Reclamation Manual

Policy

Subject: Stewardship of Bureau of Reclamation Mission-Critical Resources Data

Purpose: This Policy states requirements for the stewardship of mission-critical resources data (MCRD). These are data that the Reclamation Leadership Team deems to be essential for the management of water and related resources, real property (lands, buildings, and other structures in which Reclamation has an interest), and facilities.

    The benefits to Reclamation of providing stewardship for MCRD include obtaining greater return on its data investments; reducing the loss of valuable data; improving data documentation; facilitating data sharing across projects, regions, and agencies; reducing redundant expenditures and efforts; and ensuring that data are of sufficient quality to support needed decisions.

Authority: Federal Records Act of 1950 (Pub. L. 81-754); The Clinger-Cohen Act of 1996 (Pub. L. 104-106, Division E, 40 U.S.C. 1401 et seq.); Section 508 (29 U.S.C. 794d) of the Rehabilitation Act of 1998; Section 515 of the Treasury and General Governments Appropriation Act of 2001 (Pub. L. 106-554) also called the "Information Quality Act"; E-Government Act of 2002, Title III, Information Security (Pub. L. 107-347); OMB Circular No. A-119 – Transmittal Memorandum, Federal Participation in the Development and Use of Voluntary Standards, revised 1998; OMB Circular No. A-130 - Management of Federal Information Resources, February, revised 2000; OMB Circular A-16 - Coordination of Geographic Information and Related Spatial Data Activities, revised 2002; OMB Circular A-16 Supplemental Guidance on Geospatial Line of Business, November 2010; Department Manual (DM) 378 DM 1 - Data Resource Management; 384 DM 1 - Records Disposition; and U.S. Department of the Interior Data Standardization Procedures, April 2006.

Approving Official: Commissioner

Contact: Director, Chief Information Office (CIO)**,** 84-21000

1. **Introduction.** In meeting its mission to develop, manage and protect water and related resources in an environmentally and economically sound manner, Reclamation invests substantial staff and materiel to collect, maintain, analyze, and make decisions based upon MCRD. The data Reclamation collects, or funds others to collect, are valuable assets for local offices, Reclamation as a whole, other agencies, and the American public. Reclamation must ensure that the value and utility of MCRD are carefully maintained. The Department of the Interior provides substantial guidance and support in the area of information and data stewardship. This Policy, while specific to Reclamation, aligns with Departmental data stewardship policies and guidance documentation wherever applicable. The Policy addresses data stewardship from the conception of an information need through

logical design, physical collection, analysis, and ongoing maintenance of data assets. It establishes Resources Information Classes (RIC) and a process for determining MCRD. For these information classes this Policy also establishes corresponding Business Data Steward (BDS) roles. In addition, this Policy requires that the collection of MCRD be guided by a Data Acquisition and Management Plan (DAMP). As required, Reclamation Manual Directives and Standards (D&S), discretionary technical guidelines and handbooks will be developed to supplement the procedures associated with this Policy.

2. **Applicability.**

   A. This Policy applies to all Reclamation employees and offices undertaking or funding the collection of MCRD. Although not required, the concepts in this Policy may be applied to other resources data as deemed appropriate.

   B. Requirements on the use of data in decision-documents, including issues of disclosure and scientific integrity, are addressed in Reclamation Manual D&S, *Scientific Integrity* (CMP TRMR-29).

3. **Definitions.** The terms relevant to this Policy are defined below:

   A. **Data Lifecycle.** The data lifecycle is a structured, sequential process for the planning and management of data from the definition of requirements for decision making or business needs to final data archiving. (See Appendix A.)

   B. **Resources Information Class.** A Resources Information Class is a subject area or domain of data gathered to support Reclamation's operations or to meet a business requirement.

   C. **Mission-Critical Resources Data.** MCRD are those data essential for Reclamation's management of water, power, environmental resources, real property (lands, buildings, and other structures in which Reclamation has an interest), and facilities. Typically, these data are:

      (a) related to the identified resource;

      (b) difficult, costly, or impossible to recreate if lost; and

      (c) important to support mission decisions;

   In addition, they may be one or more of the following (d to i):

      (d) data whose loss, failure, or disruption would result in the failure of one or more business operations;

      (e) data essential to the success of one or more or Reclamation projects;

(f)   data essential to the continued operations of Reclamation;

(g)   data whose loss, failure, or disruption could result in injury, loss of life, loss of property, loss of reputation, legal liability, or severe financial loss;

(h)   data essential to the protection of one or more vital resources; or

(i)   data essential for complying with Federal laws and regulations.

These are data for which the agency will obtain the greatest benefit from the coordination of collection strategies and methods, consistency of metadata and documentation, security of storage and archiving, appropriate access, and efficient sharing.

D.   **Data Acquisition and Management Plan.** A DAMP is the planning document that describes the objectives, procedures, standards, roles, and responsibilities associated with each step of the data lifecycle.

E.   **Business Data Steward.** A business data steward facilitates agency-wide stewardship of MCRD in one or more RICs.

F.   **Data.** Data are representations of facts in a formalized manner suitable for communication, analysis, interpretation, or processing. These representations may include, but are not limited to, measurements, observations, and processed or modeled output.

G.   **Data Standard.** Data standards are documented agreements on representations, formats, and definitions of data, which improve data quality and sharability by increasing compatibility, improving the consistency and efficiency of the collection, and reducing redundancy. Data standards are often created by organizations or agencies that have a strong interest in promoting the wide sharing of specific RICs, such as the Federal Geographic Data Committee and the National Institutes of Standards and Technology.

H.   **Data Steward.** A data steward is an individual who manages the development, storage, and use of data associated with a specific RIC or business area through all parts of the data lifecycle, ensuring that the data will satisfy business requirements. A data steward can function at many levels in the organization. For the purposes of this Policy, we define the business level data steward above.

I.   **Data Stewardship.** Data stewardship is the planning and management of a data asset throughout the data lifecycle to ensure that it can confidently be used to satisfy a business requirement and support sound decision-making.

J. **Data Stewardship Coordination Team.** The Data Stewardship Coordination Team (DSCT) is a Reclamation-wide entity charged with developing and recommending to the Director of the Chief Information Office data stewardship policy, data standards, technical guidelines and handbooks, best practices, technology, and training.

K. **Metadata.** Depending on the data at hand, metadata may include a description of a data set's collection protocols, geography, compilation, format, availability, completeness, currency, context, condition, maintenance, and quality. It may also disclose appropriate use guidelines; describe access procedures; and facilitate data transfer. Metadata inform potential users about the utility and quality of the data for any particular application. In layman's terms, metadata describe the "who, what, where, when, why, and how" of a data set.

L. **Reclamation Facility.** A Reclamation facility is typically a building or structure owned by Reclamation and operated and maintained by Reclamation with its own workforce using appropriated funds from the Congress, revolving funds, or other funding sources (cost sharing, user contributions, user fees, etc.). For the purposes of this Policy, facilities owned by an entity other than Reclamation, where Reclamation retains Operations and Maintenance (O&M) responsibilities, are also defined as Reclamation facilities

M. **Reclamation Lands.** Reclamation lands are real property administered by the Secretary, acting through the Commissioner of Reclamation, and include all acquired and withdrawn lands and water areas under the jurisdiction of Reclamation.

N. **Reclamation Real Property.** For the purposes of this Policy, Reclamation real property is any real property (lands, buildings, structures in which Reclamation has an interest) owned, leased, or otherwise managed by Reclamation, and improvements on Reclamation lands.

O. **Water Resources Management.** For this Policy, water resources management is defined as those planning, design, construction, operations, maintenance, rehabilitation, and/or dam safety activities performed by Reclamation to accomplish its mission.

P. **Water and Related Resources.** For this Policy, "water and related resources" refers to water, land, environmental, power, and cultural resources.

4. **Responsibilities.**

A. **Commissioner.** The Commissioner of Reclamation is responsible for the implementation of this Policy.

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B. **Directors.** Directors[1] are responsible for the implementation of this Policy within their organizations and in areas within their jurisdiction, wherever MCRD are collected, produced, or maintained.

C. **Area Office Managers.** Area office managers are responsible for the implementation of this Policy within their jurisdictions.

D. **Program and Project Managers.** Program and project managers are responsible for the implementation of this Policy within their programs and projects.

E. **Director, Chief Information Office.** The Director of the Chief Information Office has responsibility for guiding and overseeing data stewardship activities under this Policy. He/she develops and maintains data stewardship policies and procedures; assigns a Reclamation Data Resource Manager to chair the Data Stewardship Coordination Team; and represents Reclamation to the Department, other government agencies, standards development organizations, and industry on matters pertaining to the development and adoption of data standards. This individual will oversee the development of a data standards review and approval process within Reclamation.

F. **Data Resource Manager.** The Data Resource Manager (DRM) in the Chief Information Office coordinates data management and stewardship activities for Reclamation. This responsibility includes creating and/or reviewing proposed data standards with Reclamation's Business Data Stewards and subject matter experts. The DRM will coordinate the development and implementation of this Policy and any subsequent Policy, Directives and Standards, or technical guidelines for data stewardship. The DRM will maintain alignment with relevant Departmental policies and standards and will also coordinate with data stewards at the Department level. Finally, the DRM will coordinate review and comment on draft DAMPs.

G. **Business Data Steward.** Each Business Data Steward (BDS) has responsibility for one or more RICs across Reclamation. A BDS works directly with the DRM, subject matter experts, and other BDSs to develop, review, modify, and/or adopt data standards for MRDC within a particular RIC. The BDS also promotes the lifecycle planning approach for MCRD acquisition and management activities. The BDS is responsible to identify and promote best practices and tools for ensuring data quality, documentation, security, access, and sharing. Business data stewards will coordinate their work with the activities of all other data stewards collecting data in their RIC.

H. **Data Stewardship Coordination Team (DSCT).** The DSCT is chaired by Reclamation's DRM and is comprised of at least one representative from each of the following directorates: Regional Directors; the Director of Technical Resources; the Director of Security, Safety, and Law Enforcement; and the Director of Policy and

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[1] For purposes of this policy, Directors refers only to the Directors of the Chief Information Office, Technical Resources, Policy and Administration, Security, Safety, and Law Enforcement and the five Regional Directors.

Administration. Reclamation BDSs are also members. The Director of the Chief Information Office and the DSCT will institute a process for the development, review, and approval of data standards for MCRD data sets.   They will oversee implementation of approved standards. Working closely with the BDS for each RIC, the DSCT identifies MCRD sets. The DSCT recommends priorities and strategies for enhancing stewardship of MCRD to the Director of the Chief Information Office. This team works with subject matter experts and project data stewards, as needed, to develop priority data standards and other tools and procedures for specific RICs. The DSCT also acts in a capacity to coordinate and facilitate cross-functional discussions, and provides advice concerning management and stewardship decisions. This advice includes, but is not limited to data terms, their definitions and scope, and matters related to data discoverability and sharing.

5.   **Policy.** Implementation of this Policy is to be accomplished throughout Reclamation wherever MCRD are collected, produced, or maintained.

A.   **Data as Assets.** Reclamation will treat MCRD collected by or developed for the agency as valuable water resources management assets. Appropriate stewardship and management of these assets requires planning and management of their creation, use, storage, maintenance, preservation, and disposition to ensure their usefulness, objectivity, integrity, security, and quality for the decisions or business requirements they support. These assets will be managed in such a way as to make possible subsequent potential uses across programs in order to maximize the value of the data investment, including archiving data in such a way as to maintain its discoverability.

B.   **Data Stewardship Coordination Function.** Reclamation will create a data stewardship coordination function within the Chief Information Office. The Director of the Chief Information Office is charged with overseeing and supporting implementation of this Policy, and with the administration of this function.

C.   **Resources Information Classes:** The following RICs define the domains within which MCRD will be identified for increased data stewardship:

(1)   real property data describing the location and disposition of Reclamation lands, buildings, structures, and facilities;

(2)   data related to the safety and security of Reclamation dams, power plants, and other critical infrastructure;

(3)   threatened, endangered, and invasive species;

(4)   water storage or delivery;

(5)   power generation and delivery;

(6)   facility operations and maintenance.

D.   **Business Data Stewards.** This Policy requires a business data steward for each RIC. The Director of the Chief Information Office, in consultation with the RLT, will identify a BDS for each RIC. Project data stewards may be established as needed by the managing office.

E.   **Data Stewardship.** Data stewardship, which is the management of data through the entire data lifecycle, is the responsibility of all managers and staff where MCRD are collected, produced, or maintained. Reclamation managers must provide sufficient training, staff, and materiel to ensure the quality, security, and accessibility of MCRD whether collected by or for Reclamation. In addition, managers and staff will make certain that related data documentation is appropriately created, maintained, and updated throughout the data lifecycle. Data stewardship within Reclamation will align with Department data policies where applicable.

F.   **Data Acquisition and Management Plan.** Collection of all MCRD by or for Reclamation will be guided by a DAMP. DAMPs will define and describe data stewardship activities throughout the data lifecycle. DAMPs will be developed for individual data collections or to provide programmatic guidance for MCRD collections across projects or offices.   These plans must be developed by staff trained in data stewardship principles and practices, along with subject matter experts from both data-specific and information technology disciplines. The DSCT will provide assistance to the DAMP developers, as requested.

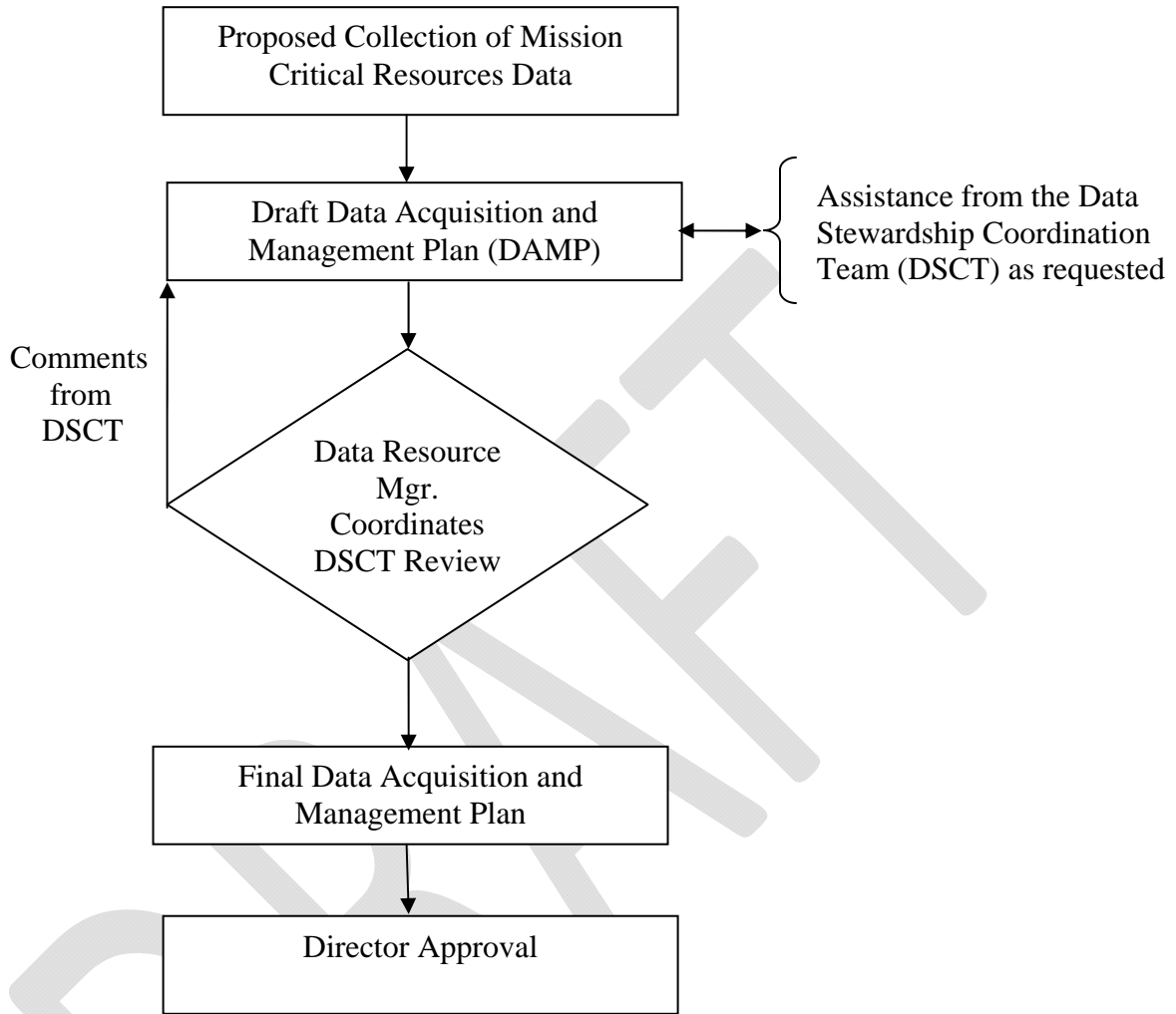Draft DAMPs will be provided to the DRM who will solicit comments and suggestions from members of the DSCT and other experts as appropriate and provide these to the Director of the authoring organization for consideration in final revisions. The final DAMP will be approved by the Director (or designee), and a copy sent to the Chief Information Office.

Figure 1, below describes the DAMP approval process:

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Figure 1 – **DAMP Approval Process**

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┌─────────────────────────────────┐
│ Proposed Collection of Mission  │
│ Critical Resources Data         │
└─────────────────────────────────┘
              │
              ▼
┌─────────────────────────────────┐        ┐  Assistance from the Data
│ Draft Data Acquisition and      │◄──────►│  Stewardship Coordination
│ Management Plan (DAMP)          │        │  Team (DSCT) as requested
└─────────────────────────────────┘        ┘
              │
   Comments   ▼
   from       ◇ Data Resource
   DSCT         Mgr.
               Coordinates
               DSCT Review
              │
              ▼
┌─────────────────────────────────┐
│ Final Data Acquisition and      │
│ Management Plan                 │
└─────────────────────────────────┘
              │
              ▼
┌─────────────────────────────────┐
│ Director Approval               │
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G. **Metadata.** Metadata will be collected and maintained as an integral part of MCRD and will be subject to the same lifecycle management, storage, and access requirements. This information must include a description of the purpose for the collection or development of the data and the processing required to develop them. Metadata must also identify information about the format, the availability, the access requirements or restrictions, the completeness, the currency, the context, the condition, the maintenance, and the quality of the data set. It must disclose appropriate use guidelines and it must facilitate data transfer. Metadata will accompany their MCRD from their collection through to their final archival and will be kept current at all stages of the data lifecycle. Metadata will provide a common set of terminology, definitions, and information about the content.

H. **Data Sharing and Access.** Where Reclamation funds the collection of mission-critical resources data by others, Reclamation managers will ensure that data meeting the requirements of this policy are provided to or made accessible to Reclamation with appropriate documentation. The Director of the Chief Information Office , the Data Resource Manager, the Business Data Stewards, and the Data Stewardship Coordination Team will work with subject matter experts and other DOI agencies to develop policies, processes, and procedures to facilitate inter-agency and intra-agency data sharing and appropriate access. Further, Reclamation will, wherever possible, pursue development of inter-agency data sharing agreements.

I. **Data Stewardship Coordination Team.** The Director of the Chief Information Office, in conjunction with the RLT, will establish the Data Stewardship Coordination Team. This team will draft and review, as necessary, Policy, D&S(s), and discretionary technical guidance concerning data standards for consideration by the Director of the Chief Information Office and the RLT. The team will report to the Chief Information Office.

J. **Data Standards Review Process.** The Director of the Chief Information Office, working with the Data Stewardship Coordination Team, will develop a data standards review and approval process which will be subject to the approval of the RLT. Departmental data standards are to be adopted where applicable.

K. **Policy Review.** In addition to the biennial review required by Reclamation Manual Directive and Standard, *Reclamation Manual (RM) Release Procedures* (RCD 03-01), this Policy will be reviewed by the Data Stewardship Coordination Team every 3 years from its adoption and revised to best meet the objectives of the Policy, incorporating experience gathered from initial implementation.