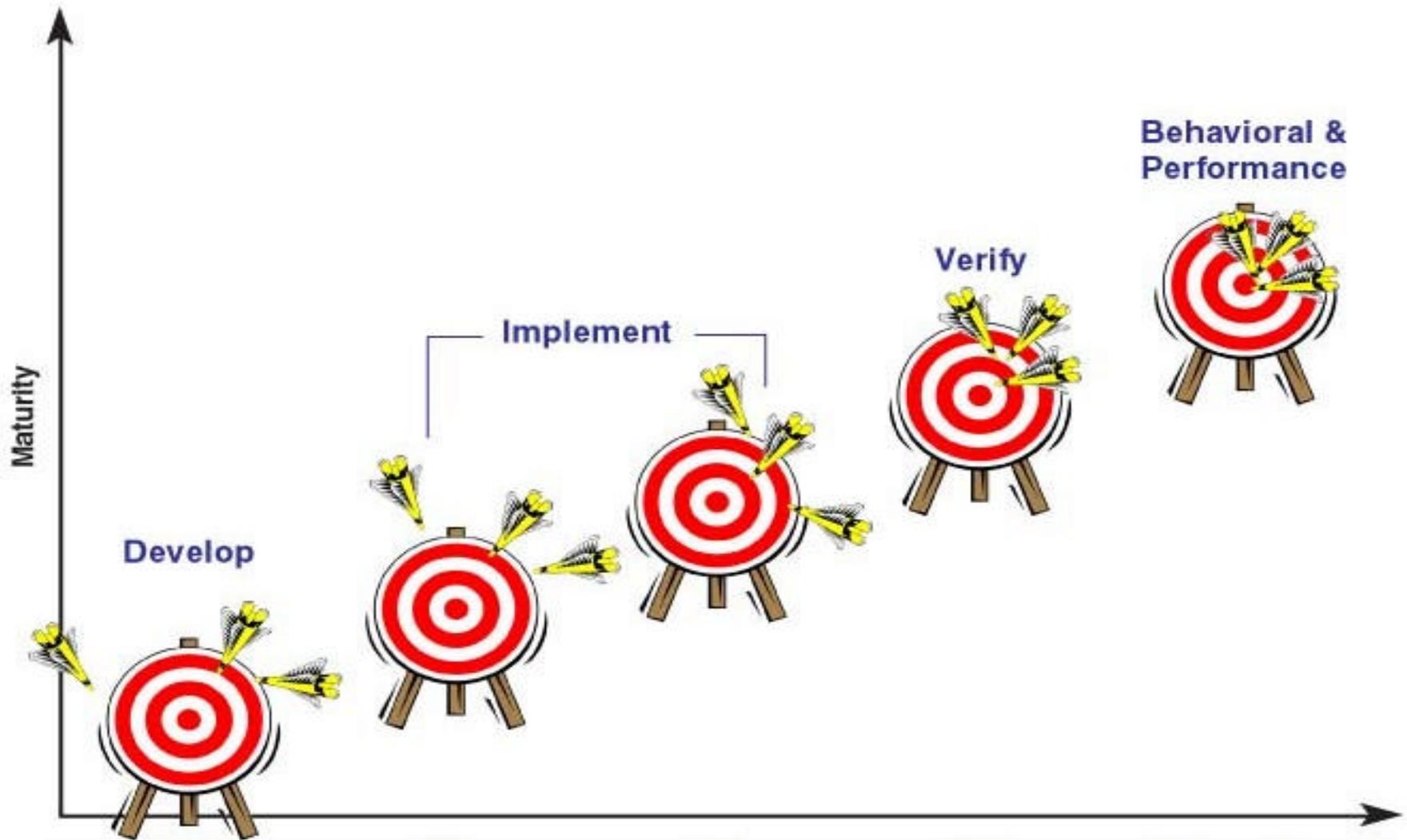
- MS Steward – Associate Lab Director
- MS Point of Contact (POC) – Division Manager
- Responsible for maintaining, assessing and improving MS operation.

Management System Evaluation



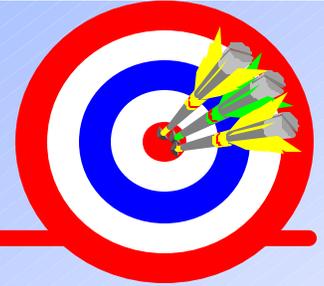
- Evaluating maturity of the MS
- MS Life Cycle
 - Development – design, document
 - Implementation
 - Verification
 - Behavioral Impacts – culture change
 - Performance Results – improvement

THE PHASES OF SYSTEMS MATURITY



Time is based on Vulnerability to BNL

Management System Evaluation



- The process is based on Baldrige
 - Organizations are viewed as systems
 - System maturity is evaluated in terms of Approach/Deployment and Results
 - There is no “Pass/Fail” line
 - A continuum of improvement

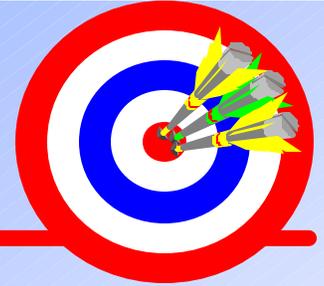
MS Evaluation Process



- **The Quality Office facilitates the process**
 - Works closely with the MS POC
 - Facilitates the evaluation workshop
- **Entire process takes 6-8 weeks**
- **MS Steward/POC is the owner who:**
 1. Establishes cross functional team of stakeholders including the Quality Office and DOE BAO

Large Science - Small Bench Top Science - Operations

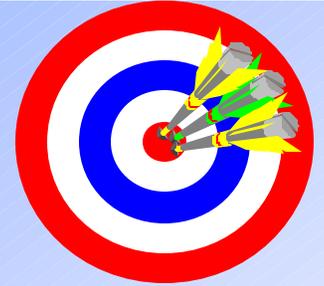
MS Evaluation Process



Continuation....

- **MS Steward/POC is the owner who:**
 2. Develops and distributes an “Information Package” to team
 - Based on standard question set
 - Includes objective evidence
 - Incorporates existing information
 3. Convenes an Evaluation Workshop to discuss the information and score the MS against the criteria.

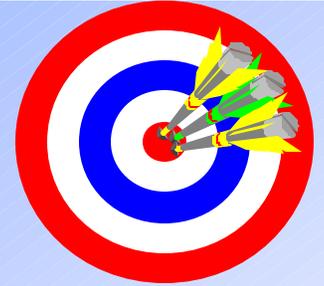
The Three Criteria



1. **Definition:**

- Documentation of the MS, requirements, controls.
- Requirements Management – handling change.
- Alignment/Integration with other laboratory MS, programs, and processes. (R2A2, T & Q, IAP)

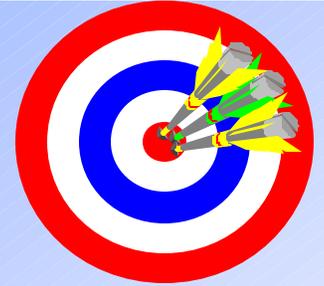
The Three Criteria



2. Implementation:

- Awareness – do people know?
- Implementation – are people doing?
- Indicators of implementation and performance.
- Acceptance Indicators – feedback, planning, decision making.

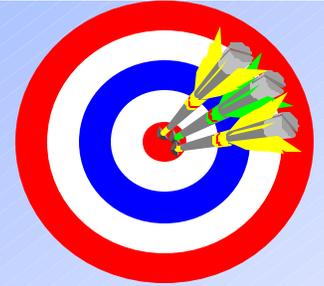
The Three Criteria



3. **Planning, Assessment and Improvement:**

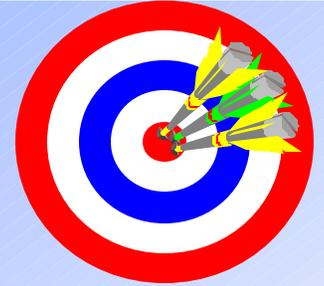
- Planning – ongoing planning effort based on Laboratory initiatives, critical outcomes, past performance, stakeholder input.
- Assessment – systematic process, based on objectives and past performance, comparative analysis if appropriate.
- Improvement – process for prioritizing, tracking improvements; peer review, staff input.

Operational Results



- Quantitative data indicating how the MS is performing –
 - Contract Performance Measures
 - Requirements management
 - Awareness/Training statistics
 - Productivity indicators
 - Customer satisfaction indicators
 - Assessment finding/corrective action trends

MS Evaluation Process



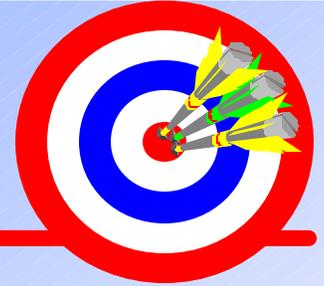
Evaluation Tools:

- Information Package
 - Based on a set of questions that closely reflect the criteria elements.
- MS Evaluation Guide
 - Organized by the 3 criteria.
- Evaluation Workshop
 - Discuss the information provided and use team members' working knowledge of the MS.
 - Develop consensus scores.

MS Evaluation Guide

RANK	DEFINITION	IMPLEMENTATION	PLANNING, ASSESSMENT, and IMPROVEMENT
	<i>Systematic approach to define and manage the processes of the management system.</i>	<i>Implementation status of systematic processes.</i>	<i>Assessment of system performance and improvement processes implemented.</i>
1	Documentation	Awareness	Planning
	Requirements Management	Implementation	Assessment
	Alignment/Integration	Acceptance Indicators	Improvement
2	Documentation	Awareness	Planning
	Requirements Management	Implementation	Assessment
	Alignment	Acceptance Indicators	Improvement
3	Documentation	Awareness	Planning
	Requirements Management	Implementation	Assessment
	Alignment/Integration	Acceptance Indicators	Improvement
4	Documentation	Awareness	Planning
	Requirements Management	Implementation	Assessment
	Alignment/Integration	Acceptance Indicators	Improvement
5	Documentation	Awareness	Planning
	Requirements Management	Implementation	Assessment
	Alignment/Integration	Implementation	Improvement

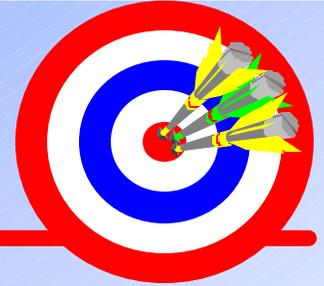
Implementation Question Set



10. Describe the extent to which the processes/activities of the management system are being carried out according to system requirements/subject areas.
 - What are the specific issues preventing Depts/Divs from working within the MS?
 - What are the plans for improving implementation?

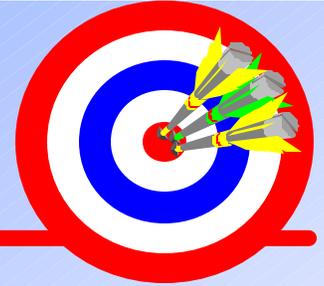
11. How has the implementation of the MS been validated?
 - How confident can the Lab be with the results?

Implementation Question Set



12. Does the MS and its processes interact effectively with related/supporting MS and processes?
 - Describe areas that work well, those that need improvement.

The Evaluation Workshop



- Team of 10-12 cross-functional stakeholders meet for 3-4 hours (facilitated).
- POC makes summary presentation
- Team members discuss the information presented as well as their knowledge of the MS
- Score the MS on each of the 3 criteria using the MS Evaluation Guide.
 - Consensus process
- Develop strengths and areas for improvement.

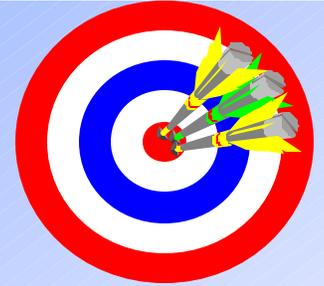
The Evaluation Workshop



Scoring Process

1. Review criteria.
2. Team members discuss criteria and information provided about the MS.
3. Each member determines their score and posts it on a board.
4. Team discusses outliers and develops consensus score.

MS Evaluation Process



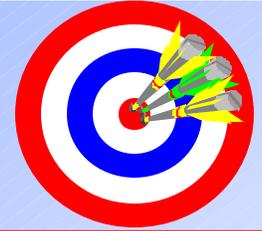
■ Final Product

- Report of the evaluation includes:
 - Description of the evaluation process
 - Team Members
 - Scores
 - Strengths
 - Areas for Improvement
 - Team Feedback on the process
- MS Steward/POC responsible for follow up action on Areas for Improvement.

Scoring Example (Q, 3/2002)

Rank	Definition	Implementation	Plang/Assesst Improvot
1			*
2			* * * * * * * *
3	* * * * * *	* * * * * * * * *	
4	* * *		
5			

Strengths / Areas for Improvement



Overall Strengths

- MS POC have strong grasp of req'ts and initiatives for BNL
- Aggressive approach to implementation across the Lab
- Good integration with other MS

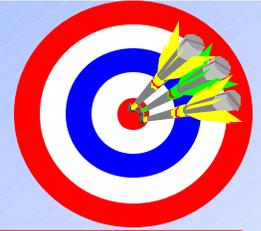
Improvement Areas

- Although there have been external reviews of the QMS, a systematic assessment process not clearly evident.
 - Recognition that recent effort has been on Approach and Implementation

Scoring Example (WP 8/2001)

Rank	Definition	Implementation	Plang/Assesst Improvot
1			
2	* * *		
3	* * *		* * * * * * * * * * * *
4	* * * * * *	* * * * * * * * * * *	
5		*	

Strengths / Areas for Improvement



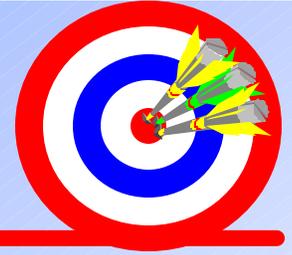
Approach – Strengths:

- Timely revision of documents
- WPC Processes widely recognized throughout the Lab

Approach – Improvements:

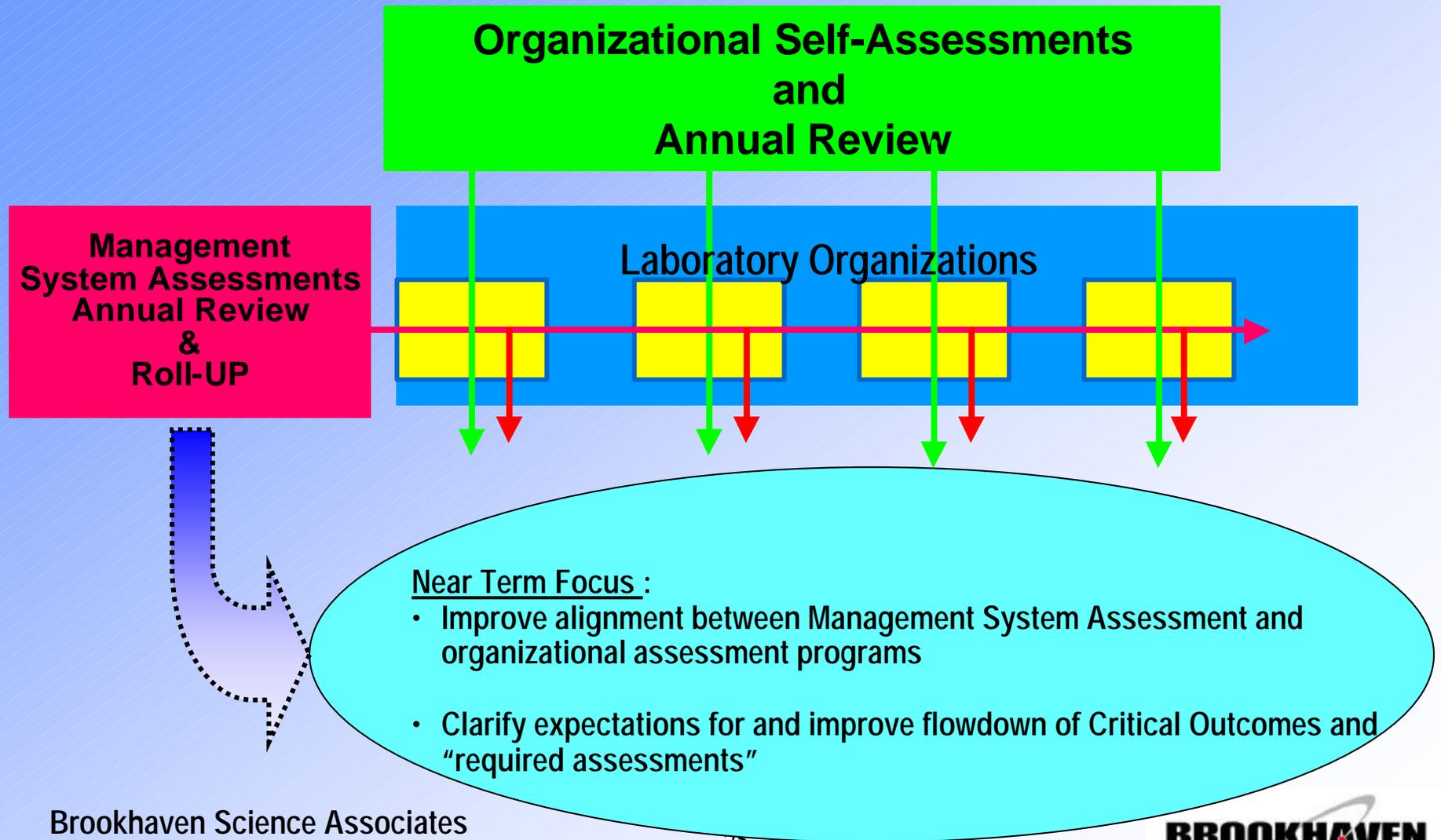
- No generic R2A2 for the ERC
- No reference to, integration with issues RE: minors, control of internal docs, Occ-Med protocols, others
- Contractor/visitor issues need improvement

The Annual Roll-Up

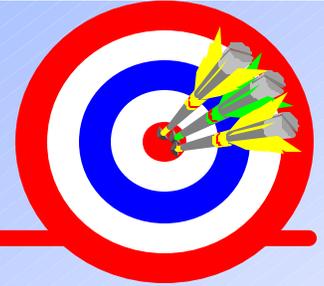


- Summarize BNL Management System Reviews
- Develop & report status to Executive Management
- Target specific Management Systems for a Consensus basis evaluation for the next FY
- Annual revisit of organizational “Required Assessments” with respective Management System Stewards
 - Revise IAP SA before the next planning cycle
- Status SBMS as a process
 - As a Result Annually Plan the next Generation SA’s

Horizontal and Vertical Self-Assessment and Annual Review



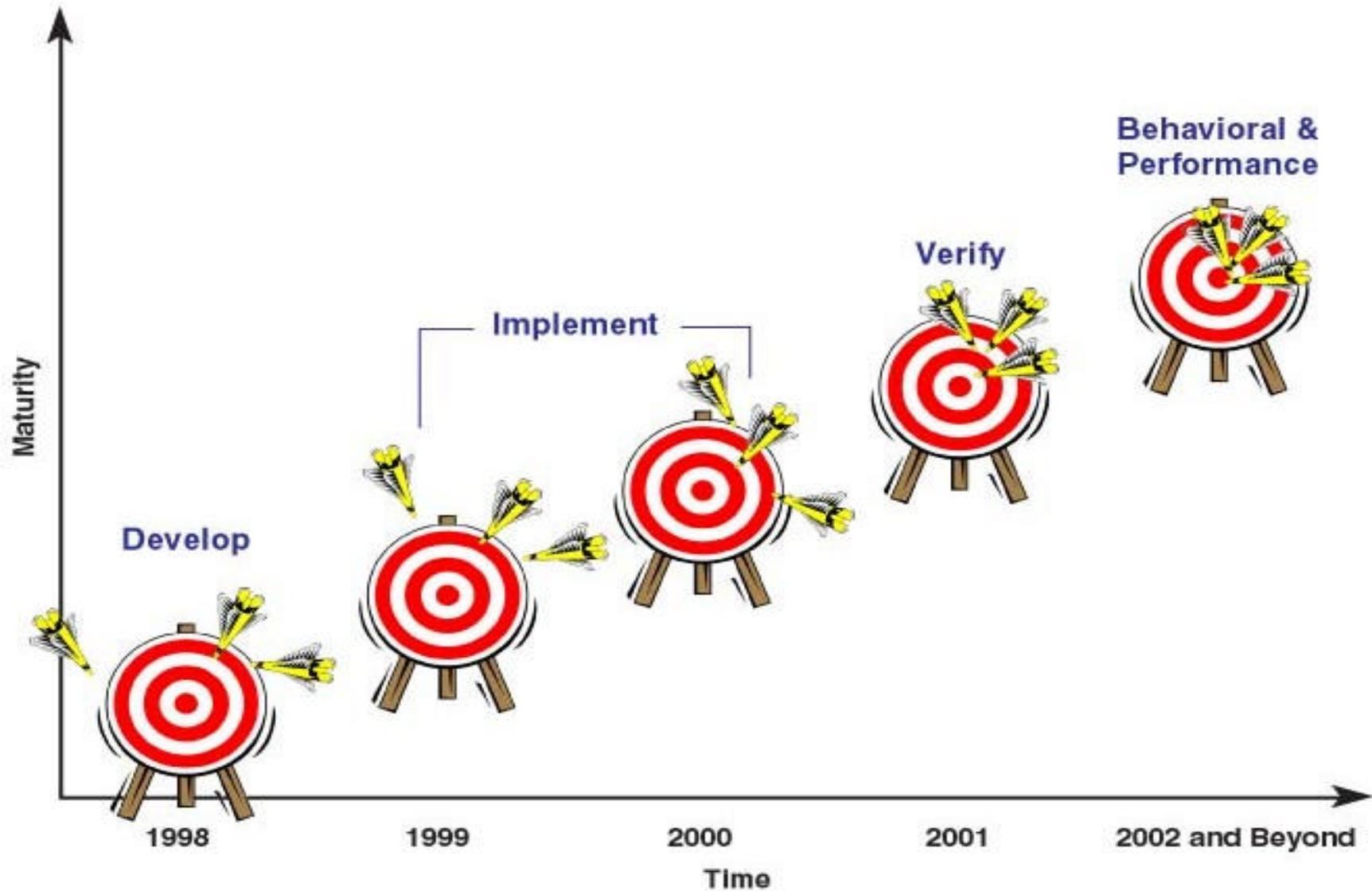
SUMMARY



“Variation is the chief culprit of poor quality”
(Deming)

- The Management Systems approach ensures requirements are documented, flowed to work activities.
- MS Evaluation process is a mechanism for advancing MS through the life cycle.

CONSISTENCY REDUCES VULNERABILITY



Rank	Definition	Implementation	Planning, Assessment, and Improvement
1	<p><u>Documentation:</u></p> <ul style="list-style-type: none"> Key program requirements not defined in lab documents (SBMS or dept/div internal procedures). Guidance/ requirements are largely administered through rogue documents. <p><u>Requirements Management:</u></p> <ul style="list-style-type: none"> Regulatory and contractual requirements generally identified but traceability to Lab implementing documents has not been fully established. (Requirements Management process- see next bullet) Records of Decision (RODs) are not complete for current regulatory and contractual drivers; existing RODs have identified major gaps in system compliance. <p><u>Alignment/Integration:</u></p> <ul style="list-style-type: none"> Alignment with supporting or related laboratory processes is weak. Examples of Integration include the establishment of T&Q requirements, R2A2s 	<p><u>Awareness:</u></p> <ul style="list-style-type: none"> Awareness of program elements by affected /individuals is low. Major gaps exist is the assignment of key system responsibilities within laboratory. T&Q requirements are not met by organizations. <p><u>Implementation:</u></p> <ul style="list-style-type: none"> Early stages of system deployment; major gaps exist. <p><u>Acceptance Indicators:</u></p> <ul style="list-style-type: none"> Feedback if any, on system performance is negative. 	<p><u>Planning:</u></p> <ul style="list-style-type: none"> Systematic planning for system improvement/change does not exist. <p><u>Assessment:</u></p> <ul style="list-style-type: none"> Little evidence of systematic approach to self - assessment and improvement of the processes within the MS. Most information is being obtained from external sources (i.e. external audits, assessments). <p><u>Improvement:</u></p> <ul style="list-style-type: none"> Improvement actions are identified but not necessarily prioritized or tracked to closure.
2	<p><u>Documentation:</u></p> <ul style="list-style-type: none"> Major program requirements are sufficiently defined in SBMS implementing documents. Legacy documents for some processes still in use. <p><u>Requirements Management:</u></p> <ul style="list-style-type: none"> SBMS RODs are completed sufficiently to ensure full conformance with applicable requirements and contractual expectations. Identified gaps are relatively minor. <p><u>Alignment/Integration:</u></p> <ul style="list-style-type: none"> There is evidence of improvement in alignment with other laboratory process. Continued improvement is needed to improve MS effectiveness. 	<p><u>Awareness:</u></p> <ul style="list-style-type: none"> Awareness of program elements by affected /individuals is inconsistent; major gaps still exist. Key system responsibilities have been assigned throughout most of the laboratory. There is evidence that some organizations are fulfilling T&Q requirements. <p><u>Implementation:</u></p> <ul style="list-style-type: none"> Early stages of system deployment. Minor gaps exist, which impact system effectiveness. Some functions of the MS are integrated with related/supporting systems and programs, but improvement is needed. <p><u>Acceptance Indicators:</u></p> <ul style="list-style-type: none"> Feedback on system performance is mixed. Emerging recognition of, and planning for the resource needs of the management system. 	<p><u>Planning</u></p> <ul style="list-style-type: none"> Planning for system improvement/change occurs only sporadically, usually in response to a near term, specific initiative. <p><u>Assessment:</u></p> <ul style="list-style-type: none"> Beginning of routine systematic self-assessment process is in place. Feedback is obtained from internal and external customers. <p><u>Improvement:</u></p> <ul style="list-style-type: none"> Beginning of improvement process is in place, with prioritization and tracking elements. High priority improvements and performance measures have been identified and, as appropriate, captured in the Institutional Plan and Critical Outcome Trees.

	Definition	Implementation	Planning, Assessment, and Improvement
3	<p><u>Documentation:</u></p> <ul style="list-style-type: none"> Program requirements are defined sufficiently to ensure consistent interpretation and efficient deployment across the laboratory. Program requirements have been developed and approved and are being maintained through SBMS processes. <p><u>Requirements Management:</u></p> <ul style="list-style-type: none"> RODs are complete for existing regulations and contractual requirements. There is an awareness of impact of pending changes to regulatory/contractual requirements. Feedback to regulatory bodies occurs routinely. <p><u>Alignment/Integration:</u></p> <ul style="list-style-type: none"> Alignment with supporting processes has been largely established, with only minor inconsistencies. 	<p><u>Awareness</u></p> <ul style="list-style-type: none"> Awareness of system elements by affected organizations is adequate. T&Q requirements are routinely maintained by most organizations. <p><u>Implementation:</u></p> <ul style="list-style-type: none"> Processes are sufficiently deployed to achieve system objectives. <p><u>Acceptance Indicators:</u></p> <ul style="list-style-type: none"> Feedback on process performance is generally favorable and includes constructive opportunities for improvement. There is an understanding of resource requirements and budgeting for the key elements of the system. 	<p><u>Planning</u></p> <ul style="list-style-type: none"> Planning for MS improvement/change occurs regularly and is based on Laboratory near term (1-2 years) initiatives, Critical Outcomes, external drivers and stakeholder input. Resource needs are part of the planning process. <p><u>Assessment:</u></p> <ul style="list-style-type: none"> Routine systematic self-assessment process is in place. Assessment activities are based on system objectives, past performance, and customer expectations and feedback. Self-assessment activities include field observation as well as information from external sources. Information from self-assessment is included in Lessons Learned activities. <p><u>Improvement:</u></p> <ul style="list-style-type: none"> Improvement process well established. Improvement actions are identified and prioritized based on assessment results. Performance measures are based on system objectives, past performance and customer expectations and feedback.
4	<p><u>Documentation:</u></p> <ul style="list-style-type: none"> Major process requirements are fully defined in SBMS. <p><u>Requirements Management</u></p> <ul style="list-style-type: none"> A process exists for the analyzing the impact of pending changes in regulatory and contractual requirements and preparing for their impact ahead of schedule. The MS works effectively with SBMS to make changes to documentation as necessary. <p><u>Alignment/Integration:</u></p> <ul style="list-style-type: none"> High degree of alignment with related laboratory processes has been established. 	<p><u>Awareness:</u></p> <ul style="list-style-type: none"> Awareness of system processes and requirements by depts/divs is good and still improving. T&Q requirements routinely maintained by all depts./divs. <p><u>Implementation:</u></p> <ul style="list-style-type: none"> Processes are consistently deployed across the laboratory. Implementation of the MS functions and their integration with supporting systems/processes has been validated by independent and/or peer review groups. <p><u>Acceptance Indicators:</u></p> <ul style="list-style-type: none"> Feedback from affected organizations is highly favorable. Resource requirements for management system operation are routinely captured in the budget cycle. 	<p><u>Planning</u></p> <ul style="list-style-type: none"> Planning for MS improvement/change occurs regularly and is based on Laboratory Institutional initiatives (2-3 years), Critical Outcomes, external drivers and stakeholder input. Institutional resource needs are part of the planning process. <p><u>Assessment/Improvement:</u></p> <ul style="list-style-type: none"> MS performance is measurable (quantitatively and/or qualitatively): <ul style="list-style-type: none"> Levels of excellence are generally sustained High priority objectives are generally achieved Improvement actions are effectively, efficiently implemented. Follow-up assessments are routinely performed to verify the effectiveness of implemented corrective and improvement actions. Very few recurring findings.

	Definition	Implementation	Planning, Assessment, and Improvement
<p>5</p>	<p><u>Documentation:</u></p> <ul style="list-style-type: none"> All system documentation are routinely reviewed and updated as necessary. No legacy documents exist. <p><u>Requirements Management:</u></p> <ul style="list-style-type: none"> Analysis of the impact of, and preparation for pending changes in regulatory and contractual requirements is highly effective. Laboratory staff involved with regulatory bodies, committees in the development of regulatory /contractual requirements. <p><u>Alignment/Integration:</u></p> <ul style="list-style-type: none"> Any alignment enhancements are considered minor. 	<p><u>Awareness:</u></p> <ul style="list-style-type: none"> Awareness of system requirements and processes is high. <p><u>Implementation:</u></p> <ul style="list-style-type: none"> MS processes fully implemented. Exceptions have minor impact. <p><u>Acceptance Indicators:</u></p> <ul style="list-style-type: none"> Staff initiates improvements Affected organizations are proactively involved in the ongoing development of the MS. 	<p><u>Planning</u></p> <ul style="list-style-type: none"> Planning for MS improvement/change occurs regularly and is aligned with Laboratory Strategic initiatives (5+ years), Critical Outcomes, external drivers and stakeholder input. Institutional resource needs are part of the planning process. <p><u>Assessment/Improvement:</u></p> <ul style="list-style-type: none"> MS performance is measurable (quantitatively and/or qualitatively): <ul style="list-style-type: none"> Levels of excellence are consistently sustained. High priority objectives are consistently achieved.

**MANAGEMENT SYSTEM EVALUATION GUIDE
Instructions for Use**

This evaluation tool is based on the Baldrige National Quality Award scoring system. The specific statements have been changed to reflect the application to BNL's Standards Based Management System, specifically the Management Systems piece of the SBMS approach. The concept of Approach/Definition, Deployment/Implementation, and Assessment, Operational Performance and Improvement reflect the concepts of Approach, Deployment and Results used by Baldrige Examiners. The Rank bands are also based on Baldrige. The objective is for the team to come to a consensus rank for each criterion. The ranking process must be based on objective evidence, but there is room for incorporating subjective judgment based on team members' experience and collective knowledge of system performance. It is important to capture the Areas for Improvement that will move the MS toward full maturity.

Using this Guide to rank management system maturity:

After reviewing information about the management system as provided by the MS POC in the Information Package and incorporating your knowledge of the MS and the points made in the discussion at the MS Evaluation Workshop, evaluate the system against each of the criteria - Definition, Implementation, and Planning, Assessment, and Improvement.

Each team member should evaluate the MS from the perspective of the system's overall performance at the Laboratory level, based on the information supplied in the Information Package and the POC Presentation at the Evaluation Workshop, as well as their individual knowledge based on experience with the MS and the discussion during the Evaluation Workshop.

Tips on scoring: Rank each criterion separately. For each criterion, review the statements in the Rank 3 box. Suggest using check marks next to the statements that are met, and plus signs (+) if the MS exceeds that statement. If the MS does not meet all the statements in the Rank 3 box, move down to Rank 2 and review those statements, again using check marks and plus signs to indicate degree of fulfillment of each statement. If the MS meets all of the statements in the Rank 3 box, move to the Rank 4 box and review those statements. Work your way through the statements up and down along the scale. Use the Notes column to comment on the reasons for your marks. Review the entire sheet, noting where most of the checks and plusses fall. The Rank box containing the most checks and plusses *should* be the Rank. If the marks straddle two ranks, note the what is not satisfied in the lower Rank (Areas for Improvement), what is satisfied in the higher Rank, and determine a single rank.

The goal is to have the team come to a consensus on the rank for each of the three criteria.

If consensus cannot be reached, be sure to record the reasons why team members would not change their ranks.

If ranks are in adjacent boxes (some in Rank 2 some in Rank 3) the differences are probably minor.

If ranks are farther apart, or scattered across a range, the Evaluation Team needs to understand the differences and identify specific Areas for Improvement.

MANAGEMENT SYSTEM EVALUATION QUESTION SET

This question set was developed as part of the Management System Maturity Evaluation process. It is designed to work with the Management System Evaluation Guide. The Management System Steward or Point of Contact is to develop responses to these questions and distribute the Information Package to all members of the Evaluation Team for their review prior to the Evaluation Workshop.

The goal of this question set is to have the MS Stewards/POC create a document that is a summary of the state of the MS – how well it has been defined and implemented, how well it is performing as evidenced through assessments and performance indicators, and how it is being improved. **The information needed to answer the questions should already exist.** A major objective of this process is to base the MS evaluation on a wide variety of activities that BNL uses at the MS, Process and Department/Division level to monitor and measure performance.

The questions are worded to elicit a descriptive answer, not a simple yes or no. The section on Planning, Assessment and Improvement should provide both a description of assessment and improvement processes and a summary of recent assessment and performance results, and improvements.

Responses should be based on, include, or refer to objective evidence (Qualitative or quantitative information, records or statements of fact, based on observations, measurements or tests, which can be verified.) Examples can also be provided to clarify a response.

DESCRIPTION OF MANAGEMENT SYSTEM:

- A. What is the purpose of the management system (MS)?

- B. What is the role of the “Owning” organization for the MS?

- C. What is the role of other Laboratory organizations in deploying the MS?

- D. Who are the key stakeholders of the MS?

- E. What resources are used to define and implement the MS?

- F. What is the MS doing well?

- G. What aspects of the MS need improvement?

H. What are the key obstacles that must be overcome to implement and sustain MS performance?

DEFINITION CRITERIA:

Documentation

1. What are the existing and yet to be developed Subject Areas, Program Descriptions, legacy documents to be retired et.al. - What is the plan/schedule for producing any remaining documentation?

2. Describe the overall approach for ensuring MS documentation is kept current (MS Description, Subject Areas, legacy standards and procedures, et. al.)?

Requirements Management

3. Provide a status of Records of Decision (RODS) applicable to this MS
 - Have all RODS been completed?
 - How many remain to be completed?
 - What is the plan/schedule for completing these?¹
 - How confident is the MS steward of the completeness of the RODs?

4. Describe the process (if any) for analyzing the impact of pending changes in requirements, preparing for these changes in advance, and incorporating the changes into MS documentation. What level of proactive "impact analysis" exists in understanding and preparing for pending changes?

¹ If the MS is not affected by RODs, indicate how the MS is made aware of changes to external requirements. An example is the Acquisition Management System (AMS) where the external driver is the Prime Contract, not agency orders. Contract modifications are not captured in the ROD process, however, the AMS has a process for learning about and analyzing the impact of pending contract mods.

³Include assessment and operational results of the processes and functions within the MS.

Alignment

5. Describe how the requirements of this MS are aligned with supporting/related management systems and processes.
 - Describe any areas that are not aligned. For example, elements of alignment include but are not limited to the identification and establishment of roles and responsibilities (R2A2 Process), training and qualification needs (T&Q MS).
 - What is the relationship of the MS with other MS and Laboratory Programs, for example Inputs and Outputs as delineated in the MS Description.

IMPLEMENTATION CRITERIAAwareness

6. Are responsibilities and accountabilities for key system requirements being carried out as required throughout Laboratory departments and divisions (depts/divs)?
 - How do you know?
7. What responsibilities are not yet assigned and what are the plans for designating the responsibility? In the interim, how is the system meeting these requirements?
8. What methods of communication does the MS Steward use to ensure awareness of the responsible individuals in the Depts/Divs?
 - How is the effectiveness of these communication methods gauged?
9. How are the T&Q requirements defined and maintained by affected employees and contractors?
 - Are the requirements of MS processes (appropriate job functions) included in Job Training Analyses (JTA)?

Implementation/Integration

10. Describe the extent to which the processes/activities of the management system are being carried out according to system requirements/subject areas.
 - What are the specific issues preventing depts/divs from working within the MS?
 - What are the plans for improving implementation?
11. How has the implementation of the MS been validated?
 - How confident can the Lab be with the results?
12. Does the MS and its processes interact effectively with related/supporting MS and processes?
 - Describe areas that work well, those that need improvement.

Acceptance Indicators

13. Describe the processes for periodically seeking feedback from stakeholders.
14. Summarize the feedback received about the system requirements and operation - from customers and other stakeholders.
15. Is unsolicited feedback received, and through what channels?
16. Provide examples where stakeholders have provided recommendations for improvement and describe the involvement of stakeholders in initiating improvements.

PLANNING, ASSESSMENT AND IMPROVEMENT CRITERIAPlanning

17. How are improvement actions identified and prioritized (risks as well as positive impacts)?
 - How are these plans aligned with Laboratory vision, mission, strategies and initiatives?
 - How have stakeholders' input been considered in the planning process?
18. How are high priority improvements incorporated as appropriate into strategic plans, the Institutional Plan, and Critical Outcomes?
19. How are the resource requirements of this MS incorporated into the budgeting process for line organizations?

Assessment

20. Describe the process for assessing MS performance - consider the following:
 - **PLANNING**
 - How is the scope of assessments developed?
 - Are assessments based on high priority system objectives and past performance? If not, what are they based on?
 - How frequently are they performed?
 - Describe "ongoing" and "focused" assessment activities
 - What are the qualifications of those performing the assessments?
 - What external assessment information is obtained? From who? How?
 - **CONDUCT**
 - Describe the assessment approaches (document review, field observations, interviews).
 - How is benchmarking or external comparative analysis performed, if appropriate?
 - How are assessment results documented and communicated?

- ANALYSIS OF RESULTS
 - How are assessment results analyzed?
- IMPROVEMENT ACTION MANAGEMENT
 - How are improvement actions tracked to closure?
 - What follow-up mechanisms is used to insure improvements are effective?
 - How is information from assessments shared - lessons learned activity?

Operational Performance

21. What trends are evident, based on assessment results?
22. Are there any Critical Outcomes related to this MS?
 - If so, what is the performance against those Critical Outcomes?
23. What core indicators are used to gauge the system's effectiveness, efficiency, and productivity?
 - How is the system performing against those indicators?
24. What indicators are used to gauge customer satisfaction?
 - How does the system perform against those indicators?

Improvement

25. What significant improvements to the MS have been accomplished?
26. What do you hope to accomplish in the near future (3-5 years) to improve the overall "maturity" of the MS?