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U.S. Geological Survey
Research and Development Records

Records Management Inspection Report

National Archives and Records Administration
October 25, 2018

**U.S. GEOLOGICAL SURVEY
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. These inspections examine whether science centers comply with statutory mandates related to 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 the creation, maintenance, and transfer of R&D records to the National Archives.

In June 2018, NARA inspected four science centers under the direction of the U.S. Geological Survey (USGS), a component of the Department of the Interior (DOI).¹ They were selected as part of the R&D series of inspections because they create and maintain a large volume of R&D/scientific data. While only a very small sample of USGS science centers, these four centers are a good representation of the types of research being conducted, approaches that are taken to scientific data stewardship, and the incorporation of RM into USGS operations. Further details on the inspection methodology and the selected centers are provided in Appendix A.

¹ In order to carry out its mission to develop new methods and tools to supply timely, relevant, and useful information about the Earth and its processes, USGS has over 100 science centers around the country, <https://www.usgs.gov/connect/locations>.

OVERVIEW OF USGS RECORDS MANAGEMENT AT THE FOUR SCIENCE CENTERS

Records management at the four USGS science centers is implemented through a network of Records Liaison Coordinators - Science Records (RLCS). Each center has at least one person serving in an RM capacity, though this role is rarely full-time. The centers also receive assistance through an on-site Records Disposition Coordinator, who works under the direction of the USGS Agency Records Officer (ARO).² The RM programs are further supported by the USGS ARO located at USGS Headquarters in Reston, Virginia, and the DOI Senior Agency Official for Records Management (SAORM) located at DOI Headquarters in Washington, DC.

RM staff oversee the management of records created and maintained by scientists at the four science centers and assist the scientists in consistently managing scientific data. USGS scientific data encompass a wide variety of information including textual and numeric information, instrument readouts, statistics, images (fixed or moving), diagrams, maps, and audio or video recordings. They include raw or processed, published, and archived data, such as data generated by experiments, models, simulations, observations of natural phenomena, and by data stored on any type of media.³

KEY OBSERVATIONS

NARA identified areas of the data management program that are not compliant with elements of 36 Code of Federal Regulations (CFR) Chapter XII, Subchapter B that need to be addressed. This report makes four findings and eight recommendations. Follow-up actions required for USGS are included in Appendix C.

It is also noteworthy that the USGS ARO is currently introducing numerous improvements for implementation at all of the science centers. Examples include two monthly Records and Information Management (RIM) Network meetings with the USGS ARO, one specifically addressing scientific records; use of an RM Plan template; USGS role-based RM training; and a scientific records re-scheduling effort through DOI.

QUALITY MANAGEMENT SYSTEM, OPEN DATA POLICY, AND DATA MANAGEMENT

USGS is in the process of standardizing their data management and data stewardship through a Bureau-wide Quality Management System (QMS) for laboratories. The QMS at USGS is a newly implemented, formalized management system that describes requirements, objectives, responsibilities, implementation plans, and other aspects of its program to better coordinate

² Lakewood/Golden, Colorado, is the only location, outside of USGS Headquarters in Reston, Virginia, that has an on-site Records Disposition Coordinator.

³ U.S. Geological Survey Manual 502.6, *Fundamental Science Practices: Scientific Data Management*, 01/13/2017.

scientific activities within the Bureau and to ensure the quality of its products and services. The QMS also helps to ensure that customer and regulatory requirements are met. The USGS Bureau-level QMS is being pushed out from Headquarters to the science centers for implementation. One objective of the QMS is to make proper documentation of laboratories routine and consistent.

USGS data management policy states that USGS scientific data must be managed throughout the data lifecycle and, when approved for release, must be made available to the public in accordance with USGS Fundamental Science Practices (FSP) requirements.⁴ Elements of USGS's data lifecycle model include the preservation, publishing, and sharing of scientific data with standardized metadata requirements, and backup copies of data to allow recovery from loss due to human error, hardware failure, computer viruses, power failure, or natural disaster.⁵ Responsibilities for data management are defined with designated officials having specific roles in establishing and enforcing the policies and other requirements that underpin data management at USGS. As part of USGS data management implementation, the USGS RM Program relates the lifecycle of a record to the data lifecycle model to show the relationship of data management to records management.

Changes were made recently to science center procedures to meet the requirements in the Office of Management and Budget (OMB) *Open Data Policy – Managing Information as an Asset* (M-13-13)⁶, which is also impacting data management at the science centers and, in part, driving USGS's Records Management Program at the four science centers. USGS is requiring scientists to complete Data Management Plans (DMP) that outline how their project data “will be managed, described, and stored, what standards [they] will use, and how [the] data will be handled and protected during and after the completion of the project.”⁷ Standardization of data collection, data governance, data stewardship, and data management (and RM) are all in progress. USGS's strategy actively incorporates compliant RM components through the data management planning framework, thus embedding RM in the culture of R&D projects at the centers.

⁴ U.S. Geological Survey Manual (SM) 502.6. Additional USGS FSP policies and requirements, such as those regarding the review, approval, and release of all USGS science data and information, can be found at <https://www2.usgs.gov/fsp/policies.asp>.

⁵ SM 502.6.

⁶ OMB *Open Data Policy – Managing Information as an Asset* (M-13-13), <https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2013/m-13-13.pdf>.

⁷ USGS Data Management, <https://www.usgs.gov/products/data-and-tools/data-management/data-management-plans>.

FINDINGS AND RECOMMENDATIONS

Finding 1: Data Management Plans do not cover the final disposition of R&D records in accordance with NARA-approved records retention schedules.

As of October 1, 2016, Data Management Plans are required to be created for every research project funded or managed by USGS as part of project work planning, USGS FSPs and the overall QMS process. The plans currently cover the data lifecycle through publishing. Though there is a preservation piece as part of the plan, the emphasis is on providing public access to the data, without mention of final disposition of the data per NARA-approved records retention schedules. The science center staff that we spoke with understand the value of their work and the need to manage (and not destroy) their data, but they are not fully aware that, after publishing, there is a disposition requirement, for example, that some data are scheduled as permanent and will eventually be transferred to the National Archives. Including final disposition in DMPs will help staff see the correlation between data and records, and ensure records management is part of the overall project planning and data management process.

Recommendation 1: The science centers must incorporate into policy and procedure the addition of final records disposition into Data Management Plans with coordination from the local records liaisons and Records Disposition Coordinator. (36 CFR 1226)

Finding 2: The four USGS science centers lack intellectual control over the data created and maintained at the centers.

All but one of the science centers commented on the lack of a systematic method for managing the data within their respective centers. Staff indicated they were often unclear about what data existed and where they were being maintained, sometimes resulting in data collection redundancies. Scientists are creating and maintaining records (both paper and electronic) using methodologies that make sense to them, but which may not be clear to others. For example, several centers indicated that scientists were saving project files by the scientist's name, not by project title or other identifier. This is especially an issue when staff leave USGS employment. Departed employees' records and data stored in numerous locations such as the employee's desk, shared drives, multiple offices, and other locations make the effort to organize and facilitate proper records disposition by supervisors and other staff difficult. This also decreases the usability of the data by remaining employees and others for future research.

Data are also sometimes maintained on obsolete formats that are no longer readable and with no identifying metadata. Staff at one of the centers, for example, notified the NARA inspection team of a large volume of microfiche being maintained onsite. The microfiche content and

condition is unknown, and might be the only source of the data. Another center indicated having a similar problem with 35mm slides.

Some basic steps should be taken to regain intellectual control of the data and to meet DOI and USGS RM policies, and recordkeeping requirements in 36 CFR Chapter XII, Subchapter B. Conducting records inventories are not only required by these regulations, but would also aid RLCSs as U.S. Geological Survey Manual (SM) 431.1⁸ assigns them responsibility for creating and maintaining file plans and in assisting the USGS ARO in developing the scientific records retention schedule. Creating standardized taxonomies with consistent naming conventions would aid staff in locating and re-using the data and aid overall proper disposition. In addition, both DOI's Departmental Manual 380 DM 3 and USGS's SM 431.1 require that records are organized and maintained throughout the records lifecycle in a way that facilitates the efficient identification, retrieval, retention and disposition according to approved records schedules. Some of the science centers are managing their R&D records better than others and could share their practices and experiences to improve the management of data throughout the centers. The USGS QMS and the creation of DMPs should improve data management over time.

Recommendation 2.1: Science center staff, working with the USGS Records Disposition Coordinator and local records liaisons, must conduct inventories of their active and inactive R&D records/data. (36 CFR 1220.34(i) and 1225.12(a & b))

Recommendation 2.2: Science center staff, working with the USGS Records Disposition Coordinator and local records liaisons, must evaluate the condition of inactive records and create a preservation and disposition plan, or modify existing Data Management Plans to include plans for records preservation and disposition. (36 CFR 1220.32(e))

Recommendation 2.3: Science center program managers/chiefs must coordinate with the local records liaisons and USGS ARO to create and implement procedures for maintaining their R&D project files. (36 CFR 1220.34(i) and 1222.34(a))

Finding 3: There are concerns regarding the management of records of departing USGS employees.

USGS's RM Manual, SM 431.1, states that when employees leave the agency, they must not remove or destroy any official USGS records, "except as authorized by their supervisor or the USGS Records Management Office." All four USGS science centers indicated having an exit clearance process that requires scientists to meet with RM staff before departing the agency. At least one of the centers indicated that there were previous instances, before the exit procedures were in place, when scientists took records home and that some records may have been donated

⁸ SM 431.1, *Records Management Program*, 11/10/2005.

to universities when they left the agency, which is regulated under 36 CFR 1226.26. Federal regulations prohibit the unlawful or accidental removal of Federal records with possible penalties including a fine, imprisonment, or both.⁹ The USGS ARO is aware of the problem and is currently updating SM 431.1 to address, among other issues, the donation of records by staff. This could also be an opportunity for the USGS ARO to evaluate how exit briefings are being conducted at USGS science centers, as well as on-boarding and annual RM training, to determine whether changes need to be implemented to ensure the proper disposition of Federal records.

Also of particular concern is the management of records as it relates to scientists who leave official agency employment and then convert to emeriti status through the USGS Scientist Emeritus Program. Science center staff noted that scientists who converted to this status often keep their Federal offices and some continue to create and maintain data in order to finish up projects and publish research. They also contribute to USGS in other ways, such as providing subject matter expertise, institutional memory, and community outreach.¹⁰ Individuals can remain in this status for many years after officially leaving Federal Government employment. While NARA recognizes the scientific research value of allowing these individuals to continue their research, there are some concerns because, in addition to the intellectual control issue already mentioned above in finding 2, there is a lack of policy, procedures, and internal controls as they relate to the management of records when scientists convert to this status. Updates to the *Handbook for Managing USGS Records, 431-1-H*, to include responsibilities for scientists emeriti, have been on hold since August 2016, pending finalization of SM chapter updates. While the Scientist Emeritus Program is coordinated in the USGS Office of Science Quality and Integrity, the program could benefit from specific RM requirements being incorporated into RM policy and guidance for Emeritus.

Recommendation 3.1: The USGS science centers, in coordination with the USGS ARO and Records Disposition Coordinator, must determine whether Federal records have been removed or donated unlawfully and report any incidents to NARA. (36 CFR 1230)

Recommendation 3.2: Science center staff must build additional safeguards into procedures for exit clearances to ensure that Federal records are not being unlawfully or accidentally removed. (18 U.S.C. 641 and 2071; 36 CFR 1230.12)

Recommendation 3.3: The USGS ARO, in coordination with the USGS Scientist Emeritus Program, must incorporate RM requirements into policy, procedures, and internal controls for records created and maintained by scientists on emeriti status. (36 CFR 1220.34(c & d), 1222.24, and 1222.26)

⁹ 18 U.S.C 641 and 2071, and 36 CFR 1230.12.

¹⁰ For more information on USGS's Scientist Emeritus Program, please see https://www2.usgs.gov/quality_integrity/emeritus/.

Finding 4: There is a need for more role-based RM training.

USGS science center staff are currently taking the annual DOI RM training. However, staff expressed the need for USGS role-based RM training (such as for center directors, project chiefs, technicians, and scientists) to better understand their unique responsibilities for managing R&D/scientific records. It is important for staff to be able to determine the relationship between data and records, when their data is considered to be a record and how to address records management for the data after it has been published, particularly when the data is re-purposed for additional or other research. The USGS ARO indicated that role-based training had been provided for Information Technology (IT) Specialists and Records Liaisons, and that she plans to expand into other roles.

Recommendation 4: The USGS ARO should continue to create and implement role-based RM training to ensure USGS science center staff have an understanding of their RM responsibilities as they relate to the management of R&D/scientific records. (NARA Bulletin 2017-01)

CONCLUSION

The USGS RM program is beginning to embed records management at the four science centers into the Bureau-led QMS and overall data management. However, areas of non-compliance need to be addressed. This report provides recommendations that will improve the overall governance of information in the centers and will more effectively connect records management to the management of data and scientific research. The specific recommendations related to issues unique to these four centers should serve as touchstones for the USGS ARO when evaluating other USGS science centers that may have similar challenges.

APPENDIX A

INSPECTION PROCESS

OBJECTIVE AND SCOPE

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

METHODOLOGY

NARA carried out this inspection by conducting site visits at the Central Energy Resources Science Center; the Colorado Water Science Center; and the Geology, Geophysics, and Geochemistry Science Center in Lakewood, Colorado; and the Geologic Hazards Science Center in Golden, Colorado. NARA also held teleconferences with USGS's Headquarters in Reston, Virginia. More specifically, the inspection team:

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

OFFICES VISITED/INTERVIEWED

NARA interviewed the following staff at the four science centers, June 19-21, 2018:

- Management Staff
- Records Management Staff
- Research and Development Project Managers/Scientists
- Data Management Staff
- Information Technology Staff

APPENDIX B
RELEVANT INSPECTION DOCUMENTATION

Department of the Interior, Departmental Manual, 380 DM 3, "Files Management," 05/09/95.

U.S. Geological Survey Manual 431.1, "Records Management Program," 11/10/05.

U.S. Geological Survey Manual 431.1, "Records Management Program," (draft) 4/25/2018.

U.S. Geological Survey Manual 432.1, "Files Management," (draft) 4/24/2018.

U.S. Geological Survey Manual 500.23, "Volunteer Service Acceptance," 6/29/11.

U.S. Geological Survey Manual Handbook 432-1-H, "Handbook for Managing USGS Records," October 1990.

U.S. Geological Survey Manual Handbook 432-1-H, "Handbook for Managing USGS Records," (draft) August 24, 2016.

U.S. Geological Survey Manual Handbook 500-23-H, "Volunteer for Science Handbook," June 2011.

"Policy and Procedures for the Management and Archival of Data and Records Collected for Hydrologic Studies by the Colorado Water Science Center of the U.S. Geological Survey," March 29, 2012.

"Records Management Handbook," Central Energy Resources Science Center, not dated.

USGS Data Management, <https://www2.usgs.gov/datamanagement/plan/dmplans.php>.

USGS Fundamental Science Practices, <https://www2.usgs.gov/fsp/policies.asp>.

"USGS Data Management Plan Checklist,"
<https://www2.usgs.gov/datamanagement/plan/dmplans.php#templates>.

"Records Management for Federal Records, Northeast Region IT Specialists Meeting," USGS, August 2017.

"Getting Started in Records Management," USGS, May 2018.

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

- 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

USGS 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 USGS's action plan, provide comments to USGS on the plan within 60 calendar days of receipt, and assist USGS in implementing recommendations.

- PROGRESS REPORTS

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

APPENDIX D
ACRONYMS AND ABBREVIATIONS

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| ARO | Agency Records Officer |
| CFR | Code of Federal Regulations |
| DM | Departmental Manual |
| DMP | Data Management Plan |
| DOI | Department of the Interior |
| FSP | Fundamental Science Practices |
| IT | Information Technology |
| NARA | National Archives and Records Administration |
| OMB | Office of Management and Budget |
| PoCA | Plan of Corrective Action |
| QMS | Quality Management System |
| R&D | Research and Development |
| RIM | Records and Information Management |
| RLCS | Records Liaison Coordinators - Science Records |
| RLO | Records Liaison Officer |
| RM | Records Management |
| RMSA | Records Management Self-Assessment |
| SAORM | Senior Agency Official for Records Management |
| SM | U.S. Geological Survey Manual |
| U.S.C. | United States Code |
| USGS | U.S. Geological Survey |



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