National Centers for Coastal Ocean Science
ENVIRONMENTAL MANAGEMENT SYSTEM
INTERNAL AUDIT REPORT
July 10 - 14, 2006


Hollings Marine Lab-Charleston, SC


CCEHBR-Charleston, SC


CCFHR-Beaufort, NC


SSMC-Silver Spring, MD


CCEHBR-Oxford, MD


CCFHR-Kasitsna Bay, AK

20 MAY 2008

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ATTACHMENTS

1 Introduction

1.1 Background

The National Centers for Coastal Ocean Science (NCCOS) conducts and supports research, monitoring, assessments, and technical assistance to meet the National Oceanic and Atmospheric Administration's (NOAA) coastal stewardship and management responsibilities. NCCOS was formed within the National Ocean Service (NOS) in March 1999 as the focal point for coastal ocean science. NCCOS' mission is to provide coastal managers with scientific information and tools needed to balance society's environmental, social, and economic goals.

There are five NCCOS Centers with specific capabilities and research expertise in coastal and ocean issues. Three of the Centers have on-site research facilities, while two Centers conduct research through analyses of field data or sponsored extramural research.

- Center for Coastal Environmental Health and Biomolecular Research (CCEHBR) in Charleston, South Carolina; and the Cooperative Oxford Laboratory in Oxford, Maryland
- Hollings Marine Laboratory (HML) in Charleston, South Carolina
- Center for Sponsored Coastal Ocean Research (CSCOR) in Silver Spring, Maryland
- Center for Coastal Monitoring and Assessment (CCMA) in Silver Spring, Maryland
- Center for Coastal Fisheries and Habitat Research (CCFHR) in Beaufort, North Carolina; and the Kasitsna Bay Laboratory in Seldovia, Alaska

This internal audit centered on visits to the CCEHBR and HML Centers and research facilities in Charleston, South Carolina during the week of July 10th, 2006. These two facilities were deemed representative of NCCOS, and solid choices for the first internal audit of the NCCOS Environmental Management System (EMS) since the NCCOS EMS self declaration in December 2005.

CCEHBR conducts integrated environmental research and develop diagnostic tools to measure coastal ecosystem health. Chemical, biomolecular, microbiological, ecological, toxicological, and histological methods are developed and used in both laboratory and field studies to describe, evaluate, and predict the controlling factors and outcomes of natural and anthropogenic influences in marine and estuarine habitats. CCEHBR's Cooperative Oxford Laboratory was not included in this internal audit.

The HML research facility, operated by NCCOS, provides science and biotechnology applications to sustain, protect, and restore coastal ecosystems, with emphasis on links between environmental condition and the health of marine organisms and humans. Although the HML is a NOAA-owned facility, it is a collaborative enterprise, governed by a five partner organization through a Joint Project Agreement. The partners include NCCOS, the National Institute of Standards and Technology, the South Carolina Department of Natural Resources, the College of Charleston, and the Medical University of South Carolina. Scientists from all partner institutions work side-by-side in the laboratory, taking advantage of each other's special expertise.

The two NCCOS facilities include staff from outside NCCOS. The site staff plays a critical role in implementation and maintenance of the NCCOS EMS. In general, employees and partners all make important contributions to the success of the EMS.

1.2 Facilities Description

NCCOS' CCEHBR and HML laboratories are located on James Island, just across the Ashley River from the historic city of Charleston, SC. They are situated on the campus-like grounds of the South Carolina Department of Natural Resources (SCDNR) Marine Resources Center, at Fort Johnson, near the mouth of Charleston Harbor.

Total number of employees:	HML-144
Total number of buildings:	1
Square footage of facility:	HML-45,000
Property acreage:	HML is a Federal building w/o acreage located on South Carolina state land
Site boundaries:	Building lease MOU w/ parking lot as boundaries - Feds own no land here at Ft. Johnson Site. Building lease /use only
Activities that occur outside site boundaries:	Field (marine and estuarine) sampling local areas and waterways conducted outside site boundaries.

Total number of employees:	CCEHBR-124
Total number of buildings:	1
Square footage of facility:	CCEHBR-32,000
Property acreage:	CCEHBR is a leased building located on South Carolina state land
Site boundaries:	Building lease MOU w/ parking lot as boundaries - Feds own no land here at Ft. Johnson Site. Building lease /use only
Activities that occur outside site boundaries:	Field (marine and estuarine) sampling local areas and waterways conducted outside site boundaries.

2 EMS Internal Audit Report

2.1 Audit Objectives

The objectives of this internal audit are to help determine the degree to which:

- The EMS continues to meet NCCOS needs.
- The necessary documented procedures in existence are practical and satisfy the specified requirements.
- The necessary documented procedures are understood, and are being followed.
- Areas of conformity and non-conformity, with respect to implementation of the EMS, are identified, and corrective actions implemented.
- The EMS objectives are met and that a basis is created for identifying opportunities and initiating actions to improve the EMS system.

2.2 Audit Scope

The internal audit assessed operations at HML and CCEHBR presented in the background and facility description (see sections 1.1 and 1.2), as well as all EMS elements established by NCCOS for these operations against the requirements of the ISO 14001 standard, and the requirements of NCCOS's EMS internal audit criteria. Since the EMS includes all NCCOS, the audit reflects an assessment of the NCCOS-wide system.

For additional details regarding the EMS Internal Audit Program, refer to NOAA EMS Standard EMS.013 Regulatory Compliance and EMS Audits and Self-Assessments Audit Program Chart: International Organization for Standardization. ISO-19011: Guidelines for quality and/or environmental management systems auditing. ISO/FBIS 19011:202(E).

2.3 Audit Team

The NCCOS EMS Management Representative selected the following individuals to serve on the internal audit team. All team members received internal EMS auditor training, and/or were deemed competent to have the level of expertise necessary to participate in the conduct of the audit of the NCCOS EMS.

Role	Name	Affiliation	Contact
Lead Auditor	Bernie Gottholm	NCCOS CCMA	(301) 713-3028 b.william.gottholm@noaa.gov
NOAA EMS Oversight Contractor/Lead Auditor	Matthew Metcalfe	Booz Allen Hamilton	(703) 377-1795 metcalfe_matthew@bah.com
Auditor	Harold Stanford	NCCOS HQ	(301) 713-3020 Hal.Stanford@noaa.gov
Auditor	Sabrina Pittillo	NCCOS CCFHR	(252) 728-8718 Sabrina.Pittillo@noaa.gov
Auditor	Jay Lewis	NCCOS CCEHBR-COL	(410) 226-5193 Jay.Lewis@noaa.gov
Auditor	Lee Walter	NCCOS CCFHR	(252) 728-8718 Lee.Walter@noaa.gov

2.4 Audit Plan

A working session, held in Beaufort, NC during the week of June 5, 2006 produced a plan for the EMS internal audit, covering the following areas:

- Audit scope and objectives
- Audit team
- Coordination with auditees
- Audit dates, times, and other logistics
- Review of profiles, and descriptions
- Responsibilities for the audit report

2.5 Opening Meeting

A brief audit opening session was conducted by the lead auditor on July 10th, 2006 at CCEHBR. The meeting consisted of introductions of the audit team, re-confirmation of the scope of the audit and audit itinerary, the methods and audit criteria to be used, and the audit report process. The following NCCOS staff and partners from HML and CCEHBR participated in the meeting:

Name	Organization	Contact Information
Dr. Fred Holland	HML	843-762-8813 fred.holland@noaa.gov
Dr. Geoff Scott	CCEHBR	843-762-8508 geoff.scott@noaa.gov
Paul Comar	CCEHBR	843-762-8558 paul.comar@noaa.gov
Dr. Paul Becker	HML - NIST	843-762-8861 paul.becker@noaa.gov
Jean Durosko	NOS	301-713-3050 jean.durosko@noaa.gov
Rick Meitzler	HML/CCEHBR	843-762-8842 rick.meitzler@noaa.gov
Raluca Semeniuc	HML	843-762-8870 raluca.semeniuc@noaa.gov

2.6 On-site Audit Process

- The EMS internal audit was conducted July 10th and 11th at HML, and July 12th and 13th at CCEHBR.
- The EMS internal audit was conducted primarily through interviews with facility management and staff, and through reviews of EMS documentation and records to assess and record the suitability, adequacy, and effectiveness of elements of the NCCOS's EMS.
- Prior to visiting the site, the audit team conducted a review of EMS documentation (e.g., standards, Environmental Management Programs (EMPs) and Improvement Plans, etc.) available on the NCCOS EMS website and, where appropriate, assessed other data and documents that provided information on the functionality of the EMS.
- The Lead Auditor conducted an on-site review of specific EMS documentation, and other data and documents (e.g., Emergency Preparedness Plan, Chemical Hygiene Plan, Waste Management Procedures, Job Hazard Analysis forms, employee training records, etc.).
- All audit team members conducted interviews with both HML and CCEHBR management.

- The audit team conducted interviews with individuals having a variety of roles relating to the EMS, from general employees to those whose work activities interact with or produce significant environmental aspects. The interviews were conducted by the auditors either singly or in pairs. Over one third of the staff at HML and CCEHBR was interviewed. These included federal employees from NOAA and the National Institute of Standards and Technology, staff from the South Carolina Department of Natural Resources, the Medical University of South Carolina, and the College of Charleston, and contract employees.
- The audit team conducted a walk-through of both facilities to observe operations and activities, and to visually assess implementation of standards, programs, and if controls were being applied to various EMS activities.
- The audit team documented findings and opportunities for improvement. Responsibility for corrective actions will be identified during the corrective action process, and will be incorporated into corrective action requests.
- This audit report will be used as input to the NCCOS EMS Management Review, scheduled for October 2006.

Observation: At the same time the EMS audit was taking place, a NECSAS (NOAA Environmental Compliance and Safety Assessment System) Tier 1 audit was also being conducted at both HML and CCEHBR concurrently. Although the original schedule had the NECSAS and EMS audits auditing different groups within each facility some conflicts in scheduling arose. As a result some interviews with employees had to be cut short because the allocated time expired and/or employees were required for the NECSAS audit. It was also noted that a large number of the staff were not present. Some were involved in field activities and some were on leave. In the case of some contract staff, they had exceeded their allowable number of hours and therefore were not at the facility. This became most prevalent towards the end of the week. However, the EMS audit team was able to interview a large portion of employees at both facilities and every effort was made to provide the audit team with full access to the site. Therefore, the audit team was able to identify trends and findings with a high degree of confidence that they were based on an appropriate cross section of staff.

Recommendation: This was the first audit conducted since the NCCOS self declaration audit. The audit team recommends that future EMS audits not be conducted or combined with other audits at a facility. The team should have the ability to move freely amongst the employees and engage in constructive and, if necessary, lengthy dialogue without concern for exceeding a set time limitation. The team also recommends that management consider holding the next audit during the second quarter of the fiscal year when it is believed that less staff will be involved in field activities, contract staff will be less likely to have exceeded their allotted weekly hours and staff on vacation and leave will be at a minimum. This will also reduce any conflicts between the NECSAS audit and EMS Audit, increase the availability of staff, and reduce the work load of the Safety Manager (who has significant preparation responsibilities for both audits).

3 Audit Findings

3.1 General Observations

The audit determined that the EMS developed and implemented at NCCOS continues to be properly implemented and maintained and conforms to ISO 14001 and each of the 16 NOAA EMS Standards. In addition, the system demonstrated many elements of continual improvement. The audit team found many positive examples of environmental awareness during the audit. Some of these include:

- The environmental "consciousness" of the staff at both facilities is very high. Many employees stated that the EMS has raised their awareness of environmental stewardship and has provided both a motive and mechanism to initiate additional environmental improvements within their working groups.

- Most employees agreed that an established culture of pollution prevention, environmental compliance and desire for continual improvement regarding environmental aspects existed prior to the EMS but that the EMS has now provided a formal system within the organization. As one employee put it, "It is a green light for the green thinking people to feel empowered."

- Many employees suggested that the mindset of developing workplace compliance carries over to personal responsibility outside of work and at home.

- Employees expressed that the EMS has raised their awareness of public perception when performing their work and that it provides an incentive to make sure they are the best stewards possible when conducting field operations.

- Interviews with both management and staff indicated that there are a range of measures which contribute to the mitigation of negative environmental impacts of the operations at both HML and CCEHBR. Examples include the use of bicycles and electric golf carts to travel back and forth among site facilities, chemical substitution and recycling. In addition, scientific processes are assessed during the planning phase to identify opportunities to reduce environmental impacts (e.g., reduce environmental exposure can be achieved and reduce hazardous chemicals).

- Management expressed the feeling that although apprehensive at the beginning, they now feel EMS overall to be "cost neutral".

- The EMS website continues to be the primary means to train employees and communicate environmental information. Across HML and CCEHBR interviews showed that this continues to be an effective instrument to achieve these purposes.

- Corrective actions have been either completed or initiated to address findings of the 11 non-conformance items identified in the last EMS audit. More than seventy percent have had preventive actions initiated.

3.2 Non-conformities

The following non-conformities were identified during the EMS Internal Audit and will require corrective actions to be completed by NCCOS. Some of these findings were also noted in the previous audits. Although these were addressed the audit team determined that more improvement is necessary.

#	Classification	Description of Non-Conformity	EMS Element	Status
1	Minor	There was no indication from staff that the EMS team at the facility extends, in practical terms, beyond the NCOOS EMS Team level members. As a result, the EMS at NCCOS overall remains dependent on a few critical EMS team members at each facility. Absence of these individuals would result in significant long-term adverse impacts to the EMS. More emphasis should be placed on the system itself so that even in the absence of key employees key environmental functions remain operational.	EMS 002 Roles and Responsibilities	
2	Minor	There is a lack of evidence of EMS or environmental performance standards being formally included in employee or EMS Team member performance plans.	EMS 003 Personnel Performance Standards	
3	Minor	While Environmental Improvement Activities have been developed through Environmental Management Plans, there is no clear-cut method of tracking costs associated with environmental improvements. In general, more effective and informative methods of environmental performance measurement should be established.	EMS 006 Environmental Improvement Activities	

#	Classification	Description of Non-Conformity	EMS Element	Status
4	Minor	Environmental training requirements of specific job functions, roles and responsibilities are not always clearly defined. In some cases there is confusion among staff between "safety" and "environmental compliance", and "environmental management". The "Training Matrix" which was developed by the EMS team in FY06 should be enhanced to more effectively identify the environmental requirements of specific job functions and roles.	EMS 007 Environmental Awareness and Training	
5	Minor	Although EMS Work instructions are available on the NCCOS EMS website, (some facility-specific instructions are on the intranet), the majority of employees interviewed were not aware of them. Those that were aware of the Work Instructions had not integrated them into day-to-day activities. Therefore, further education of employees and emphasis on improving work instructions is required.	EMS 008 Environmental Operational Controls	
6	Minor	The perception by employees of the degree of commitment by management to the EMS needs improvement. Many employees expressed the desire for upper management to take a more active and visible role in endorsing EMS. Aside from the federal component, employees lack an understanding of the management structure of HML (the role and responsibilities of the Director and Science Board) and, to a lesser degree CCEHBR, and an understanding of the role of NCCOS.	EMS 009 Internal Communications	

#	Classification	Description of Non-Conformity	EMS Element	Status
7	Minor	EMS documents are stored and managed via the NCCOS EMS website, and the NCCOS facility-specific intranet. In some cases, hardcopy version environmental documents such as plans, reports, permits, radiation safety plan, etc. were different than those on websites. Therefore, it was not clear which documents were current and which were obsolete. It is critical that an NCCOS wide Document Control System be implemented to meet the document management demands of NCCOS.	EMS 011 Documentation and Control of EMS Documents and Records	

3.3 Opportunities for Improvement

During the EMS internal audit the following opportunities for improvement were identified.

#	Opportunity for Improvement	EMS Element	Action
1	In some cases, employees actually believe that the EMS was implemented by and because of Rick Meitzler and Raluca Semeniuc. They were unaware that the EMS was a result of EO 13148, and that it was implemented NCCOS wide. Incorporation of the NCCOS EMS into the employee orientation process would prove beneficial. In addition, the audit team recommends that the management structure, from the NCCOS HQ level to the local facility level, be fully described and incorporated into the employee orientation process, especially in cases where lines of supervision cross partners and contractors. Although it was clear from document reviews and interviews with managers that a strong commitment to environmental management from senior managers exists, employees expressed the desire to see senior management raise EMS related matters to the same level of attention as safety matters. Visible management activities may demonstrate to employees that management's concerns and beliefs regarding the importance of environmental management are aligned. For example, management attention to strengthening the facility level EMS Teams by requiring employee participation (allocating a percentage of time to participate) and increasing visibility by appointing some senior level staff to these facility teams would provide a clear visible commitment to proactive environmental management at HML and CCEHBR as well as the other NCCOS facilities.	EMS 002	

#	Opportunity for Improvement	EMS Element	Action
2	There is a lack of an environmental management performance standard for employees. A personnel performance standard statement should be developed and approved by NCCOS HQ and included in all employee performance plans. This would be a clear indication of the importance that NCCOS attributes to EMS. It is recommended that there be three levels: one for employees; one for employees involved with the EMS Teams; and another for supervisors. Those who participate on EMS Teams should also have a time percentage allocated. For non-federal employees, a similar statement could be introduced as part of an NCCOS employee environmental awareness acknowledgement that they could sign.	EMS 003	
3	Although reviews of existing processes and new processes continue to identify opportunities to reduce environmental exposure and hazardous chemicals, these savings have not been recorded so their impact is not known. A baseline needs to be established to determine associated increases or reductions. The same is true for most other initiatives taking place. One recommendation is to identify those items that may be EMS related when developing fiscal year spending plans. This could start at NCCOS HQ, and at Center levels and carry down to individual BOPs at project levels. Continued monitoring of the use of NOAA Facility Codes by NCCOS HQ Budget staff is also recommended.	EMS 006	
4	The majority of personnel interviewed stated they were satisfied with the initial EMS Awareness Training available online. However, many staff indicated a desire for additional EMS training directed at their specific job function or work group. To address this, the existing online awareness training could be updated to provide real life examples of the way EMS concepts apply to specific job types or tasks currently performed within NCCOS and by its partners. Online training pertaining to specific jobs and tasks should be reviewed to determine if it is appropriate to incorporate it into the NCCOS EMS and/or Safety training program. Evaluation of training effectiveness must be included in EMS.	EMS 007	

#	Opportunity for Improvement	EMS Element	Action
5	Operational controls have been written and can be located either on the NCCOS EMS website or on the HML intranet. These need to be enhanced and standardized across NCCOS so that they are inclusive. Centrally locating these operational controls will enable employees to locate them easily and simplify "document control".	EMS 008	
6	It appears that there is still a need to strengthen the communication between management, scientists and the staff both at the facility levels and NCCOS HQ. Interviews with staff indicated that there was a lack of awareness of management's "buy in" to EMS. Employee's also suggested that management help describe how EMS at the facility level fits into the larger NCCOS EMS. Therefore while it was clear to the EMS audit team that a commitment to environmental stewardship and environmental management existed, it appears that this is not clear across the body of the staff. This may be a result of EMS communications emanating only from EMS Team members directly to staff. Therefore, periodic communication directly from management such as an internal newsletter describing EMS developments and achievements could improve this employee perception. Regular visits by management to discuss safety and EMS matters would also demonstrate a commitment. Management should solicit and follow up on employee's suggestions. An Employee rewards program relating to EMS activities should be considered. NCCOS management could incorporate a similar EMS summary with the monthly NOS Self-Assessments based on the STAR (Stop Taking Avoidable Risks) Program. Management should continue to express the alignment between the organization's mission and EMS. Because of the diverse organizational structure of NCCOS, especially at HML, it is recommended that management continue to communicate the roles and responsibilities of NOAA and NCCOS as well as those of all partners. Because of the significant cultural and historical aspect of land on which HML and CCEHBR is located, it is recommended that this be communicated to employees and that they be made aware of the environmental impacts related to EMS. This cultural and historical significance can also be found at CCFHR, CCFHR-Kasitsna Bay and CCEHBR-COL as well.	EMS 009	

4. Summary

As the NCCOS EMS system continues to improve and mature, it is evident at this stage of development that there needs to be an increase in the Internal Communication and information sharing between NCCOS management and staff and across NOAA. Activities such as regular EMS status reports, restatement of mission objectives, the possible establishment of an EMS employee rewards program, and EMS inclusion as part of an annual performance review are all positive steps that can be taken. Additionally, employee training should become less generalized. Advanced training in specific job functions and related environmental impacts, annual retraining, training for specific environmental related issues as projects evolve are just some of the ways in which management can help employees better understand NCCOS EMS policies, goals, and objectives. The EMS is still dependent upon a few individual employees at each facility. The NCCOS facility teams need to become more engaged with greater participation by both management and employees. Finally, the development of an NCCOS wide Document Control System would greatly enhance the EMS and alleviate the added burden that is now being borne by staff in trying to maintain up-to-date documentation.

Above all, continue to recognize all employees for their hard work and publicize the NCCOS EMS success stories.

Attachment A

Schedule for Safety and EMS Audits at NCCOS/HML and CCEHBR
July 10-14, 2005

Schedules were based on average target audit times of up to 1½-2 hours each for Safety and EMS for each of the Centers' functional research and administrative/IT Teams. Team responsibilities and personnel numbers were considered in setting this schedule. Some shifting of audit times occurred as needed, within time blocks.

CCEHBR Research was reviewed under the following groupings: Marine Ecotoxicology, Living Marine Resources, Risk Analysis (inclusive of Corals), Marine Natural Products and NMR Chemistry, Coastal Ecology, Marine Forensics, Coastal Research, and Admin/IT. Parts of these Teams located within HML were audited at HML on Monday and Tuesday, as indicated.

Monday, July 10

8:30-10:00 Orientation, review schedule, describe goals and objectives with HML and CCEHBR management and on-site EMS/Safety team personnel
CCEHBR Large Conference Room

10:00-10:15 Break

Move to HML for audit activity Monday and Tuesday.

	SAFETY	EMS
10:15-12:00	Marine Natural Products and NMR Chemistry	Admin /IT
12:00 – 1:00 Lunch		
1:00 – 2:45	Admin/IT	Marine Natural Products and NMR Chemistry
3:00-5:00	Marine Ecotoxicology	Coastal Research

Tuesday, July 11 <u>at HML</u>

	SAFETY	EMS
8:30 – 10:15	Coastal Research	Marine Ecotoxicology
10:30 – 12:15	Corals	NIST
12:15 – 1:15 Lunch		
1:15 – 3:00	NIST	Corals
3:15 – 5:00	State Partners	State Partners

Attachment A

Wednesday, July 12 <u>at CCEHBR</u>

	SAFETY	EMS
8:30 – 10:15	Coastal Research	Marine Forensics
10:30 – 12:15	Marine Forensics	Coastal Research
12:15 – 1:15 Lunch		
1:15 – 3:00	Marine Ecotoxicology	Admin/IT
3:15 – 5:00	Admin/IT	Marine Ecotoxicology

Thursday, July 13 <u>at CCEHBR</u>

	SAFETY	EMS
8:30 – 10:15	Coastal Ecology	Living Marine Resources
10:30 – 12:15	Living Marine Resources	Coastal Ecology
12:15 – 1:15 Lunch		
1:15 – 3:00	Audit Teams' Time	Audit Teams' Time
3:15 – 5:00	Audit Teams' Time	Audit Teams' Time

Friday, July 14

Large Conference Room at CCEHBR Reserved for Audit Teams
Exit Interviews to Management

Attachment B

National Centers for Coastal Ocean Science

Environmental Management System
Internal Audit Criteria

Background to NCCOS EMS Audit Criteria

The National Centers for Coastal Ocean Science (NCCOS) is committed to establishing and maintaining robust environmental management systems (EMS) that support operations and enable the NCCOS to meet their mission efficiently.

In an effort to promote the continuous improvement of the NCCOS EMS, organizations designated as "appropriate facilities" conduct internal audits to identify those EMS elements that warrant the focus of efforts for improvement. These audits help organizations understand their current status and map a performance improvement pathway for the future.

The attached audit criteria are designed to assist organizations assess their EMS's, determine conformance with ISO 14001, and meet the NOAA requirements.

Conducting the Internal EMS Audit

Internal EMS audits are conducted annually by individuals who have received internal auditor training or are experienced in audit-related matters, and are employees of the organization that is being audited.

The purpose of the internal audit is to provide information on the system for its continual improvement. Such an audit normally results in the listing of findings and presentation of opportunities for improvements, even for mature systems.

EMS Audit Criteria

The EMS Audit Criteria are established:

- To assist NCCOS appropriate facilities in identifying the strong and weak elements of their EMSs.
- To enable NCCOS to identify those areas of environmental management across the organization that should be the focus of improvement actions.
- To provide a streamlined approach for verifying EMS implementation, and determining environmental performance status.
- To support NCCOS meeting report requirements, and implementing the annual Management Review.

Section 1:
Environmental Policy

The organization's environmental policy provides an overarching vision for the management of environmental issues and a framework for setting objectives and targets.

Environmental Policy
The environmental policy is well recognized by both employees and senior staff, and is used to drive the Environmental Management System.

	Compliance	Continual Improvement	Pollution Prevention
1. Does the environmental policy include a commitment to:	☒	☒	☒

	Available to the public	Available to all employees	Used to drive Objectives
2. Is the environmental policy:	☒	☒	☒

3. What % of employees interviewed knew the content of the environmental policy? 80% *

Note

* Environmental Awareness was very high. The existence and location of the Environmental Policy (or knowledge of existence of the Environmental Policy) was also very high. Knowledge of the specifics within the Environmental Policy was considerably less.

Section 2:
Planning

The planning phase of the EMS reviews and assesses potential environmental risks, to, and from operations, allowing the organization to determine where its objectives and resources should be focused.

Environmental Aspects
A robust process exists for identifying the significant environmental risks, to, and from operations.

	Exists and is documented	Is followed by employees	Was used to review aspects this year
1. A procedure for identifying environmental aspects:	☒	☒	☒

	Legal and other requirements	Risks	Stewardship and Operations	Pollution Prevention Opportunity
2. Criteria used to determine which environmental aspects are significant:	☒	☒	☒	☒

3. Out of ten employees interviewed what were the three most commonly identified significant environmental aspects?

Aspect: Waste Management (includes recycling)

Aspect: Chemical Management

Aspect: Energy Management

4. Out of three senior employees interviewed what were the three most commonly identified significant environmental aspects?

Aspect: Energy (lighting, HVAC)

Aspect: Chemicals/Bio-Safety

Aspect: Chemical Waste Disposal/Overbuying

	Yes	No
5. Were the organization's primary processes/operations assessed for their environmental aspects?	☒	☐

Legal and Other Requirements
A strong formal process exists to ensure the awareness of appropriate individuals to current regulatory and NCCOS requirements.

	Exists and is documented	Is followed by employees	Was used to review requirements this year
1. A procedure for identifying legal and other requirements:	☒	☒	☒

2. What % of employees interviewed whose job function has legal and/or other environmental requirements:

- Could articulate the requirements? 90%
- Knew how to locate the requirement in the EMS? (i.e., have access to it). 100%

3. **Is the organization aware of its environmental requirements? (legal or otherwise)**

Not Aware ☐☐☐☐☒☐ Very Aware

Note

Note: Although MSDS online has only been implemented recently all of the employees interviewed were aware of the tool and found it very helpful.

Recommendation: Look for opportunities to use web based systems to manage documentation, e.g., protocols JHA's (Job Hazard Analysis). This may increase capabilities for collaboration, and reduce the time taken to manage these forms.

Objectives and Targets

Measurable objectives and targets enable the organization to drive performance improvement.

	Significant Aspects	Legal and other requirements	Cost	Pollution Prevention
1. **Do objectives address:**	☒	☒	☒	☒

2. **How many objectives are established?** 3

3. **Are objectives achieved on time?** None ☐☐☐☒☐☐ All

4. **To what degree have targets been achieved in the last Fiscal Year?** 80%

5. **How many of the EMS targets metrics are:** Quantitative 6 Qualitative 1

Note

The objectives and targets for the first year are on track. Although the EMS has been implemented for less than 1 year, it appears that objectives are on schedule to be met.

Management Programs

Clear plans assign responsibility, and provide a schedule and process to achieve objectives and targets.

	Time frame for achieving the objective	An individual designated as responsible	Funding allocated by management	Implementation Plan to achieve objectives	Operational Controls	Performance Indicators
1. **Management programs include:**	☒	☒	☒	☒	☒	☒

2. **Which significant aspects are not covered by a management program, and do these have operational controls?**

	Controls in Place
Aspect: Air Emissions	☒
Aspect: Land (control access)	☒
Aspect: Cultural Resources (control access)	☒
Aspect: Noise (verbal procedure to inform community)	☒
Aspect: Waste Water (lab procedures)	☒
Aspect: Water Quality (lab procedures)	☒

3. **On average, how often are EMPs updated?**

1 Month ☐ 3 Months ☒ 6 Months ☐ 1 Year or More ☐ never ☐

Section 3: Implementation and Operation

The implementation phase of the EMS allows the organization to use standardized processes for training, communication, and document management to ensure that objectives are achieved and operations carried out in accordance with established controls (i.e., work instructions, SOPs, plans, etc…).

Resources, Roles, Responsibility and Authority

Senior managers demonstrate commitment to environmental performance, and environmental roles and responsibilities are clearly defined.

1. **What are the total resources currently provided for environmental management/compliance?**

Financial: There currently is no break out of funding.

Human Resources: No individual staff member is dedicated solely to EMS/environmental management.

Other: No individual breakouts available.

Questions 2 through 4 are not applicable for this audit.

~~**2. Has environmental management (not just EMS) received more or less funding this Fiscal Year than last?**~~ ~~More~~ ☐ ~~Less~~ ☐ ~~Same~~ ☐

~~**3. What percentage of requested funding was provided?**~~ ☐

~~**4. Does management believe that funding levels are sufficient for managing all environmental issues?**~~ ~~Yes~~ ☐ ~~No~~ ☐

Staff / Middle Management / Upper Management

5. What is the position of the management representative? ☒ ■ ☐

6. How many individuals are there on the NCCOS EMS Team? 8

Rick Meitzler	HML/CCEHBR
Sabrina Pittillo	CCFHR
Hal Stanford	NCCOS HQ
Jay Lewis	CCEHBR-COL
Raluca Semeniuc	HML EMS
Mark Mohs	NCCOS-IT
Mia Robinson	NCCOS-Finance
Tim Dortch	NCCOS-Outreach

7. Which of the following functions are included on the NCCOS EMS team?

- Environmental Compliance ☒
- Safety ☒
- Human Resources ☐
- Science/Research Divisions ☒
- Operation and Maintenance ☐
- Senior Manager ☒
- Information Technology ☒
- Purchasing ☒

8. What % of individuals with specific environmental responsibilities interviewed, could clearly describe their responsibilities?

100%

Note

Recommendation: An environmental management responsibility statement (similar to existing IT and Safety statements) should be included in personnel performance plans for both management and employees.

Recommendation: EMS aspects and costs should be identified in budget planning, as they relate to specific budget items.

Competence, Training, and Awareness

A robust process exists for ensuring that staff with environmental responsibilities receives appropriate and adequate environmental training.

1. Have the job functions related to operations with significant aspects been identified and documented? Yes ☒ No ☐

2. Have the training requirements of job functions related to operations with significant environmental aspects been identified and documented? Yes ☐ No ☒

3. What % of individuals whose job functions relate to operations with significant environmental aspects, how many were declared to be competent to execute their roles and responsibilities?

All employees are mentored on arrival at the laboratory that they will be working at until they have become competent in executing laboratory activities. At that time, they are given approval to work on their own. This process is consistently applied throughout both facilities, but is not formally documented.

4. How many employees have had environmental training specific to their job:

All employees have documented training related to their job. Training records, maintained in a central location, both in electronic format and in paper certificates documenting course completion are kept in file folders. Management and supervisors have access to this information.

5. What percentage of staff have received environmental awareness training? All

6. Out of 10 individuals interviewed how many:

- Could summarize the environmental policy? 9
- Knew the potential environmental impacts of their job? 10
- Knew the organization's primary environmental aspects? 5
- Know who to contact regarding environmental issues? 10
- Knew who the EMS representative is? 10

* Numbers are an average, based on auditor interviews.

Note

Recommendation: Standardize the employee orientation package content among NCCOS and all partners.

Communication

A robust communication procedure provides well defined lines of communication to employees, managers, and stakeholders.

1. Does a procedure for internal and external communication exist, and is it documented?

Yes	No
☒	☐

2. Does the procedure for communication provide for:

- How environmental information is communicated to senior managers ☒
- How environmental information is communicated to laboratory staff ☒
- How environmental information is communicated to headquarters staff ☒
- How inquiries from external sources are routed, handled and documented ☒
- Whether significant environmental aspects should be communicated externally ☒

3. On average how do employees rate environmental communications?

	Average rating: Weak ◄► Very Strong
Two senior managers	☐☐☐☐☒☐
Ten scientists	☐☐☐☐☒☐
Five general employees	☐☐☐☐☒☐
Five EMS Team members	☐☐☐☐☒☐

4. How do employees rate the commitment to environmental management of senior managers?

a. HML

	Average rating: Weak ◄► Very Strong
Two senior managers	☐☐☐☐☒☐
Ten scientists	☐☐☒☐☐☐
Five general employees	☐☐☒☐☐☐
Two EMS Team members	☐☐☐☐☒☐

a. CCEHBR

Two senior managers	☐☐☐☐☒☐
Ten scientists	☐☐☐☒☐☐
Five general employees	☐☐☐☒☐☐
Two EMS Team members	☐☐☐☐☒☐

Note

Recommendation: Management needs to discuss environmental information, and the NCCOS EMS at staff meetings, and include their relevance to overall NCCOS objectives and specifically to HML and CCEHBR.

Documentation

Critical environmental programs, processes, controls and procedures exist as formal documents, allowing for process standardization and repeatability.

1. Are the following documents available:

- Environmental Policy ☒
- Objectives and Targets ☒
- Description of EMS Scope ☒
- Management Programs ☒
- Work Instructions ☒
- Guidelines/Handbooks ☒
- Orders ☒

2. How many employees could describe what environmental documents were relevant to them?

	Average rating: Weak ◄► Very Strong
Two senior managers	☐☐☐☐☒☐
Ten scientists	☐☐☐☐☒☐
Five general employees	☐☐☐☐☒☐
Facilities	☐☐☐☐☒☐
Procurement	☐☐☐☐☒☐
Five EMS Team members	☐☐☐☐☒☐

Control of Documents

A robust procedure ensures that critical environmental documents are maintained in an appropriate manner and, when necessary, are readily available to all applicable individuals.

1. A procedure for document control:

Exists and is formally documented	Describes the approval process	Describes requirements for review	Describes version control requirements
☒	☒	☒	☒

2. How many obsolete or out of date EMS documents were found?

Note: Refer to Non-conformity #7 in report

3. What percentage of employees knew how to locate environmental documents relevant to them?

	Percentage
Senior managers (ask at least 2)	100%
EMS Team members (ask at least 5)	100%
Scientists (ask at least 10)	100%

4. **Is an electronic system used to manage environmental documents?** Yes ☐ No ☒

5. **Is there a list of controlled documents?** Yes ☐ No ☒

Note

Recommendation: Develop a document control system taking advantage of existing systems where possible. This should enable NCCOS to control key documents related to environmental management. ***Target date: End of FY07.***

Operational Control

All operations that have the potential for significant environmental impacts are controlled.

1. **What percentage of activities with the potential for significant environmental impacts have operational controls?** 100%

2. **To date, how many operational controls have been developed?** N/A

3. **Out of 5 employees required to use established operational controls, how many are able to accurately describe the control requirements?**

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☒

4. **How many non-conformities of operational controls have occurred over the past FY?** Don't Know ☐ More than 5 ☒ More than 10 ☐

Note

The few non-conformities reported were addressed expeditiously by Management and the Safety staff.

Emergency Preparedness and Response

Impacts to the environment are considered in emergency preparedness and response programs.

1. **Emergency response plans/procedures are:**

- Available ☒
- Inclusive of environmental impacts – see Note ☐
- Reviewed once a year by an environmental professional ☒
- Periodically tested ☒
- Kept updated ☒

Note

Recommendation: Procedures for reentry/reopening the facility after an emergency incident are not clear, e.g., who are the first individuals to come back to the lab to open it and what are the protocols to protect against or mitigate significant releases of hazardous material in a catastrophic event (e.g., Katrina)?

Section 4: Checking

The checking phase of the EMS allows the organization to monitor the performance of significant environmental risk operations, and evaluate their environmental objectives and targets (i.e. regulatory compliance etc…)

Monitoring and Measurement

Monitoring programs ensure that effectiveness of the EMS in reducing environmental risks and improving environmental performance tracked and reported.

1. **What metrics are used to measure progress toward objectives and targets?**

The NCCOS EMS has been in place for less than a year. At this time, metrics are being developed in accordance with the OPM scorecard.

2. **Does each objective and target have a performance metric?** Yes ☒ No ☐

3. **Does each operational control have a performance indicator?** Yes ☒ No ☐

4. **If any instruments are used to measure performance are they calibrated?** Yes ☒ No ☐

5. **On average, how frequently is the performance of operational controls reviewed?**

1 month ☒ 3 months ☐ 6 months ☐ 1 year ☐ more ☐

6. **Out of 5 interviewed employees who are required to follow operational controls, when, on average, was their conformity to the requirements of the operational control last reviewed?**

1 month ☒ 3 months ☐ 6 months ☐ 1 year ☐ more ☐

Note

Monthly inspections by laboratory staff are effective means of assessing ongoing environmental (and safety) performance and increasing awareness of staff of environmental requirements. This time could also be used to educate staff on the environmental issues and aspects specific to the organization.

Evaluation of Compliance

The organization is In compliance with all applicable environmental regulations and strong programs are in place to ensure that this continues.

1. **How many environmental Notices of Violation has occurred this fiscal year?** 0
   (NRC and DEAC inspections did occur)
2. **How many environmental fines have occurred this fiscal year?** 0
3. **How many inquiries from the general public regarding environmental compliance/requirement have been received this year?** Some inquires regarding traffic, and noise from HVAC systems
4. **How may environmental compliance issues have been identified from internal inspections or reviews?** ~ 12 to 20
5. **When was the last internal compliance/legal inspection or review?**

Never	<3 months	<6 months	<1 year	>1 year
☐	☒	☐	☐	☐

6. **What is management's perception of the level of environmental compliance**

Poor	Some opportunity for improvement	Adequate	Strong	Very Strong
☐	☐	☐	☒	☐

7. **What is the EMS Team's perception of the level of environmental compliance?**

Poor	Some opportunity for improvement	Adequate	Strong	Very Strong
☐	☐	☐	☒	☐

Note

Communication between Management and personnel with directly assigned responsibilities for Safety, Environment and Health (including individual lab work areas) is strong. More formalized communication between Management and the remainder of the staff is encouraged.

Non-conformity, Corrective and Preventative Action

Non-conformities with regulation, operational controls, or procedures are quickly corrected and the root cause addressed to prevent future recurrences.

	Exist and is it formally documented	Is followed by employees	Meets ISO 14001 requirements
1. **A procedure for correcting non-conformities:**	☒	☒	☒

2. **How many findings were identified in the last internal audit/SD Audit?** 6
3. **How long, on average, did it take to correct findings from the last internal audit?**

1 month	3 months	6 months	1 year	more
☐	☒	☐	☐	☐

4. **How many non-conformities have been identified since the last internal audit? (e.g., EMPs, operational controls, etc.)** 11
5. **For what % of non-conformities were preventative actions developed or initiated?** 70%

Note

These include the 5 minor non-conformities identified during the internal audit conducted in November 2005 and the 6 minor non-conformities identified during the EMS Self –declaration audit in December 2005.

Control of Records

Records necessary to verify that required actions have been executed, are well managed, protected, easily accessible and timed for retention.

	Exists and is formally documented	Is followed by employees	Meets ISO 14001 requirements
1. **A procedure for controlling records:**	☒	☒	☒

2. Were the following records available:

- EMS Team Meeting Minutes ☒
- Past two EMS Audits ☒
- Past two EMS Management Reviews ☒
- Monitoring and Measurement Data ☒
- Operational Control Monitoring Results ☒
- Compliance Review Inspection Results ☒
- EMS Procedures Results ☒

Note

The above records are available on the NCCOS EMS website. A procedure for controlling records exists, but will be enhanced with the introduction of a comprehensive document control system.

Internal Audit

Internal audits have been conducted appropriately so as to ensure the EMS is operating as efficiently and effectively as possible.

	Exists and is it documented	Is used by EMS Auditors	Meets ISO 14001 requirements
1. A procedure for internal audits:	☒	☒	☒

2. Does the procedure for internal audits include:

- Scope of the audit ☒
- Audit Plan ☒
- This audit criteria ☒
- Provisions for corrective actions ☒

3. Did this audit follow the internal audit procedure? Yes ☒ No ☐

4. How many internal audits have been completed to date? **2**

5. Is there an Audit Program? **Yes**

Note

A strong internal procedure has been adopted by NCCOS for conducting periodic audits of the EMS to determine conformance with ISO 14001 and NOAA EMS Standards, and to determine the EMS is properly maintained and documented.

Section 5: Management Review

The management review phase of the EMS enables top managers to review the system in order to ensure that it adequately supports the organization.

Management Review

Senior management reviews help to calibrate the direction of the EMS in support of the organization's mission and ensure that priority items are understood and that sufficient resource are provided to address them.

1. When was the last management review conducted?

1 month	3 months	6 months	1 year	more
☐	☒	☐	☐	☐

2. Did the input to the last management review meet the requirements of ISO 14001? Yes ☒ No ☐

3. How many actions did management request the EMS team to take? 2 (Improvement of document control; Identity EMS **benefits)**

4. What was management's assessment of the current level of resources assigned to manage all environmental issues?

More Needed	Adequate	Not Assessed
☐	☒	☐

5. What are the top two areas that management believes the EMS should focus on?

Priority: Identify benefits

Priority: Improve document control

6. Did management recommend any changes to the following:

- Environmental Policy No
- Objectives No
- Targets No

Other: Management has not recommended any changes.

7. What was the position of the two most senior managers in attendance (in person) during the management review?

Position: NCCOS Director

Position: NCCOS Acting Deputy Director

Note

NCCOS management makes a point of setting aside time during scheduled Center Directors meetings for EMS Management Reviews. Management has added staff from the HQ level to represent areas identified by the EMS Team such as IT, Budget, and Communication.

Section 6: Other EMS Information

This section gathers other information that is pertinent to the EMS.

1. What benefits have been observed through implementation of the EMS?

- At the outset of EMS implementation there were significant concerns regarding additional costs. However, interviews indicate that implementation has been cost neutral and, in some cases, resulted in savings. As a result, management and employees who were initially skeptical of the cost versus benefit are now embracing the initiative.
- Improved environmental awareness ensures that staff take more care with environmental requirements, and are more aware of enhancement opportunities.
- The initial establishment of a mechanism to communicate with management and other staff on environmental issues has empowered employees to act.
- Increased attention has been placed on recycling (e.g., cardboard) and awareness of proactive waste management efforts.
- Formal support for existing stewardship efforts, e.g., environmental preferable purchasing, IT efforts for energy efficiency, paper reduction etc. has been established.
- Increased awareness of chemical substitution goals, which frequently support safety goals, is evident.
- Reduction in chemical volume, resulting from new equipment and processes, is in operation. Awareness has been elevated and staff are encouraged to look, or test, alternatives.
- EMS has increased the visibility of NCCOS's position on environmental management and empowered staff to promote environmental stewardship.
- EMS has provided a "green light for green thinking people". Employees and partners share ideas and success stories with NOAA. This encourages cohesion and collaboration among partners.
- With the implementation of NOAA facility codes and training employees on how to use these, environmental costs are better categorized, enabling them to be tracked and more easily used for planning, etc.
- New monthly inspections identify higher numbers of findings that had been going unobserved. These findings are now better managed, and, through improved awareness of employees, will be avoided in the future.

Section 7: Audit Background

The following information provides background on the audit, auditors and auditees.

1. Date of Audit: July 10 -14, 2005

2. Audit Number: 3

3. Auditor(s):

		Received Auditor Training
Name: Bernard Gottholm	Position: Lead Auditor	☒
Name: Matthew Metcalfe	Position: BAH *	☒
Name: Hal Stanford	Position: NCCOS HQ	☐
Name: Sabrina Pittillo	Position: SHE, CCFHR	☒
Name: Jay Lewis	Position: CCEHBR-COL	☒
Name: Lee Walter	Position: CCFHR	☐

* Booz Allen Hamilton contractor and lead auditor certified

4. Name and Position of Individuals Interviewed

Senior Managers:

Name: Fred Holland	Position: Director, HML	☐
Name: Paul Comar	Position: Dep Dir, CCEHBR	☐

EMS Team Members:

Name: Rick Meitzler	Position: HML/CCEHBR	☒
Name: Raluca Semeniuc	Position: HML	☒

Employees:

Over 1/3 of the combined staff at HML and CCEHBR were interviewed during this audit.