

# Collider-Accelerator Department

## FY 2003 Self-Assessment Report

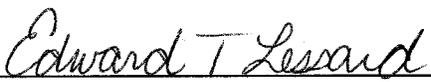
Prepared by:   
David J. Passarello, QA

5/5/04  
Date

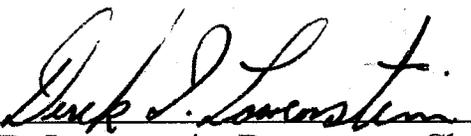
Approved by:

  
R. Karol, Division Head, ESHQ

5/6/04  
Date

  
E. Lessard, Associate Chair for ESHQ

5-6-04  
Date

  
D. Lowenstein, Department Chairman

5/6/04  
Date

## **I. Collider-Accelerator (C-A) Department Mission**

In support of Brookhaven National Laboratory's broad mission of providing excellent science and advanced technology in a safe, environmentally responsible manner the Collider Accelerator Department is committed to the following:

- ❖ Excellence in environmental responsibility and safety in all C-A Department operations.
- ❖ Develop, improve, and operate the suite of proton/heavy ion accelerators used to carry out the program of accelerator-based experiments at BNL.
- ❖ Support the experimental program including design, construction, and operation of the beam transports to the experiments and partial support of detector and research needs of the experiments.
- ❖ Design and construct new accelerator facilities in support of the BNL and National Missions.

## **II. Self-Assessment Program**

The objective of the C-A self-assessment program is to provide a systematic approach to performance management. That is, to provide C-A management with information needed to ensure organizational performance objectives are being met and appropriate improvement actions are identified and implemented.

Supporting information for the objectives of Critical Outcome 1.0, Basic Science & Technology, are reported in the BNL Integrated Information Management System. This system provides the data required for the preparation of BNL Appendix B Self Evaluation Reports.

C-A Self-Assessment supporting documentation; e.g., [Program and Facility](#), [Organization](#), [ESHQ Division](#), [Assessment and Inspection Programs](#), [C-A Environmental Management Program](#), [Authorization Basis Documents](#), [Operations and Procedures Manual](#), [Conduct of Operations Agreement](#), [Training Programs and Associated Records](#) and [Tier 1 Safety Inspections](#), are maintained on the Collider-Accelerator web site.

The C-A Department has adopted a self-assessment framework primarily based on the Malcolm Baldrige National Quality Award Criteria, which are as follows:

- Leadership Commitment and Involvement
- Human Resource Development and Management
- Customer Focus and Satisfaction (Customer Value)
- Process Management
- Business and Operational Results
- Compliance with Laws Regulations and Contractual Requirements

### **1. Evaluation of Objectives and Measures**

For each of the assessment criteria stated above, C-AD has established objectives, strategies, performance measures and indicators where appropriate. Refer to the matrix within this document. A brief summary of C-A performance items, which were not captured in the matrix, is listed below.

a. Occurrence Reports, Nonconformance Reports and Investigations

- Reportable occurrence trends are documented in the [C-A Performance Indicator](#) quarterly reports.
- One Nonconformance Report (NCR) was issued in FY03. It was the result of the internal BNL EMS Assessment. Corrective action was tracked to closure in the C-A Family Assessment Tracking System (ATS).
- As a result of five Radiological Awareness Reports (RAR), five Causal Investigations were performed. When required, recommended corrective/preventative actions were tracked to closure in the C-A Family ATS.
- Thirteen critiques were performed at the direction of C-A ESHQ management. All recommended actions were tracked to closure in the C-A Family ATS.

b. EMS

The ISO 14001 registration audit was conducted July 15 through 19. There were no findings for the C-A Department. ISO 14001 registration is maintained. The C-A Department Review of Occupational Safety and Health (OSH), Environmental (EMS) and Self-Assessment (SA) Management was convened on September 10, 2003. The meeting agenda including discussions on the following topics:

- Critical outcomes and objectives in the contract
- Overview of C-AD programs that impact OSH/EMS/SA
- C-AD OSH/EMS/SA objectives and targets
- Compliance audit results
- Performance versus contract measures
- External and internal assessment of performance
- Review of FY02 Record of Decision and performance
- Injury/illness and environmental performance
- Stakeholder concerns
- OSH and EMS related facility improvements
- Injury/illness and pollution prevention initiatives
- OSH/EMS/SA financial investments
- OSH/EMS/SA evaluation by senior management

c. Assessments

The C-A Department conducted the annual Department Self-Assessment, annual EMS Assessment, annual Environmental Management Review, 24 worker and supervisor self-evaluations, 23 QA assessments, 39 Tier 1 inspections, 52 90-Day Area inspections and 144 inspections of satellite-waste stations. Action items resulting from these internal assessments/reviews were tracked to closure in the C-A Family ATS.

The overall conclusions of these audits were: well written program descriptions, excellent operational procedures, well written and descriptive plans and forms, an excellent commitment by staff and users to the laboratory's policies and an excellent system for control of operations.

d. FY 2003 Self-Assessment Program Action Items

In addition to those items referenced above or outlined in the attached matrix, the implementation of the following items from the C-A FY 2003 Self-Assessment Program were tracked to closure in the C-A Family ATS. Documentation detailing actions taken for each listed item are available upon request.

- BNL to consider the addition of a second Fire Safety Engineer. (ATS 1272.1.4)
- For greater efficiency, individual Department/Division 90-day storage areas should be combined into one 90-day storage located in the Waste Management facility. (ATS 1272.1.4)
- BNL should examine and reduce waste management costs in a manner that reflects the actual cost of efficient waste handling and disposal. (ATS 1272.1.4)
- SBMS should be modified such that external construction projects impacting a Department/Division would require Department/Division active involvement in the design, planning and approval process. (ATS 1272.1.4)
- Continue to ensure environmental impacts of a fire within the C-A facility are submitted with ESH-related or infrastructure-related Activity Data Sheets; especially ADSs related to the fire-detection system. (ATS 1272.1.1)
- Continue to work at defining and allocating resources to remove legacy materials. For example, arrange to dispose of the SREL magnet. (ATS 1272.1.2)
- Meet with the Environmental Restoration Division and review the EE/CA recommendations for the g-2 plume. Close out the Action Memorandum with the EPA by the targeted date. (ATS 1272.1.3)
- Assess implementation of C-A OPM 2.28, C-A Procedure For Enhanced Work Planning, key criteria is worker's perspective of their involvement in work planning and control activities. (2003-153, ATS1686)
- Assess implementation of OPM 13.4.1, Records Management and OPM 13.4.2, Records Index. (2003-168)
- Assess implementation of OPM 13.6.1 Preparation & Issuance of Engineering Drawings /Specs, and OPM 13.6.2 Configuration Management. (2003-157, ATS 1816)

## **2. FY04 Improvement Planning**

The following summarizes the planned improvement activities to be implemented in C-A during FY 2004. The C-A Family ATS will be used to track these actions to closure.

- a. Whereas accidents or near misses occur outside of C-A, lessons learned should be carried down to the workers in order to make C-AD personnel aware of these outside issues and trends. C-AD should integrate outside lessons-learned information into a regular forum that involves interaction with workers. (1887.1.1)
- b. Based on C-A trending analysis, outdoor-grounds hazards were identified as the major cause for worker lost time and first aid cases in 2003. To prevent slips and falls, an improved response to snow-storms is required. Repairing leaks in the roof of B912 and fixing the pot-holes in parking lots and walkways is also required. In addition to bringing these issues forward to upper management, the Department should ensure that sand barrels with shovels and other slip prevention initiatives are in-place prior to the winter season. (1887.1.2)
- c. The Department should continue to conduct quarterly safety awareness events for the staff. Videos similar to "Remember Charlie," town safety-meetings and a question and answer forum for lessons learned should be supported. (1887.1.3)
- d. Continue to streamline and integrate the OSH/EMS/SA management systems. (1887.1.4)
- e. Place water-impermeable membranes over activated soil areas at the Linac. (1887.1.5)
- f. Establish good housekeeping as a condition of employment in C-A. Establish the practice in each C-A Group such that they set aside time each Friday afternoon, before leaving for the weekend, to clean up their work areas and office areas. (1887.1.6)
- g. For the FY04 waste clean-up strategy, clean up the steel and other debris on Railroad Avenue, concentrate on cleaning up "Inner Mongolia," and begin to remove/replace PCB capacitors at Linac. (1887.1.7)
- h. Make personnel who are responsible for facility-altering activities at RHIC aware of NYS Department of Environmental Conservation requirements for a permit under the Wild, Scenic and Recreational River Systems Act. (1887.1.8)
- i. Include information on lost-work related statistics and lessons learned in each monthly issue of the Particle Post. (1887.1.9)
- j. There should be renewed emphasis on fire protection since it impacts safety and routine operations. For example, the aging fire-alarm system is a major concern. Because some fire protection upgrades have started but are proceeding slowly, the Department should encourage Plant Engineering to use an outside supplier to install the new fire alarm system components. (1887.1.10)

### **3. Institutional Improvement Recommendations**

The following lab-wide issues were documented in the C-A Environmental Management Review Record of Decision. The C-A Family ATS will be used to document the status of each recommendation.

- a. Encourage the laboratory to focus on improving the lessons learned process Lab-wide in order to alert personnel to trends or issues that have the potential of creating severe hazards in the workplace. (1887.2.1)
- b. Encourage BNL to standardize the OSH management system lab-wide. Encourage the laboratory to develop a system similar to EMS. (1887.2.2)
- c. Encourage the Laboratory to set high-level objectives for OSH-related facility changes and improvement programs. (1887.2.3)
- d. Encourage the Laboratory to identify an individual responsible for leading the effort on external regulation. (1887.2.4)
- e. Encourage the Laboratory to develop a strategy for preparing technical justifications that demonstrate an equivalent level of safety for facilities that cannot be changed to meet new regulations. This should be done if OSHA and NRC requirements are added to or replace DOE requirements. (1887.2.5)

<i>ASSESSMENT CRITERIA 1: Leadership Commitment and Involvement</i>			
<i>OBJECTIVE:</i> Excellence in environmental responsibility and safety in all Department operations.			
<i>APPROACH:</i> ES&H a) Conduct an EMS management review in accordance with the “Environmental Assessments” Subject Area to ensure the continuing suitability, adequacy and effectiveness of the EMS. b) Successfully undergo the ISO 14001 surveillance audit.			
Measures	Indicators	Responsibility	Schedule/Due Date
Management review completed and “Record of Decision” issued in accordance with the “Environmental Assessments” Subject Area..		EMS Representative	Annual September 2003
<u>Results:</u> (1832.1.1) C-A Department Environmental Management System (EMS) <a href="#">Management Review</a> was convened on September 7, 2003. Environmental Management Review <a href="#">Record of Decision</a> issued on September 26, 2003. Action items are being tracked to closure in the C-A Family ATS. (1887)			
<u>Action Items:</u> None			
Maintain ISO 14001 Registration ISO 14001 surveillance audit performed by third party, ISO 14001 registration maintained.		Associate Chair for ESHQ	Annual June 2003
<u>Results:</u> (1832.1.2) The ISO 14001 registration audit was conducted on July 15 through 19. There were no findings for the C-A Department. ISO 14001 registration maintained.			
<u>Action Items:</u> None			

*ASSESSMENT CRITERIA 2: Human Resource Development and Management*

**OBJECTIVE:**

- 1 Create a pool of talented, empowered, motivated, and goal oriented leaders/managers/workers to support and enhance the C-A competitive position within the DOE laboratory complex.
- 2 Provide a high quality work environment that enhances C-A's ability to retain and attract an excellent workforce.

**APPROACH:**

- 1 Planning for staff development is accomplished via the C-A long-range staffing plan.
- 2 Training is promoted via the C-A Training Plan as described in OPM 1.12, Conduct of Training Policy (Training Plan).
- 3 The overall training strategy is found in two documents:
  - a) [Training Plan Agreement](http://www.rhichome.bnl.gov/AGS/Accel/SND/Training/trainplan.pdf) (<http://www.rhichome.bnl.gov/AGS/Accel/SND/Training/trainplan.pdf>)
  - b) [Training Plan](http://www.rhichome.bnl.gov/AGS/Accel/SND/OPM/Ch01/01-12.PDF) (<http://www.rhichome.bnl.gov/AGS/Accel/SND/OPM/Ch01/01-12.PDF>)
4. Environmental training, which is process specific, may be found at: [Process Specific Training](http://www.rhichome.bnl.gov/AGS/Accel/SND/process_specific_ems_training.htm) ([http://www.rhichome.bnl.gov/AGS/Accel/SND/process\\_specific\\_ems\\_training.htm](http://www.rhichome.bnl.gov/AGS/Accel/SND/process_specific_ems_training.htm))
5. OSH training, which is area specific, may be found at [Facility Specific OSH Training](http://www.agsrhichome.bnl.gov/AGS/Accel/SND/facility_specific_osh_training.htm) ([http://www.agsrhichome.bnl.gov/AGS/Accel/SND/facility\\_specific\\_osh\\_training.htm](http://www.agsrhichome.bnl.gov/AGS/Accel/SND/facility_specific_osh_training.htm))
6. C-A promotes education of its staff through the laboratory reimbursement program for continued college-level education. In addition, C-A encourages and supports its staff to attend technical industrial courses as well as various accelerator and high energy and nuclear physics conferences.
7. Via C-A OPM 9.4.2, Self Evaluations, a self-critical attitude is fostered throughout the department from workers to senior management, this provides the basis for correcting weaknesses as well as promoting best practices. A self-assessment database for action required/completed is maintained by the C-A ES&H/Q Division.
8. Perform periodic assessments to determine adequacy and effectiveness of listed strategies to achieve objective.

Measures	Responsibility	Schedule/Due Date
DOE FY03 Office of Science Performance Plan, Page 243 Increase the number and/or diversity of the applicants for summer internships by 10 percent.	Associate Chair, Operations	September 2003

**Results:**  
(1832.2.3) C-A is not responsible for tracking the number and/or diversity of the summer internship applicants; this is a Laboratory function.

**Action Items:**  
None

DOE FY03 Office of Science Performance Plan, Page 171 The Office of Science will ensure the safety and health of the workforce and members of the public and protection of the environment in all SC program activities.	Associate Chair, ESHQ	September 2003
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Results:  
 (1832.2.4) C-A supported the Office of Science objective to ensure the safety and health of the workforce and members of the public and protection of the environment. We did this by implementing ILO-OSH-2001 and establishing a worker occupational safety and health committee. Injury rates were reduced in 2003, as were spills and waste.

Action Items:  
 None

<p>Training and Qualification (T&amp;Q) Performance</p> <p>Permanent Employees</p> <ol style="list-style-type: none"> <li>1. % of C-A staff linked to job specific training assessments.</li> <li>2. % of T&amp;Q requirements completed by C-A staff</li> </ol> <p>Transient Staff</p> <ol style="list-style-type: none"> <li>1. % of staff linked to job specific training assessments.</li> <li>2. % of T&amp;Q requirements completed by staff</li> </ol>	<p>Training Manager</p>	<p>June 2003 September 2003</p>
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Results:  
 (1832.2.1) Permanent Staff

1. The percentage of permanent staff linked to appropriate JTA's has been maintained at or above 95%.
2. The percentage of permanent staff complete in their training requirements has been maintained at or above 95%.

As of 12/31/03, the percentage of permanent staff complete in their training requirements is at 96%.

(1832.2.2) Transient Staff

The percentage of transient C-AD Guests linked to appropriate JTA's has been maintained at or above 80%.

2. The percentage of transient C-AD Guests complete in their training requirements has been maintained at or above 80%.

As of 12/31/03, the percentage of transient C-AD Guests complete in their training requirements is at 89%.

Action Items:  
 None

<i>ASSESSMENT CRITERIA 3: Customer Focus and Satisfaction (Customer Value)</i>		
<i>OBJECTIVE: Operate the C-A facility in a manner that is responsive to C-A internal and external customer expectations.</i>		
<i>APPROACH:</i>		
<ol style="list-style-type: none"> <li>1. Understanding of customer and market needs is accomplished via discussions, formal proposals and formal agreements between experimenters (users) and C-A staff.</li> <li>2. Stakeholders inquiries related to the operation of the C-A are recorded in the BNL Correspondence and Commitment Tracking System maintained by the Collider-Accelerator Department.</li> <li>3. Support BNL's initiative regarding the BNL Communication and Trust critical outcome.</li> <li>4. Customer and stakeholder expectations are identified in Memoranda of Agreement/Understanding between C-A Operations and the facility users. Integrating user and performance expectations into the C-A management systems is accomplished by setting operational goals, which are documented in OPM 2.1, C-A Operations Organization &amp; Administration.</li> <li>5. The AGS/RHIC Users Committee is a committee that represents the user community in various matters, such as programmatic satisfaction and dissatisfaction, quality of life matters, etc. They communicate both verbally and in writing to the directorate as well as line managers.</li> <li>6. During operations, the weekly Time Meetings allow experimenters to discuss status, identify scheduling priorities, identify user requirements for the up coming week, voice complaints and at the same time, provide easy immediate access to all the C-A resources and staff.</li> <li>7. Perform periodic assessments to determine adequacy and effectiveness of listed strategies to achieve objective.</li> </ol>		
Measures	Responsibility	Schedule/Due Date
Correspondence and Commitment Tracking System being implemented per the BNL SBMS Subject Area.	Office of the Department Chairman.	September 2003
<u>Results:</u> (1832.3.1) Assessment completed on 2/11/04, (2004-175), One minor non-conformance related to listing of BNL Deputy Directors.		
<u>Action Items:</u> Issue was discussed with L. Marascia of CCTS who will review the subject area with the Subject Matter Expert. No further action required by C-A.		

*ASSESSMENT CRITERIA 4: Process Management*

**OBJECTIVE:**  
Establish, maintain and improve C-A processes/procedures for implementing Laboratory and organizational expectations.

**APPROACH:**

- 1 Implement the requirements of BNL SBMS Subject Area Work Planning and Control for Experiments and Operation. C-A OPM 9.2.1, Procedure For Reviewing Environmental, Health and Safety Aspects Of An Experiment ensures C-A complies with BNL requirements for the planning and control of experiments. C-A OPM 2.28, C-A Procedure For Enhanced Work Planning (which includes Stop Work policy) ensures C-A complies with BNL requirements for work planning and control systems as defined in BNL SBMS Subject Area Work Planning and Control for Experiments and Operations. Assessment of the implementation of the C-A work planning process is performed. All EWP systems within C-A shall be reviewed at a frequency specified by the C-A Work Control Manager.
- 2 Implementation of the BNL ES&H programs, including the EMS, and Conduct of Operations is verified via scheduled inspections, audits and C-A management, independent and self-assessments. These programs are documented in OPM Chapter 9 procedures (e.g. Tier I and Self-Evaluations), C-A OPM 13.10.1, Independent Assessments and applicable subject areas. Reports are documented and include a description of the findings, corrective action(s), and identification of responsible individual(s).
- 3 Periodically assess C-A performance for implementation of Laboratory SBMS and internal process. The scope and frequency of assessment areas is based on
  - Importance, status, risk, and complexity of the activity, item or process;
  - Problems encountered with the activity, or item;
  - Scheduling of specific activities;
  - Availability of qualified personnel;
  - A review of findings reported in previous assessments.
 This objective supports those assessments performed in compliance objective.

Measures	Responsibility	Schedule/Due Date
Perform assessment on the C-A implementation of the BNL Management System- Acquisition Management <ul style="list-style-type: none"> <li>• Contract Administration</li> <li>• Procurement Quality (PQ)</li> </ul>	Q Group	Annual 2 <sup>nd</sup> quarter

**Results:**  
(1832.4.2) The Acquisition Management System Self-Assessment for: Contract Administration, submitted by J. Hauser to A. Guadagni on 4/17/03.  
Procurement Quality, submitted by D. Passarello to J. Labas on 6/16/03.  
Results of both assessments were acceptable, documentation on file in the C-A QA Office.

**Action Items:**  
None

Perform assessment on the C-A implementation of the BNL Management System -Environmental Management <ul style="list-style-type: none"> <li>• Regulatory Compliance</li> <li>• EMS Assessments</li> <li>• Management Review</li> </ul> Assessment to be performed in accordance with the “Environmental Assessment” Subject Area and C-A OPM 13.10.1, Independent Assessment.	Q Group	Annual 3 <sup>rd</sup> quarter
<u>Results:</u> (1832.4.2) Assessment was performed in April 2003, assessment number 2003-156, results have been documented and distributed.		
<u>Action Items:</u> None		
Perform assessment on the C-A implementation of the BNL Management System -Facility Operations <ul style="list-style-type: none"> <li>• Building and Facility Management</li> </ul>	Q Group	4 <sup>th</sup> quarter
<u>Results:</u> (1832.4.3) Assessment was performed in September 2003, assessment number 2003-162, results have been documented and distributed.		
<u>Action Items:</u> None		
Perform assessment on the C-A implementation of the BNL Management System -Life Cycle Asset Management <ul style="list-style-type: none"> <li>• Davis-Bacon Act Self-Assessment</li> <li>• Site and Facility Planning, /Development/Management</li> <li>• Maintenance Management</li> </ul>	Q Group	4 <sup>th</sup> quarter
<u>Results:</u> (1832.4.4) Assessment was performed in September 2003, assessment number 2003-162, results have been documented and distributed.		
<u>Action Items:</u> None		

<p>Perform assessment on the C-A implementation of the BNL Management System -Safeguards and Security Management System Core Activities and Requirements including the following areas, as applicable:</p> <ul style="list-style-type: none"> <li>• Site Security Alerts</li> <li>• Property Protection</li> <li>• Operations Security</li> <li>• Visits and Assignments of Foreign Nationals</li> <li>• Material Control and Accountability</li> <li>• Foreign Travel</li> <li>• Limited Areas</li> <li>• Property Protection Areas</li> <li>• Classified Computer Security</li> </ul>	<p>Q Group</p>	<p>4<sup>th</sup> quarter</p>
<p><u>Results:</u> (1832.4.5) Assessment was performed in May 2003, assessment number 2003-155, results have been documented and distributed.</p> <p><u>Action Items:</u> None</p>		
<p>Perform assessment on the C-A implementation of the BNL Management System -Worker Safety and Health</p> <ul style="list-style-type: none"> <li>• Department ESH Inspections (Tier 1s)</li> <li>• OSHA Roll-Up</li> <li>• Occupational Injury Management</li> <li>• Lockout/Tagout</li> </ul>	<p>Q Group</p>	<p>4<sup>th</sup> quarter</p>
<p><u>Results:</u> (1832.4.6) Worker Safety and Health Required Assessment Aid was submitted for each of the areas of concern.</p> <p><u>Action Items:</u> Closure was recorded in ATS 1514.4</p>		

ASSESSMENT CRITERIA 5: Business and Operational Results		
<p><b>OBJECTIVE:</b></p> <ol style="list-style-type: none"> <li>1 Design and construct new accelerator facilities in support of the BNL and national missions.</li> <li>2 Operational               <ol style="list-style-type: none"> <li>a) Operate and improve the suite of proton/heavy ion accelerators and beam transports used to carry out the program of accelerator-based experiments at BNL thus supporting the research mission of the laboratory's user population.</li> <li>b) Support the experimental program including design, construction, and operation of the beam transports to the experiments plus partial support of detector and research needs of the experiments.</li> </ol> </li> </ol>		
<p><b>APPROACH:</b></p> <ol style="list-style-type: none"> <li>1 Report construction and operational progress/status to senior management at a frequency established by department/project management.</li> <li>2 Operational:               <ol style="list-style-type: none"> <li>a) The C-A mission is defined in Field Work Proposals (FWP), Conceptual Design Reports and Project Management Plans.</li> <li>b) Changes and upgrades to the accelerators are described in the Accelerator Improvement Projects.</li> </ol> </li> </ol>		
Measures	Responsibility	Schedule/Due Date
<p>Critical Outcome 1.0 Basic Science &amp; Technology: Objective 1.3 Success in Constructing and Operating Research Facilities</p> <ol style="list-style-type: none"> <li>1. C-A Operations per <a href="#">FY03 Schedule</a> and the accelerator performance meets the operational goals as specified in the FY 2003 Field Work Proposal.</li> </ol>	Associate Chair, Accelerators	September 2003
<p><b>Results:</b> (1832.5.1) C-A research facility operated as scheduled and significantly exceeded minimum integrated luminosity performance goals.</p> <p><b>Action Items:</b> None</p>		
<p>DOE FY03 Office of Science Performance Plan, Page 171 The SC scientific user facilities will be operated and maintained so that unscheduled operational downtime will be kept to less than 10%, on average, of total scheduled operating time. SC's operation of major scientific facilities has ensured that a growing number of U.S. scientists have reliable access to those important facilities.</p>	Associate Chair, Accelerators	September 2003
<p><b>Results:</b> (1832.5.2) The Collider Accelerator Department accelerators are operated such that unscheduled operational downtime is kept to a minimum. Averaged over fiscal year 2003, unscheduled downtime amounted to twelve percent of the total hours.</p> <p><b>Action Items:</b> None</p>		

DOE FY03 Office of Science Performance Plan, Page 187 Collect first data with polarized protons with the Solenoid Tracker RHIC (STAR), Pioneering High Energy Nuclear Interacting Experiment (PHENIX), and pp2pp detectors.	Associate Chair, ES&F	September 2003
<p><u>Results:</u>          (1832.5.3) History:          24 March 2003: RHIC setup for polarized protons begins.          3 May 2003: began 100 GeVx100 GeV polarized proton physics run for Star, Phenix, Brahms and Phobos.          19 May 2003: began dedicated for pp2pp experiment.          21 May 2003: end pp2pp run (successful polarized proton data collection run), resume pp for other 4 experiments.          23 May 2003: end Brahms and Phobos (successful data collection, primarily for pp comparison with HI data), continue pp run with Star and Phenix.          30 May 2003: end RHIC polarized proton run (very successful polarized proton data collection run), begin RHIC shutdown.</p> <p><u>Action Items:</u>          None</p>		
DOE FY03 Office of Science Performance Plan, Page 189 Initiate first round of experiments with collisions with other ions to compare to results of gold-gold collisions.	Associate Chair, Accelerators	September 2003
<p><u>Results:</u>          (1832.5.4) First operation of RHIC with deuteron-gold collisions was successfully completed and comparison of the data with gold-gold collisions confirmed the production of “hot, dense nuclear matter” in heavy ion collisions at RHIC.</p> <p><u>Action Items:</u>          None</p>		
DOE FY03 Office of Science Performance Plan, Page 189 Upgrade the RHIC cryogenics system by replacing turbine oil skids and removing the seal gas compressor, eliminating a single point failure.	Associate Chair, Operations	September 2003
<p><u>Results:</u>          (1832.5.5) Project is complete. Eliminated single point seal gas compressor failure by installing redundant system. Objective Evidence on file with Andrew McNerney from the C-A division.</p> <p><u>Action Items:</u>          None</p>		
DOE FY03 Office of Science Performance Plan, Page 193 Meet the cost and schedule milestones for construction of facilities and Major Items of Equipment within 10 percent of baseline estimates. Complete the Solenoidal Tracker at RHIC (STAR) Electro-Magnetic Calorimeter (EMCAL).	Associate Chair, Accelerators	September 2003

<p><u>Results:</u> (1832.5.6) Milestones were met within C-AD.</p> <p><u>Action Items:</u> None</p>		
DOE FY03 Office of Science Performance Plan, Page194 NASA facility to be completed in FY 2003. This facility shall use heavy-ion beams from the Booster Synchrotron at RHIC/BNL for studying radiation effects in conjunction with possible future travel to Mars.	Associate Chair, Operations	September 2003
<p><u>Results:</u> (1832.5.7) The Facility was completed on June 30,2003. It commenced routine operations on July 7,2003. Objective Evidence on file with Andrew McNerney from the C-A division.</p> <p><u>Action Items:</u> None</p>		
DOE FY03 Office of Science Performance Plan, Page 217 Continue construction of the SNS, meeting the cost and timetables within 10 percent of the baselines given in the construction project data sheet, Project Number 99-E-334. At the end of FY 2003, construction of the SNS will be 61 percent complete.	Senior Team Leader, SNS	September 2003
<p><u>Results:</u> (1832.5.8) At the end of FY2003, the construction of the SNS was 76.5% complete.</p> <p><u>Action Items:</u> None</p>		
DOE FY03 Office of Science Performance Plan, Page 235 Keep deviations in weeks of operation for each major facility within 10 percent of the approved plan.	Associate Chair, Accelerators	September 2003
<p><u>Results:</u> (1832.5.9) Operations of C-A major facilities was within 10 percent of approved schedule, e.g. the total number of cryo-operation weeks during FY 2003 was 31 – 2 weeks more than the 29 scheduled weeks.</p> <p><u>Action Items:</u> None</p>		

<i>ASSESSMENT CRITERIA 6: Compliance with Laws Regulations and Contractual Requirements</i>		
<i>OBJECTIVE:</i> Maintain compliance with applicable BNL regulations and contractual expectations.		
<i>APPROACH</i> 1 Compliance requirements are communicated to C-A staff through participation on Laboratory committees, Laboratory Work Groups and through the SBMS. Senior C-A Electrical Engineers and senior C-A staff participate on the Laboratory Electrical Planning Committee, Laboratory Environmental, Health and Safety Committee, Radiation Protection Working Group, Environmental Management System Implementation Group, and Laboratory Electrical Safety Committee, all of which meet regularly. 2 In accordance with the BNL EMS, a regulatory compliance assessment, environmental management review, and EMS assessment shall be performed annually. a) Ensuring compliance to applicable requirements is addressed via scheduled inspections, audits and C-A management, independent and self-assessments. These programs are documented in the C-A OPM, and applicable subject areas. Reports are documented and include a description of the findings, corrective action(s), and identification of responsible individual(s). A general index of C-A ESHQ programs can be found at <a href="http://server.rhichome.bnl.gov/SND/indexoftopics.htm">http://server.rhichome.bnl.gov/SND/indexoftopics.htm</a> . 3 Perform periodic assessments to determine adequacy and effectiveness of listed strategies to achieve objective.		
Measures	Responsibility	Schedule/Due Date
C-A Environmental Compliance Representative (ECR) performs annual reviews of C-A's compliance with regulatory requirements; including <ul style="list-style-type: none"> <li>• Air emissions (radioactive and non-radioactive; i.e. Clean Air Act and NESHAPs). Include at least one sample of target cave air (during operations with beam) in each cave, which sees beam during the calendar year. This includes reporting of air sampling results to EPA Region II.</li> <li>• PCB Management</li> </ul>	C-A Environmental Compliance Representative (ECR)	Annual May 2003
<u>Results:</u> (1832.6.1) Required actions are complete, documentation on file with C-A ECR. Air emission sample taken 1/6/03 @ 1010 (10GE2) and PCB list has been updated.  <u>Action Items:</u> None		
Ensure that groundwater samples are collected and analyzed, documented and results are reported in a timely fashion back to C-A, results are reviewed to ensure that they meet expected trends.	C-A Environmental Compliance Representative	Quarterly
<u>Results:</u> (1832.6.2) Samples routinely taken and results on file. Environmental Services Point of Contact is D. Paquette.  <u>Action Items:</u> None		
Prepare and submit an updated listing of Satellite Accumulation Areas and communicate to Waste Management Division. Inspect and maintain any necessary records of Satellite Accumulation Areas.	Environmental Coordinator	Annual September 2003

<p><u>Results:</u> (1832.6.3) Routinely done. Latest list of satellite Accumulation Areas is with the C-A Environmental Coordinator and WM.</p> <p><u>Action Items:</u> None</p>		
Develop an annual waste forecast and track waste generation on a quarterly basis. The C-A Environmental Coordinator shall review wastes and disposal pathways during the Work Planning Process. The Department shall bring forward to upper management the lab-wide issue of examining and reducing waste management costs in a manner that reflects the actual cost of efficient waste handling and disposal.	Environmental Coordinator	Annual July 2003
<p><u>Results:</u> (1832.6.4) Routinely done. WM asks for that forecast bi-annually, has been submitted for 04 and was submitted for 03.</p> <p><u>Action Items:</u> None</p>		
Review all emission points for compliance, documentation, and forward any updates to the ESD Subject Matter Expert	C-A Environmental Compliance Representative	Annual March 2003
<p><u>Results:</u> (1832.6.5) Title V review completed in March of 2003.</p> <p><u>Action Items:</u> None</p>		
Audit to verify that applicable procedures are being followed.	QA Group	Annual September 2003
<p><u>Results:</u> (1832.6.6) The EMS, OSH and Conduct of Operation programs within C-A are assessed on a scheduled and on an “as needed” basis. Assessments are documented and distributed to appropriate individuals, collective actions are tracked to closure in the C-A Family ATS.</p> <p><u>Action Items:</u> None</p>		
Ensure that operational procedures are in place to respond to spills and that the procedures are in accordance to applicable subject areas.	ESHQ Division Head	Annual September 2003
<p><u>Results:</u> (1832.6.7) Current C-AD OPMs address the SBMS requirements.</p> <p><u>Action Items:</u> None</p>		

Set a goal of zero reportable spills and track performance and report performance via the EMS management review.	ESHQ Division Head	Annual September 2003
<u>Results:</u> (1832.6.8) Spills were tracked as per ESD requirements by the CA-D ECR. The results were reported to management during the 2003 Management Review in September 2003. We had one reportable spill on C-AD property this reporting period at Building 958 during NSRL construction (0.5 gal of hydraulic oil spilled from a construction vehicle in May 2002). This was an improvement from 4 reportable spills in 2001.		
<u>Action Items:</u> None		
Prepare and submit quarterly reports that track non-routine waste amounts and costs for disposal.	Environmental Coordinator	Quarterly
<u>Results:</u> (1832.6.9) Routinely done. From WM C-A gets a quarterly report. Also to P. Cirnigliaro for performance indicators. This action item is the same as 1832.6.10.		
<u>Action Items:</u>		
Maintain records and report on non-routine waste generated and cost of disposal.	Environmental Coordinator	Quarterly
<u>Results:</u> (1832.6.10) List of items removed on file with C-A Environmental Coordinator. Costs not fully funded yet.		
<u>Action Items:</u> None		
Review all experiments, accelerator modifications, and work planning for compliance to SPDES permit requirements Generate and maintain approvals for release of liquid effluents not specifically authorized by the Liquid Effluent SA.	C-A Environmental Compliance Representative	Annual
<u>Results:</u> (1832.6.11) Required actions are complete, documentation on file with C-A ECR.		
<u>Action Items:</u> None		
Complete actions to achieve Article 12 conformance.	C-A Environmental Compliance Representative	Annual June 2003
<u>Results:</u> (1832.6.12) per M. VanEssendelft, 9/16/03, this is an on going task performed by the C-A ECR.		
<u>Action Items:</u> None		
Prepare a Water Systems Monitoring Plan for C-A Water Systems.	C-A Environmental Compliance Representative	December 2002

<p><u>Results:</u> (1832.6.13) per M. VanEssendelft, 9/16/03, required action was completed on 5/13/03, documentation on file with C-A ECR.</p> <p><u>Action Items:</u> None</p>		
Develop procedures for compliance to the SA inspections and implement them with the appropriate line organization supervisors.	Environmental Coordinator and C-A Environmental Compliance Representative	Annual October 2002
<p><u>Results:</u> (1832.6.14) OPM 1.14, General Requirements for Liquid Storage and Outdoor Storage Tanks, revised to include tank and outdoor storage area inspections.</p> <p><u>Action Items:</u> None</p>		
Ensure that all identified tanks are registered and appropriately labeled and maintain an up to date listing of C-A registered tanks.	C-A Environmental Compliance Representative	Annual April 2003
<p><u>Results:</u> (1832.6.15) Tank labeling and inspections are complete. Documentation on file with ECR.</p> <p><u>Action Items:</u> None</p>		
Facilitate and participate in applicable assessments and complete Compliance Assessment Cards in accordance with the Environmental Assessments SA.	QA Office and C-A Environmental Compliance Representative	Annual June 2003
<p><u>Results:</u> (1832.6.16) This task is completed.</p> <p><u>Action Items:</u> None</p>		
Facilitate and participate in Spill Response assessment and complete Compliance Assessment Cards in accordance with the Environmental Assessments SA.	QA Office and C-A Environmental Compliance Representative	Annual March 2003
<p><u>Results:</u> (1832.6.17) This task is completed.</p> <p><u>Action Items:</u> None</p>		

Maintain records and report progress against waste goals and, where appropriate, suggest P2 opportunities.	Environmental Coordinator	Quarterly
<p><u>Results:</u> (1832.6.18) Routinely done. Records available at all times. WM puts out a quarterly report on allocations and amounts per quarter used. It is reviewed by C-A quarterly. P-2 opportunities are submitted yearly.</p> <p><u>Action Items:</u> None</p>		
Soil caps maintained and inspected as required.	ES&F Division	Annual
<p><u>Results:</u> (1832.6.19) Soil cap inspections are complete and up to date.</p> <p><u>Action Items:</u> None</p>		
Work with ERD to review and determine best method to deal with g-2 tritiated plume (EE/CA).	ESHQ Division Head	March 2003
<p><u>Results:</u> (1832.6.20) R. Karol, 1/5/04, Closure statement is as follows: E&amp;WMSD issued the following report and sent to regulators:  "Brookhaven National Laboratory g-2 Tritium Plume - AOC 16T Engineering Evaluation/Cost Analysis, December 2003."  Meetings with the CAC are scheduled and public participation will be involved. The recommended alternative is to monitor the tritium plume as it naturally attenuates and use the existing HFBR pumping station at Princeton Avenue in the future, if needed to ensure that the plume will be less than the DWS as it leaves the BNL southern boundary in about 25 years. Objective Evidence on file with Ray Karol and Ed Lessard from the C-AD division and E&amp;WMSD.</p> <p><u>Action Items:</u> None</p>		
Evaluate the potential for soil activation and rainwater infiltration to cause groundwater contamination greater than 5% of DWS at the Linac Beam Stops (4), Blip-Y, and AGS H-Areas. Develop plan for engineering controls, as needed.	ESHQ Division Head	July 2003
<p><u>Results:</u> (1832.6.21) Due to shift of funds and shut down schedule, revise due date from 12/15/03 to 9/01/04.</p> <p><u>Action Items:</u> Include this action item in the 2004 Self Assessment Plan</p>		

<p>Radiological Control Excellence: C-A Collective Dose Goal for FY 03 is 17.5 person-rem This was the recommended dose goal as stated in memorandum "Proposed C-A FY 2003 Collective Dose Goal", dated 10/24/2002.</p>	Associate Chair for ESHQ	Quarterly (Performance Indicator)
<p><u>Results:</u> (1832.6.22) The C-A Collective Dose Goal for FY 03 was 4.4 person-rem.</p> <p><u>Action Items:</u> None</p>		
Periodically measure all radionuclides that could contribute at least 10% of the potential effective dose equivalent for the effluent source.	Radiation Control	Annual
<p><u>Results:</u> (1832.6.23) Solid, Liquid and Airborne effluents are routinely surveyed/ sampled to verify compliance with regulatory documents. These surveys and samples are programmatic in nature and are an integral part of the Radiation Protection Program (RPP) at C-AD and BNL. No additional Objective Evidence provided.</p> <p><u>Action Items:</u> None</p>		
<p>Measure 3.2.2.3 - OSHA Reportable Injury Management Lost Workday Case Rate(LWCR) CY 03 Goal = &lt;.6</p>	Associate Chair for ESHQ	Quarterly (Performance Indicator)
<p><u>Results:</u> (1832.6.24) FY 03 LWCR was .49.</p> <p><u>Action Items:</u> None</p>		
<p>Measure 3.2.2.1 Pollution Prevention Verify that C-A is actively involved in the BNL Pollution Prevention Program . i.e. by submitting at least two pollution prevention project proposals to the P2 Council and/or two success stories and/or lesson learned stories, include the construction of the BAF in accordance with Article 12 requirements</p>	Associate Chair for ESHQ and C-A Environmental Compliance Representative	Annual May 2003

<p><u>Results:</u> (1832.6.25) C-A is actively involved in the BNL Pollution Prevention Program and has submitted two pollution prevention project proposals.</p> <p>Proposal 1 Digital Imaging at NSRL to Replace Wet Photography</p> <p>Current imaging capabilities of the NSRL rely on standard wet chemistry photographic processes. These processes utilize toxic chemicals and result in generation of hazardous waste. Additionally, generation and accumulation of hazardous waste and contaminated rinse waters is highly regulated and subjects the Laboratory to potential violations. The digital imaging technology proposed eliminates all these problems, while enhancing scientific capabilities.</p> <p>Proposal 2 Soil Coupon Program</p> <p>C-AD placed soil samples near targets, beam stops and other known beam loss locations so that soil activation levels can be routinely measured. Should the sample show unusual levels, then corrective actions or beam adjustments can be taken. Additionally, the samples help rule in or rule out contributions to unusual monitoring well results.</p> <p><u>Action Items:</u> None</p>		
Perform tank inspections in accordance with applicable procedures and maintain documentation of inspections	Cryogenics System Supervisor	January 2003
<p><u>Results:</u> (1832.6.26) There is currently no set inspection schedule for the cryo process piping or tanks, however: Regular walkthroughs, as a part of daily rounds, include visual inspection of cryogenic valve boxes at all service building, the main cryogenic refrigerator, and it's associated compressor system. Relief valves on pressure vessels in the main refrigerator and compressor room are recertified in accordance with applicable code. A program is in place to paint all piping and pressure vessels subject to corrosion. Areas have been prioritized and critical locations have been completed. The program is expected to continue over the next several shutdowns.</p> <p>A more formalized inspection program, based on the National Board Inspection Code will be implemented for the FY'05 RHIC experimental physics run.</p> <p><u>Action Items:</u> None</p>		
Track the number of unusual or off normal events associated with groundwater impacts in current operations	ESHQ Division Head	Quarterly
<p><u>Results:</u> (1832.6.27) C-AD has not had any ORPS reportable groundwater problems since April of 2000.</p> <p><u>Action Items:</u> None</p>		
Pursue High Return on Investment (ROI) P2 funding from DOE for installation of additional ozone water treatment system for RHIC STAR cooling tower.	ESHQ Division Head/ C-A Environmental Compliance Representative	Not funded

<p><u>Results:</u> (1832.6.28) Due to a lack of BNL funds available for P2 projects, this will be reviewed for next years projects.</p> <p><u>Action Items:</u> Include this action item in the 2004 Self Assessment Plan.</p>		
Proceed with connection of RHIC tower blow-down to storm water system and control blow-down to minimize local erosion	Water System Group Leader	In Progress
<p><u>Results:</u> (1832.6.29) The original blow down line went directly into the storm drain area in the middle of RHIC. The blow down was re-routed to pass through the water monitoring sight at 8:00 o'clock. This site also handles the tower blow down water from Star and Phenix as well. Gary Barnett, Plant Engineering, completed this work last year. Objective Evidence on file with Gary Barnett from the BNL Plant Engineering division.</p> <p><u>Action Items:</u> None</p>		
Perform planned upgrades to C-A water systems in accordance with ADS # 0007 and track progress.	Water System Group Leader	In Progress
<p><u>Results:</u> (1832.6.30) This is an ongoing program that started 3 years ago. There are many subtasks or efforts that pertain. This program is incrementally funded and will continue for at least 3 more years with any additions. Objective evidence is on file with the Water Systems Group Leader.</p> <p><u>Action Items:</u> None</p>		
Audit systems, whose failure could create a significant environmental impact, to ensure that maintenance is adequate and performed to appropriate schedules. Audits shall include, but not be limited to fire protection system maintenance, activated water system monitoring equipment/alarms	QA Office	Annual April 2003
<p><u>Results:</u> (1832.6.31) The EMS, OSH and Conduct of Operation programs within C-A are assessed on a scheduled and on an "as needed" basis. Assessments are documented and distributed to appropriate individuals, collective actions are tracked to closure in the C-A Family ATS.</p> <p><u>Action Items:</u> None</p>		