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National Oceanic and Atmospheric Administration
Research and Development Records

Records Management Inspection Report

National Archives and Records Administration
October 2018

**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
RESEARCH AND DEVELOPMENT RECORDS**

INSPECTION REPORT

INTRODUCTION

The National Archives and Records Administration (NARA) is responsible for assessing the proper management of records in all media within Federal agencies to protect rights, assure government accountability, and preserve and make available records of enduring value. In this capacity, and based on authority granted by 44 United States Code (U.S.C.) 2904(c)(7) and 2906, NARA inspects the records management programs of agencies to ensure compliance with Federal statutes and regulations and to investigate specific issues or concerns. NARA then works with agencies, if necessary, to make improvements to their programs based on inspection findings and recommendations.

In FY 2018, NARA began a series of narrowly focused records management (RM) inspections investigating the management of research and development (R&D) or scientific records to identify unique and common challenges, risks, and trends that might be of interest to records management programs in other Federal agencies that create and maintain R&D records. The long-term business need for the data poses unique challenges for preservation, access, and eventual transfer of permanent records to the National Archives. The purpose of these inspections was to examine whether science centers comply with statutory mandates and RM requirements, with a focus on the management of R&D records in an electronic format, the ability to digitize or convert analog records, and on the ability of science centers to transfer permanent R&D records to the National Archives. The overall intent was to determine if science centers have essential policies, procedures and processes for creation, maintenance, and transfer of R&D records to the National Archives.

In June 2018, NARA inspected the management of R&D records at the National Centers for Environmental Information (NCEI) Headquarters in Asheville, North Carolina. The Centers are under the direction of the National Oceanic and Atmospheric Administration (NOAA), a component of the Department of Commerce (DOC). NCEI was chosen as part of the R&D series of inspections because it creates and maintains a large volume of R&D/scientific data.

Operated by NOAA's National Environmental Satellite, Data, and Information Service (NESDIS), NCEI was created in 2015 through the consolidation of three NOAA National Data Centers: National Climatic Data Center, National Geophysical Data Center, and National Oceanographic Data Center. Under its new structure, NCEI has two centers: the Center for Weather and Climate, and the Center for Coasts, Oceans, and Geophysics. NCEI "maintains, processes, distributes, and provides long-term stewardship for most of NOAA's environmental and geospatial data, and provides a broad range of user services."¹ NCEI maintains an archive of comprehensive oceanic, atmospheric, and geophysical data to which it provides public access.

¹ NOAA *Environmental Data Management Framework*, Version 1.0, <https://nosc.noaa.gov/EDMC/framework.php>, March 14, 2013.

According to their website, NCEI archives over 26 terabytes of data each month from over 130 observing platforms.²

OVERVIEW OF THE NOAA RECORDS MANAGEMENT PROGRAM AT NCEI

Records management at NCEI falls within the Archives Branch, which is aligned under the Data Stewardship Division. The branch is staffed full-time by an archive branch chief and two archivists, one of whom is a records liaison officer (RLO). Two have backgrounds in atmospheric science and one has a background in oceanography in addition to archives and library science. The program is further supported by the NOAA Agency Records Officer (ARO) located at NOAA Headquarters in Silver Spring, Maryland, and the DOC Senior Agency Official for Records Management (SAORM) located at DOC Headquarters in Washington, D.C.

The NCEI Archives Branch oversees the management of records created and maintained by scientists at NCEI and assists the scientists in consistently managing scientific data. To that end, they have begun to successfully incorporate archives and records management into research and development projects at the centers.

KEY OBSERVATION

DATA MANAGEMENT AND STEWARDSHIP

NCEI has implemented a data governance and stewardship approach to managing all data, including “records” as a subset of data assets. As part of NCEI’s overall data management strategy³ and to meet the goals and requirements of the White House Office of Science and Technology Policy (OSTP) Memorandum, *Increasing Access to the Results of Federally Funded Scientific Research*,⁴ and NOAA’s corresponding implementation plan,⁵ NCEI began creating an end-to-end data stewardship process in 2015 to support archival projects through their lifecycle, formalize the accountability and management of NCEI data (and records), and to ensure that all data available to users is archived. Records management lifecycle business processes have started to be incorporated in managing data and records. This includes having NOAA project managers and scientists work with the Archives Branch to create data management plans (DMP) at the beginning of each data collecting project or data producing program. The plans document such information as a description of the data to be managed; the program manager or data steward responsible for ensuring the proper management of the data; data lineage and quality; the process for producing and maintaining metadata; data access methods; and methods for data preservation and protection.⁶ The data stewardship process ensures that the appropriate data

² <https://www.ncei.noaa.gov/>.

³ See [NOAA Administrative Order \(NAO\) 212-15: Management of Environmental Data and Information](#), effective 11/04/10; [NESDIS Policy Directive \(NPD\) 6010.01A: NESDIS Environmental Data Management Planning Policy](#), dated February 2017; and [NCEI Digital Archive Data Management Plan](#), dated August 30, 2017.

⁴ https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf.

⁵ NOAA Research Council, [NOAA Plan for Increasing Public Access to Research Results: A Response to the White House Office of Science and Technology Policy Memorandum ‘Increasing Access to the Results of Federally Funded Scientific Research’ issued February 22, 2013](#), February 2015.

⁶ [NCEI DMP Template](#), dated August 30, 2017.

stewards are identified and engaged in each data-related task of the DMP throughout the lifecycle. Though there has been some resistance to the process, it is within this framework that the Archives Branch has begun to embed archives and records management into NCEI's mission and culture.

As part of the governance framework, NCEI also implemented a risk management and a data stewardship maturity model program to determine how well data is being managed. NCEI (in collaboration with the Cooperative Institute for Climate and Satellite - North Carolina) created the Data Stewardship Maturity Matrix (DSMM).⁷ The matrix scores digital environmental data products in nine key components: Preservability; Accessibility; Usability; Production Sustainability; Data Quality Assurance; Data Quality Control/Monitoring; Data Quality Assessment; Transparency/Traceability; and Data Integrity. The Archives Branch is currently working with project managers and data stewards to score themselves based on a maturity scale of 1 through 5, with Level 5 being Optimal. They have already used the matrix to score or assess over 700 datasets.

FINDINGS AND RECOMMENDATIONS

The NARA inspection team identified key areas of the NCEI records management program that are not fully compliant with various elements of 36 Code of Federal Regulations (CFR) Chapter XII, Subchapter B,⁸ that need to be addressed. This report makes two findings and six recommendations. Follow-up actions required for NOAA are included in Appendix C.

Finding 1: The NOAA records schedules that apply to NCEI data often require dispositions that do not reflect current mission needs and inherent data management challenges.

Current R&D records schedules do not always reflect current mission needs and are not implementable by the science centers. NCEI data are highly technical, created and maintained in formats preferred by its users, the international scientific community. The large volume of datasets make transferring the records to NARA challenging. The datasets are constantly seeing reuse in new projects making cutoffs for disposition difficult to determine. Data management policies and practices implemented by the creators and stewards of the data throughout the record lifecycle provide for the long-term preservation and public access of that data.

The NOAA ARO is currently working on rescheduling its R&D records to take into account the continued business use for the data. Some of the R&D records will require new long-term temporary schedules, and some will remain permanent. Until this rescheduling effort is completed, NCEI is retaining some permanent records past the current disposition as scheduled.

⁷ <https://www.ncdc.noaa.gov/news/addressing-scientific-data-stewardship-challenges>.

⁸ 36 CFR Chapter XII, Subchapter B, <https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title36/36CXIIsubchapB.tpl>.

Recommendation 1.1: The NOAA ARO must institute and notify NARA of a hold on disposition of applicable R&D records until the rescheduling effort is completed. (36 CFR 1226.18 and 36 CFR 1226.20)

Recommendation 1.2: The NOAA ARO must identify all of NCEI's permanent R&D records that are not being rescheduled but are overdue for transfer and create a disposition plan. (36 CFR 1235.12)

Recommendation 1.3: NCEI must establish internal controls to ensure all permanent R&D records are transferred to NARA on a consistent basis in accordance with NARA-approved records schedules. (36 CFR 1220.30(c)(1))

Finding 2: The NCEI storage facility for permanent and long-term temporary R&D records is non-compliant with NARA's standards as codified in 36 CFR 1234, 1237 and 1238.

NARA considers an agency records holding area with capacity for storing 25,000 cubic feet or more to be an agency records center. Agencies are required by 36 CFR 1234.30 to request from NARA the authority to establish an agency records center. This is to ensure that records in an agency's legal custody are stored in an appropriate and compliant facility. Agencies are also required to remove records from space that does not meet these standards if deficiencies are not corrected.⁹

The current NCEI records storage facility contains approximately 50,000 cubic feet of temporary and permanent R&D records in paper, microfilm, and nitrate film, with more records anticipated as part of a records consolidation effort. NCEI received approval from the General Services Administration (GSA) to build an agency records center in the 1950s before records storage specifications were codified in 36 CFR 1234 in 1999. This regulation requires agencies to obtain written approval from NARA before establishing an agency records center and every ten years thereafter. NCEI has not requested nor received approval from NARA to maintain an agency records center.

In addition, the NCEI agency records center currently does not meet design and environmental storage requirements for the proper storage of Federal records as codified in 36 CFR 1234, 1236, 1237 and 1238. Staff indicated seasonal fluctuations in temperature and humidity; and the NARA inspection team noted non-compliant relative humidity levels on the onsite hygrometer. For example, per 36 CFR 1238.20, permanent microfilm must be stored in an area with relative humidity (RH) at a constant 35 percent RH, plus or minus 5 percent. The inspection team noted levels almost twice that where thousands of microfilm were being stored.

Of more serious concern are the nitrate film being stored in the agency records center. Due to improper storage conditions, some of the films had developed a pungent odor due to off-gassing. The deterioration of this film presents a danger to other records within the records storage area, as well as to staff and property, as nitrate film is inherently unstable and highly flammable when

⁹ 36 CFR 1234.30(a), <https://www.archives.gov/about/regulations/regulations.html>.

stored under improper conditions.¹⁰ 36 CFR 1237.30(a) requires agencies to remove nitrate film from storage areas and to coordinate with NARA to determine whether they may be destroyed or retained after a copy is made by the agency for transfer to NARA.

Recommendation 2.1: NOAA must develop a plan to bring NCEI's records storage facility into compliance with NARA's standards. (36 CFR 1234, 1237, and 1238)

Recommendation 2.2: NOAA must request approval from NARA to maintain the agency records center for the storage of permanent and long-term temporary R&D records. (36 CFR 1234.30)

Recommendation 2.3: NCEI must develop a plan for appropriately managing the nitrate film. (36 CFR 1237.30)

OTHER OBSERVATIONS

EMAIL MANAGEMENT

DOC plans to use the Capstone approach to managing email using General Records Schedule (GRS) 6.1. NOAA plans to follow DOC's Capstone email schedule. Two different NA-1005 applications to use GRS 6.1 were submitted by DOC to NARA and returned for correction. No new application has been submitted or approved. The proposals name a Capstone official at the NESDIS level, but not at the NCEI level.

NOAA has drafted a policy for managing email using the Capstone approach (NOAA Administrative Order 205-2: *Management of Electronic Mail (Email) Messages*), pending the approval of the DOC NA-1005 application. At the time of the inspection, email was being saved but not dispositioned. NCEI policy requires that scientists save email pertaining to projects as a PDF file in the applicable project case file.

NOAA RECORDS AND INFORMATION (RIM) NETWORK

NOAA maintains a RIM network throughout the Bureau. NCEI is an active partner as part of this network. The NOAA ARO chairs the network and provides RM coordination through:

- Quarterly newsletters
- Monthly RLO teleconferences
- Ad-hoc teleconferences on RM training.

EXIT CLEARANCE PROCESS

NCEI utilizes NOAA's guidance on what departing employees, including scientists, can take with them and the process for exiting the organization. NCEI takes physical inventory of the departing employee's records and work area prior to signing off on the exit clearance form.

¹⁰ See the National Film Preservation Foundation's *Film Preservation Guide* for more information about the care, handling, and storage of nitrate film. <https://www.filmpreservation.org/preservation-basics/the-film-preservation-guide-download>.

EVALUATION

The NOAA ARO is conducting program reviews of two line offices per year. As a result, NCEI R&D records will be evaluated as a normal part of the evaluation program.

Additionally, in an effort to be a certified CoreTrustSeal Data Repository (a certification for trustworthy data repositories) and to meet the “Archive Safe Storage” objective in NCEI’s *FY 2018 Annual Operating Plan (AOP)*,¹¹ NCEI also piloted a self-assessment which involved conducting staff interviews and collecting documentation to determine gaps in requirements. They created a chart highlighting, through the use of color coding, which programs met which requirements and which programs were missing documentation, thus creating a records management baseline. Requirements included such areas as access and data preservation, data integrity and authenticity, metadata, and archival storage. NCEI is developing a plan to become CoreTrustSeal (CTS) certified and to conduct periodic self-assessments required for re-certification.

RM TRAINING

NCEI staff and contractors are required to take the NOAA RM 101 training. New staff must take NOAA-specific RM training within 60 days of employment. To supplement this training, NOAA provides agency-specific, role-based training for RLOs, senior officials, and managers. The Archives Branch also provides additional ad hoc training on such topics as file formats, metadata, and data management best practices as part of archive discussions. Finally, NOAA provides ad-hoc RM training, as needed, through RLO meetings, broadcast messages, line/staff briefings, and NOAA RM email notices.

CONCLUSION

The NCEI RM program’s creative and compliant approach to embedding records management into mission and business processes through data governance and stewardship demonstrate a commitment to preserving important R&D permanent historical records and improving internal records management processes. The process is impressive, well-documented and manages R&D data throughout the lifecycle. This example could be of use to other data-driven Federal agencies who create and manage scientific, technical, or R&D records.

As noted in this report, there are, however, a few areas that NOAA and NCEI need to address, such as the highly flammable nitrate film, the agency records center non-compliance issue, and the scheduling and disposition of its permanent R&D records. By making the improvements recommended in this report, NCEI will strengthen its compliance with records management requirements; further integrate records management into the existing data management framework; enhance the preservation of its R&D records; help mitigate risks to its R&D records and staff; and contribute to NCEI’s overall mission.

¹¹ For more information on CoreTrustSeal, see <https://www.coretrustseal.org/>.

APPENDIX A INSPECTION PROCESS

OBJECTIVE AND SCOPE

The objective of this inspection was to determine if R&D records created and maintained at NOAA's NCEI are in compliance with the Federal Records Act; 36 CFR Chapter XII, Subchapter B; and NOAA policy and procedures.

METHODOLOGY

NARA carried out this inspection by conducting site visits at the NCEI Headquarters in Asheville, North Carolina, and teleconferences with NOAA's Headquarters in Silver Spring, Maryland. More specifically, the inspection team:

- Reviewed records management policies, directives, and other documentation provided by NOAA;
- Interviewed RM representatives and research and development program staff at NCEI Headquarters;
- Guided the course of the inspection using a detailed checklist of questions based on Federal statutes, Federal regulations, and NARA guidance; and
- Reviewed NOAA responses to current and past annual Records Management Self-Assessments (RMSA) and current and past annual reports of DOC's SAORM.

OFFICES VISITED/INTERVIEWED

NCEI Headquarters, Asheville, North Carolina, June 12-14, 2018.

- NOAA Agency Records Officer
- NCEI Management Staff
- NCEI Records Management/Archives Program Staff
- NCEI Research and Development Program Managers and Staff

APPENDIX B

RELEVANT INSPECTION DOCUMENTATION

NOAA Administrative Order 205-1, "NOAA Records Management Program," January 19, 2010.

Letter from GSA Administrator to Chief of Weather Bureau, regards establishment of weather records center, July 21, 1951.

"Archive Safe Storage Outbrief," NCEI, March 28, 2018.

"NOAA Procedure for Scientific Records Appraisal and Archive Approval: Guide for Data Users and Producers," February 1, 2017.

"NOAA Procedure for Scientific Records Appraisal and Archive Approval: Guide for Data Managers," August 15, 2008.

"NCEI Digital Archive Data Management Plan (draft) v1.0," August 30, 2017.

"NCEI Document Preservation for Departing Employees," April 21, 2016.

"NOAA Plan for Increasing Public Access to Research Results: A Response to the White House Office of Science and Technology Policy Memorandum 'Increasing Access to the Results of Federally Funded Scientific Research' issued February 22, 2013," NOAA Research Council, February 2015.

"NOAA Plan for Increasing Public Access to Research Results," February 22, 2013.

NESDIS Policy Directive 6010.01A, "NESDIS Environmental Data Management Planning Policy," February 2017.

NOAA Administrative Order 212-15, "Management of Environmental Data and Information," 11/04/10.

SOP 10-10-001, "Data Management, Operations, and Services-Records Removal," NCEI, July 25, 2016.

"NCEI Data Management Planning Procedural Directive v.2.0.1," January 1, 2015.

"NOAA Environmental Data Management Framework," Version 1.0, <https://nosc.noaa.gov/EDMC/framework.php>, March 14, 2013.

"Addressing Scientific Data Stewardship Challenges," NCEI, <https://www.ncdc.noaa.gov/news/addressing-scientific-data-stewardship-challenges>.

"NCEI DMP Template," August 30, 2017.

“NAO 205-2: Management of Electronic Mail (Email) Messages,” draft, NOAA, December 2016.

“DOC Records Management Capstone Email Policy,” December 9, 2016.

“Email Management,” NOAA, June 13, 2018.

“Correspondence-NOAA Required Annual Records Management Training,” October 2, 2017.

“Records Management Fundamentals,” NOAA New Employee Orientation, August 13, 2012.

“Briefing for NOAA Managers on Federal Records Management,” not dated.

“Records Management Training for National Oceanic and Atmospheric Administration (NOAA) Records Custodians,” October 26, 2011.

NESDIS-OCIO Records Management Workshop, “Distinguishing Federal Records from Non-Records, Personal Files and Working Papers,” February 2, 2015.

NOAA Approved Records Schedules

APPENDIX C AUTHORITIES AND FOLLOW-UP ACTIONS

AUTHORITIES

- 44 U.S.C. Chapter 29
- 36 CFR Chapter XII, Subchapter B
- 36 CFR 1239, Program Assistance and Inspections

OTHER GUIDANCE

- Office of Management and Budget (OMB)/NARA *Managing Government Records Directive* (M-12-18)
- OMB/NARA *Guidance on Managing Email* (M-14-16)
- Other NARA Bulletins currently in effect

FOLLOW-UP ACTIONS

- ACTION PLAN

NOAA will submit to NARA within 60 days after the date of transmittal of this report to the head of the agency a Plan of Corrective Action (PoCA) that specifies how the agency will address each recommendation, including a timeline for completion and proposed progress reporting dates.

- NARA REVIEW

NARA will analyze the adequacy of NOAA's action plan, provide comments to NOAA on the plan within 60 calendar days of receipt, and assist NOAA in implementing recommendations.

- PROGRESS REPORTS

NOAA will submit to NARA semi-annual progress reports on the implementation of the action plan until all actions are completed. NARA will inform NOAA when progress reports are no longer needed.

APPENDIX D
ACRONYMS AND ABBREVIATIONS

ARO	Agency Records Officer
CFR	Code of Federal Regulations
CTS	Core Trusted Seal
DMP	Data Management Plan
DOC	Department of Commerce
DSMM	Data Stewardship Maturity Matrix
GRS	General Records Schedules
GSA	General Services Administration
NARA	National Archives and Records Administration
NCEI	National Centers for Environmental Information
NESDIS	National Environmental Satellite, Data, and Information Service
NOAA	National Oceanic and Atmospheric Administration
OMB	Office of Management and Budget
OSTP	White House Office of Science and Technology Policy
PoCA	Plan of Corrective Action
R&D	Research and Development
RH	Relative Humidity
RIM	Records and Information Management
RLO	Records Liaison Officer
RM	Records Management
RMSA	Records Management Self-Assessment
SAORM	Senior Agency Official for Records Management
U.S.C.	United States Code



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