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Scheduling Research and Development (R&D) Records

Including Observational Data in the Physical Sciences

Records Scheduling Guide 6

National Archives and Records Administration
March 2024

About this Guide

This guide is for agency records managers and NARA appraisal archivists. Use it when scheduling and appraising research and development (R&D) records. Use of this guide is not required. Always consult NARA's appraisal criteria when proposing the disposition of records.

What are research and development (R&D) records?

R&D records document the planning and execution of basic and applied research. Basic research seeks to generate new knowledge. Applied research uses the results of basic research to design, develop, and test new products and processes. Agency R&D programs tend to be large in scale. They spend hundreds of millions of dollars yearly and generate voluminous records.

Considerations when scheduling research and development records

Scheduling R&D records requires determining who manages disposition of the records. Ownership of project records often depends on how the project is funded.

- **Projects funded by contracts.** The records specified in the contract as deliverables are federal records. The contract will state whether the contractor or the funding agency maintains the project records.

- **Grant-funded projects.** Grant project records are usually not considered federal records. The grantee maintains these records. Grantees may submit final products to the granting agency. GRS 1.2, item 030, covers final grant products or deliverables held by the granting agency.

- **Collaborative projects.** Recordkeeping for these projects depends on the funding sources and institutions involved. These projects can include non-federal institutions. Participants should determine recordkeeping responsibilities at the beginning of the project.

R&D records creation and use may span multiple offices or even agencies. Project records may be maintained in collaborative environments. Agencies need to determine who is responsible for recordkeeping, as it will affect record scheduling.

It is rare to schedule all the records of a project as permanent. Many R&D projects have a very limited focus and project records are often voluminous. Agencies need to be selective about which records they propose as permanent. Agencies may use selection criteria to identify files for permanent retention. If an agency chooses to use selection criteria, it must be implementable. Only the creating agency has the expertise to implement selection criteria.

Fiscal records are generally temporary when they are separate from other project records. This includes contracting and procurement records.

Some agencies may create tissue samples, slides, and specimens. This is particularly true of those agencies involved in environmental or health research. Researchers treat these records as project records. They are often preserved by the agency for long periods at large expense. NARA generally does not consider these materials to be federal records. However, agencies still need to manage them because of their importance and potential for long-term use.

Research and development records covered by the GRS

The General Records Schedules (GRS) provide disposition for records created by most federal agencies.

Common R&D related records covered by the GRS include:

- GRS 1.1, item 010 - Financial transaction records related to procuring goods and services, paying bills, collecting debts, and accounting (including contracts for goods and services)
- See GRS 1.1 for other records related to contracts
- GRS 1.2, items 020 and 021 - Grant and cooperative agreement case files
- GRS 1.2, item 030 - Final grant and cooperative agreement products or deliverables
- GRS 6.2, Federal Advisory Committee Records. Some R&D programs may have advisory committees. Committees established under the Federal Advisory Committee Act should use this GRS.

Agencies must schedule R&D records that are not covered by the GRS.

Scheduling common research and development records

The following types of R&D records are not included in the GRS. Although common, the value or retention needs vary depending on the significance of the research project. In some cases the records are almost always of permanent value. Projects that lead to major discoveries or that affect individuals, communities, or the environment are more likely to have permanent value. As noted above, it is rare that all records related to a R&D project will be permanent.

Most R&D conducted by or for the federal government follows a standard workflow based on the scientific method. The basic steps include:

- Formulating a hypothesis or statement of need
- Obtaining approval and/or funding
- Designing and conducting experiments and analyzing results
- Disseminating findings

The records created and accumulated by these steps fall into the following categories:

- Program management records covering the processes of formulation, selection, and funding
- Project records covering design, collection, analysis, and reporting
- Dissemination of findings

The following records are more likely to be permanent, especially for significant projects:

- **Program management records.** Records about the planning, policies, and priorities of research programs. Includes formulation, selection, and funding of projects.

- **Dissemination of findings.** Includes:

    - **Reports.** Annual or other progress reports that summarize the activities and findings of a project.

    - **Publications.** Records used to disseminate the findings, methodology and conclusion of a project. This includes technical reports, conference proceedings, and similar publications.

Other records are of more varying value. These records are still more likely to be permanent if the project is significant. Their value depends more on their organization, volume, and secondary research use.

- **Project records.** Statements of work, routine progress reports, internal briefing papers and presentations, specifications and drawings.

- **Laboratory notebooks.** These records are more likely to have long-term value if they are formally controlled. Some notebooks may include intellectual property or patent rights.

- **Photographs and moving images.** These records are more valuable if there is a linkage between the records and the project.

- **Research data.** Unprocessed (raw) or processed (compiled or analyzed) data. See the section on Scheduling and Appraising Research Data below.

- **Models.** These records are somewhat transitory in nature. They are often in a continuous state of development. One model replaces the next as soon as it is no longer useful. For these reasons, they are usually temporary records. The products of these models, however, may have more value.

Scheduling and Appraising Research Data

Agencies collect research data themselves and receive data submitted by outside entities. Scientific data exists in two forms: raw data and processed data.

Raw data is data that has not been processed for use. There are two types of raw data:

- **Observational Data**: Data based on the observation of natural phenomena. Researchers may collect data by means of human perception or measurement, or, more often, by sensor or other instrument. Observational data are usually unique and non-repeatable. This type of data is also usually generated in large volumes. The observations support real-time monitoring and forecasting. Over time they can also provide a historical record.

- **Experimental Data:** Raw data generated by an experiment.

Processed data is raw data that someone has manipulated to identify patterns in the data. Processed data gains value as researchers summarize and interpret the raw data

and synthesize new data. Processed data are usually subjected to scientific peer review.

Disposition of Research Data

- It is very difficult to generalize about the appropriate disposition for data. Both processed data and raw data have their own significance in the research process. The value of the data is often tied to the value of the project.

- Long-term temporary and permanent data should be authentic, reliable, have integrity, and be usable. Intellectual linkage with the related metadata is essential. It should also be possible to link the data with program or project management records. These other records provide extra context for the data.

Factors that impact the value and retention of research data include:

- **Uniqueness, completeness, and quality.**

- **Scope.** Data that is narrow in scope may be of less value.

- **Replication.** Data that is difficult or impossible to replicate may have more value or may need to be kept longer. This is especially true if that data has more than one purpose or use. Additional uses include review and validation, new research, and providing a legal basis for health-related claims. Data that is easy to replicate often has short-term value.

- **Metadata.** Metadata should be complete and should conform to an established standard.

- **Documentation.** Data is usually more valuable when accompanied with records describing the research protocol and modes of analysis.

- **Peer review.** Peer reviewed data is more likely to have the attributes above that increase its value.

- **Accessibility.** This refers to the availability of technology to access the data. Data that is in a proprietary format and cannot be exported to a more standard format may be of less value.

- **Secondary use.** Data is more likely to be permanent if it can be used in more than one way. Secondary uses include other scientific research, legal, commercial, educational, engineering, resource management, or other purposes.

- **Level of processing.** Raw or minimally processed data is more difficult for secondary users to understand and use. However, it is necessary for conducting a reanalysis. As data is processed, it becomes easier to use but less subject to reanalysis. To allow for future reanalysis, it may be necessary to balance keeping data in as raw a form as possible with ease of use. Processed data is more likely to have long-term value if it would be costly to recreate from the raw data. It may be appropriate to schedule both raw and one or more processed versions of the data as permanent.

Observational data is more likely to be long-term temporary or permanent. This is because:

- It often documents phenomena that will never happen again. Observational data can establish a baseline to help determine future rates of change and frequency of occurrence of unusual events.

- Researchers can process it and use it in new ways, for example, to verify new scientific concepts.

- It can cover a long period of time. This type of data allows for identifying long-term patterns. This in turn increases confidence in the data and conclusions drawn from it. So it tends to be more valuable.

- Long-term data can contribute to the historical record.

Final disposition of the data may also depend on where that data is best stored. Agencies often keep their observational data in scientific data centers. These data centers have the necessary expertise to ensure long-term preservation and access. Such centers also make data available for use by posting it or linkages to it on their websites. Researchers know to go to an agency's data center for data and help. Also, research data may not meet NARA's appraisal criteria. In these situations it is best for data to stay with the agency as a long-term temporary record. Finally, it is sometimes appropriate for research data to go to non-government institutions for long-term or permanent storage.

Retention Guidelines

Transfer of permanent records

NARA typically approves records for transfer to NARA between 15 and 30 years. For longer or shorter transfer periods, see NARA Bulletin 2020-02: Guidance on Scheduling the Early and Late Transfer of Permanent Records.

Retention of temporary records

Agencies should base the retention of temporary records on the agency's administrative, fiscal and legal needs for the records. As noted elsewhere in this document, agencies often keep R&D records for long periods of time due to ongoing reference use.

Related NARA Resources

Code of Federal Regulations: 36 CFR Chapter XII, Part 1235 (Transfer of Records to the National Archives of the United States)

Strategic Directions: Appraisal Policy (excerpted from NARA Directive 1441)

NARA Bulletin 2018-01: Updating NARA Bulletin 2014-04, Format Guidance for the Transfer of Permanent Electronic Records