Collider Accelerator Department
Building 911A - P.O. Box 5000
Upton, NY 11973-5000
Phone 631344 4640
Fax 631 344 5676
savage@bnl.gov

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

Memo

Date: June 12, 2003

To: D.I. Lowenstein

From: R. Savage

Subject: **Assessment of ISO 14001 EMS Implementation Collider-Accelerator Department**

Date of Audit: May 13 & 14, 2003

Objective: This assessment was conducted to determine the conformance of Collider Accelerator Department's (C-A) Environmental Management System (EMS) to ISO 14001 and the effectiveness of its implementation in preparation for the upcoming NSF registration audit. Nine elements of ISO 14001 were covered, however not all procedures and processes supporting CA's EMS were reviewed. The results of this audit are documented in the "Collider-Accelerator EMS Assessment ISO 14001". The "Collider-Accelerator EMS Assessment ISO 14001" and supporting documentation are on file in the C-A Quality Assurance office.

Scope: Collider-Accelerator Department

Auditors: Four auditors conducted the audit:
(1) Rich Savage (QPSO) lead auditor
(2) Mark Davis (ESD)
(3) Michael Gaffney (SHSD)
(4) Jessica Wilke (QPSO)

Summary: The C-A Department EMS conforms to the standards of ISO 14000:1996 for the 9 elements assessed within the scope of this audit. The EMS is effectively implemented throughout each level of the organization, with strong managerial support that includes funding for EMS related projects. The ESHQ Key Contacts and Operational Personnel interviewed are well informed and have made good efforts in keeping their

staff informed. The C-A staff has strong Management support for achieving EMS objectives and targets, which have been successfully integrated into their everyday activities through Operating Procedures and the Work Planning and Control Process.

This audit identified 2 Opportunities for Improvement and 5 noteworthy practices. The 5 observations identified during the 2002 EMS Assessment were reviewed and found that corrective and preventive measures were taken to close the noted concerns.

Opportunity for Improvement:
The following two recommendations to management were identified during this audit. Both recommendations are not considered to be a finding or observation but rather a suggested means of fulfilling the intent of a procedural requirement.

(1) During next year's Environmental Management Program Procedures review process; it is recommended that management consider using bullets instead of letter characters that identifies the department's objectives, targets and tasks, which presently may be misinterpreted.

(2) In June 2002, C-A enhanced the procedure revision process by adding a section to the new/revised/cancel procedure form that requests the initiator of the proposed procedure revision to include the "Reason for the Revision". Even though this practice is being implemented, the procedural step is not identified in the procedure for implementing New or Revised Permanent Procedures (OPM 1.4.3). It is recommended that management consider revising this OPM to include this practice.

Noteworthy Practices:
The following five noteworthy practices were identified during the course of the audit.

(1) The EMS Management Review process continues to evolve by adding self-assessment tasks and Safety and Health objectives this year.

(2) Cryogenics Group continuing striving to reduce energy consumption and helium loss/usage through component replacement with better design features and operating modes. While cost driven, these reduction improvements also ultimately reduce overall energy usage and emissions.

(3) Tickler cards being used to assist personnel with tracking and/or monitoring EMS objectives and targets completion date status.

(4) Waste minimization efforts to track, recycle and reuse materials (e.g. cables, cable trays, lead bricks) during beamline disassembly activities are being implemented.

(5) Management support of EMS by pursuing funding for disposal of legacy wastes.

Audit Interviews: The auditors interviewed the following C-A personnel: C. Carlson, J. deBoer, R. Grandinetti, E. Lessard, D. Passarello, A. Pendzick, J. Scott, M.Van Essendelft, L. Vogt and A. Warkentien.

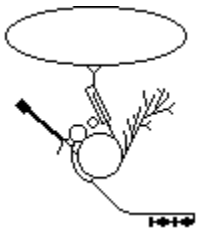
Assessment Resolutions: A closeout meeting was held on May 14, 2003. The following personnel were present: M. Davis, M. Gaffney, E. Lessard, R. Savage and M. Van Essendelft. The audit team presented a summary of the assessment and the associated findings. During this meeting, it was agreed that the recommended action(s) for Opportunities for Improvement will be implemented. Even though Opportunities for Improvement usually are not tracked, it was decided that these issues will be entered into the ATS program and tracked until closure.

cc.:

C. Carlson	R. Karol	D. Passarello	J. Scott
J. deBoer	E. Lessard	A. Pendzick	M. VanEssendelft
G. Goode	A. McNerney	P. Pile	L. Vogt
R. Grandinetti	A. Nicoletti	T. Roser	A. Warkentien

Collider Accelerator Department

BROOKHAVEN NATIONAL LABORATORY



AUDIT REPORT

of the

Collider Accelerator Department (C-A)
ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

Performed by:

__Signature on File__
R. Savage, Lead Auditor

__Signature on File__
M. Davis, Auditor

__Signature on File__
M. Gaffney, Auditor

__Signature on File__
J. Wilke, Auditor

Date Submitted: June 12, 2003
Audit Dates: May 13-14, 2003

1.0 ASSESSMENT PURPOSE

This assessment was conducted to determine the conformance of Collider Accelerator Department's (C-A) Environmental Management System (EMS) to ISO 14001 and the effectiveness of its implementation.

2.0 ASSESSMENT SCOPE

The scope of the audit encompassed the Collider Accelerator Department, including all associated buildings/facilities, operations and activities. This assessment reviewed the C-A EMS program with respect to the following 9 of the 17 elements of ISO 14001:

Element 4.3.1 Environmental Aspects
Element 4.3.2 Legal and Other Requirements
Element 4.3.3 Objectives and Targets
Element 4.4.3 Communication
Element 4.4.6 Operational Control
Element 4.5.1 Monitoring and Measurement
Element 4.5.2 Non-Conformance and Corrective/Preventive Action
Element 4.5.4 Environmental Management Audit
Element 4.6 Management Review

The audit reviewed the previous 2002 EMS Assessment and used a graded approach in reviewing activities. The following specific program areas were reviewed:

Refer to Attachment A, Assessment Plan for details.

3.0 SUMMARY

The C-A Department EMS conforms to the standards of ISO 14000:1996 for the 9 elements assessed within the scope of this audit. The EMS is effectively implemented throughout each level of the organization, with strong managerial support that includes funding for EMS related projects. The ESHQ Key Contacts and Operational Personnel interviewed are well informed and have made good efforts in keeping their staff informed. The C-A staff has strong Management support for achieving EMS objectives and targets, which have been successfully integrated into their everyday activities through Operating Procedures and the Work Planning and Control Process.

This audit identified 2 Opportunities for Improvement (See definitions in next section) and 5 noteworthy practices. The 5 observations identified during the 2002 EMS Assessment were reviewed and found that corrective and preventive measures were taken to close the noted concerns.

Refer to Attachment B (Assessment Checklist) for the details of the assessment. Refer to Attachment C for a list of personnel interviewed and Attachment D for the qualifications of the assessors.

4.0 NONCOMPLIANCES, NONCONFORMANCES, OBSERVATIONS, AND OPPORTUNITY FOR IMPROVEMENT

Definition of Terms

Noncompliance
Nonadherence to an applicable regulatory requirement.
Nonconformance
Objective evidence exists that a requirement has not been addressed (intent), a practice differs from the defined system (implementation), or the system is not effective (effectiveness).

- Major Nonconformance – A system element is missing, not implemented or not effective.
- Minor Nonconformance - A single observed lapse in a procedure or requirement. Overall system requirement is defined, implemented and effective.

Noteworthy practice
Performance that exceeds expectations in terms of efficiency and/or effectiveness and provides a model for others to follow. A noteworthy practice is a positive condition or strength.

Observation
Not a nonconformance, but something that could lead to a nonconformance, if allowed to continue uncorrected; or an existing condition without adequate supporting evidence to verify that it constitutes a nonconformance.

Opportunity for Improvement
A suggested means of accomplishing an activity, or fulfilling the intent of a procedural requirement. A recommendation may be made when the assessor wishes to see an improvement in a condition that is not considered to be a finding or observation.

4.1 Noncompliance: Major/Minor -None

4.2 Observation: None

4.3 Opportunity for Improvement:

1. During next year's Environmental Management Program Procedures review process, it is recommended that management consider using bullets instead of letter characters that identifies the departments objectives, targets and tasks, which presently may be misinterpreted.

2. In June 2002, C-A enhanced the procedure revision process by adding a section to the new/revised/cancel procedure form that requests the initiator of the proposed procedure revision to include the "Reason for the Revision". Even though this practice is being implemented, the procedural step is not identified in the procedure for implementing New or Revised Permanent Procedures (OPM 1.4.3). It is recommended that management consider revising this OPM to include this practice.

4.4 Noteworthy Practices

1. The EMS Management Review process continues to evolve by adding self-assessment tasks and Safety and Health objectives this year.
2. Cryogenics Group continuing striving to reduce energy consumption and helium loss/usage through component replacement with better design features and operating modes. While cost driven, these reduction improvements also ultimately reduce overall energy usage and emissions.
3. Tickler cards being used to assist personnel with tracking and/or monitoring EMS objectives and targets completion date status.
4. Waste minimization efforts to track, recycle and reuse materials (e.g. cables, cable trays, lead bricks) during beamline disassembly activities are being implemented.

5. Management support of EMS by pursuing funding for disposal of legacy wastes.

5.0 ASSESSMENT RESOLUTIONS

A closeout meeting was held on May 14, 2003. The following personnel were present:

M. Davis, M. Gaffney, E. Lessard, R. Savage and M. Van Essendelft. The audit team presented a summary of the assessment and the associated findings. During this meeting, it was agreed that the recommended action(s) for Opportunities for Improvement will be implemented. Even though Opportunities for Improvement usually are not tracked, it was decided that these issues will be entered into the ATS program and tracked until closure.

6.0 LIST OF ATTACHMENTS:

- Attachment A – Assessment Plan
- Attachment B – Assessment Checklist
- Attachment C – List of Personnel Interviewed
- Attachment D – Qualifications Of The Assessors

Attachment A

COLLIDER-ACCELERATOR
ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)
AUDIT PLAN

ASSESSMENT OBJECTIVE: The objective of the Collider-Accelerator EMS Audit is to assess the C-A Department's effective implementation of the EMS through its operating procedures, associated documents, and field operations in preparation for the NSF audit to ISO 14001:1996.

ASSESSMENT SCOPE: The scope of the audit will encompass the Collider Accelerator Department, (AGS, RHIC and TDVG) including all associated buildings/facilities, operations and activities. This audit will assess the following 9 of the 17 ISO 14001 elements:

Element 4.3.1 Environmental Aspects
Element 4.3.2 Legal and Other Requirements
Element 4.3.3 Objectives and Targets
Element 4.4.3 Communication
Element 4.4.6 Operational Control
Element 4.5.1 Monitoring and Measurement
Element 4.5.2 Non-Conformance and Corrective/Preventive Action
Element 4.5.4 Environmental Management Audit
Element 4.6 Management Review

ASSESSMENT CRITERIA: ISO 14001:1996 and BNL EMS Assessment Checklist

ASSESSMENT TEAM & QUALIFICATIONS:

(Lead) R. Savage, Trained ISO 14000 Lead Auditor
M. Davis, Trained ISO 14000 Lead Auditor
M. Gaffney, Trained ISO 14000 Lead Auditor
J. Wilke, ASQ Certified Quality Auditor

ASSESSMENT STRATEGY:

The audit will evaluate 9 of the 17 ISO 14001:1996 elements, which will be reviewed using the C-A EMS Audit Checklist with focus on the following:

- a review of the C-A EMS system and its application of the Laboratory EMS Policy commitments.
- a review of the C-A EMS system and its compliance to regulatory issues.
- a review of the deployment of C-A Operational Procedures related to its EMS program.
- a review of compliance records and operational records associated with the C-A EMS.
- a review of C-A Management Review and incorporation of management decisions into the EMS program and closure of EMS Corrective Actions
- A review of the field operations for the following process assessments: Tandem Van de Graaff Facility, C-A Cooling Water Systems, Cryogenic Systems, and Beamline Construction and Disassembly.

Collider-Accelerator EMS Audit Schedule

AUDIT DATE(s): May 13 & 14, 2003 **AUDIT SCOPE:** Annual EMS Audit

AUDIT CRITERIA: ISO 14001:1996 **AUDIT TEAM:** M. Davis, M. Gaffney, R. Savage and J. Wilke

DAY 1

	M. Davis/R. Savage		M. Gaffney/J. Wilke	
TIME	Activity/ Contact Person	Requirement (Clause/sub-clause)	Activity/ Contact Person	Requirement (Clause/sub-clause)
9:00a	Opening Mtg.		Opening Mtg.	
9:30a	C-A EMS Management Representative, ECR	Objectives & Targets (4.3.3)	C-A Quality Manager	Audits (4.5.4)
10:15a	Environmental Coordinator	Monitoring & Measurement (4.5.1)	C-A EMS Management Representative, ECR	Communication (4.4.3)
11:15a	Environmental Compliance Representative, C-A EMS Management Representative	Environmental Aspects (4.3.1)	C-A Quality Manager	NC/CA/PA (4.5.2)
11:45a	C-A Dept. Chairman & EMS Management Representative	Management Review (4.6)	Environmental Coordinator, Environmental Compliance Representative	Operational Control (4.4.6)
12:15p	Lunch		Lunch	
1:15p	Environmental Compliance Representative	Legal & Other Requirements (4.3.2)	Tandem Van De Graaff Facility G/L J. Alessi	Operational Control (4.4.6) **Tandem Van De Graaff Facility**
1:45p	Cryogenic Systems G/L A. Nicoletti	Operational Control (4.4.6) **Cryogenic Systems**		
3:00p	Auditor Meeting		Auditor Meeting	

DAY 2

TIME	Activity/ Contact Person	Requirement (Clause/sub-clause)	Activity/ Contact Person	Requirement (Clause/sub-clause)
9:00a	Auditor Mtg.		Auditor Mtg.	
9:15a	Facilities & Experimental Support Head – A. Pendzick	Operational Control (4.4.6) – **Beamline Construction & Disassembly**	Water Systems Group G/L R. Grandinetti	Monitoring & Measurement (4.5.1) – **Cooling Water Systems**
11:30a	Auditor Meeting		Auditor Meeting	
12:15p	Lunch		Lunch	
1:15p	Audit Closeout with Management		Audit Closeout with Management	

ATTACHMENT B:
Assessment Checklist

ATTACHMENT C:

List of Personnel Interviewed	Responsibility
C. Carlson	Tandem Van de Graaff Technical Supervisor
J. deBoer	Water Systems Technical Supervisor
R. Grandinetti	Water Systems Group Leader
E. Lessard	Associate Chair ESHQ, EMS Management Representative
D. Passarello	Quality Manager
A. Pendzick	Facilities/Experimental Support Head, Beamline Construction
J. Scott	Environmental Protection Coordinator
M. Van Essendelft	Environmental Compliance Representative
L. Vogt	Water Systems Engineer
A. Warkentien	Cryogenics Technical Supervisor

Attachment D

Qualifications Of The Auditors

Mark Davis completed and passed the ISO 14001 EMS Lead Auditor Training course in Sept. 2002. He has performed numerous internal programmatic BNL environmental assessments, each as a lead auditor. He has also participated on three Accelerator Readiness Review teams and is a BNL Environmental Compliance NEPA/PCB Subject Matter Expert.

Mike Gaffney completed and passed the ISO 14001 EMS Lead Auditor Training course in Sept. 2002. He is the EMS Management Representative and ESH Coordinator for Superconducting Magnet Division (SMD), with over 17 years of professional safety engineering experience. He routinely performs safety and environmental compliance assessments for SMD and for various BNL organizations as part of the Safety and Health Services Division (SHSD). He is a member of the laboratory's Lifting Safety Committee and Cryogenic Safety Committee as well as a member of C-A Experimental Safety Committee.

Richard Savage completed and passed the ISO 14001 EMS Lead Auditor Training course in Sept. 2000. He has performed both site-wide and department-specific BNL environmental regulatory assessments and EMS Audits over the last three years. He has been a Certified Lead Quality Auditor since 1984. He is a member of the Quality Programs and Services Department and is presently a C-A Safety Inspection Committee member.

Jessica Wilke is the Quality Programs and Services Department Group Leader. She is an ASQ Certified Quality Auditor. She has performed both site-wide and department-specific BNL quality assessments since 1994, when she joined BNL. In addition, she has taken the EMS Implementation Workshop and EMS Overview courses. Jessica has 15 years of quality experience in the industrial industry.