Assessment Information

CoreTrustSeal Requirements 2017–2019

Repository:	Earth Resources Observation and Science Center
Website:	https://eros.usgs.gov/
Certification Date:	21 November 2018
This repository is owned by:	U.S. Geological Survey

USGS EROS Center

Notes Before Completing the Application

We have read and understood the notes concerning our application submission.

True

Reviewer Entry

Reviewer 1

Comments:

Reviewer 2

Comments:

CORE TRUSTWORTHY DATA REPOSITORIES REQUIREMENTS

Background & General Guidance

Glossary of Terms

BACKGROUND INFORMATION

Context

R0. Please provide context for your repository.

Repository Type. Select all relevant types from:

Domain or subject-based repository, Institutional repository, National repository system; including governmental

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

Comments

Repository Type: Domain (Land Remote Sensing), Institutional (USGS-EROS), National [US] (National Satellite Land Remote Sensing Data Archive). The repository requesting certification is the Earth Resources Observation and Science (EROS) Center, which is a science field center within the U.S. Geological Survey.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

Brief Description of the Repository's Designated Community.

Designated Community: Our land-based, remotely sensed science data is used by researchers, resource managers, and policy makers across the nation and around the world. (reference https://eros.usgs.gov/about-us accessed 9/19/2018)

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

Level of Curation Performed. Select all relevant types from:

A. Content distributed as deposited, B. Basic curation – e.g. brief checking; addition of basic metadata or documentation, C. Enhanced curation – e.g. conversion to new formats; enhancement of documentation, D. Data-level curation – as in C above; but with additional editing of deposited data for accuracy

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

Comments

Level of Curation: A through D. The Archives receives collections from multiple sources of which minimal to significant curation work is performed before the collection is made accessible. The curation work is performed on both electronic and analog film records.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

Outsource Partners. If applicable, please list them.

The EROS Center does not outsource any element of its repository responsibilities.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

Other Relevant Information.

The EROS Center was established in 1972 to archive land remote sensing observations obtained from orbiting satellites and airplanes. The mission has evolved to also include land cover and land use. Today, upwards of 1,000 new observations are received daily covering land areas from around the world.
Since its establishment, the EROS Center has functioned as an Archives co-located with a science staff allowing direct access to the treasures preserved. Serving the larger, global research community was originally fulfilled through the

distribution of analog film and print copies. Beginning in the 1980s, distribution has shifted to be entirely electronic based. For thirty years the role "Chief of Data Management" was used to guide the preservation and access functions of the EROS Center. In 2001, the position of Archivist was created to better direct the policy, oversight, and guidance needed for a national archive.

The EROS Center partners with several U.S. federal agencies, but it’s largest partner is the National Aeronautics and Space Administration (NASA) who has worked with the EROS Center since the 1970s. Current cooperative work includes planning for the Landsat 9 satellite to be launched in 2020 and the management of the NASA Land Processes Distributed Active Archive Center at the EROS Center. Significant amounts (over 100 million records see “LPDAAC” section on page 6 from URL https://eros.usgs.gov/nslrsda - choose “EROS Monthly” (accessed 26 Dec 2017)) of NASA land remotely sensed data is stored and distributed by the EROS Center. NASA is itself investigating certification and benefits from the services the EROS Center currently provides. For additional information of the NASA LPDAAC hosted by the EROS Center see URL https://lpdaac.usgs.gov (accessed 26 Dec 2017). The EROS Center and NASA cooperate through Memorandum of Understanding documents stating the expectations of each party.

For additional background information, the EROS Center home page can be located at URL http://eros.usgs.gov (accessed 26 Dec 2017). To examine example observational records, please see URL http://eros.usgs.gov/imagegallery (accessed 26 Dec 2017). A monthly management report detailing the land-based collections preserved and made accessible can be viewed at URL https://eros.usgs.gov/nslrsda. Click on “EROS Monthly” (accessed 26 Dec 2017). During our latest fiscal year (2017), the EROS Center holdings grew by four petabytes (including copies) to total 28 petabytes. Currently, the total electronic volume is over 40 petabytes (August 2018). Distribution to our research community from the Archives for fiscal year 2017 was 32 petabytes. Source documentation for these figures are found in our internal Consolidated Reports available upon request.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

ORGANIZATIONAL INFRASTRUCTURE

I. Mission/Scope

R1. The repository has an explicit mission to provide access to and preserve data in its domain.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

EROS Center Mission and Vision
“The EROS mission - contributing to the understanding of a changing Earth - is accomplished through science and applications, systems development, information technology, and operations. EROS uses remotely sensed land data to monitor, assess, and project how changes in land use, land cover, and land condition affect people and nature.
The EROS Center vision is to be:
■ The world's primary source and steward of remotely sensed land images of the Earth;
■ Authoritative providers of land change science data, information, and knowledge; and
■ Leaders in understanding how changes in land use, cover, and condition affect people and nature.”
(Source: USGS EROS Strategic Plan 2016-2021 approved by USGS and EROS senior management URL https://eros.usgs.gov/sites/all/files/external/eros/history/2010s/2016-2021-USGS-EROS-Strategic-Plan-FINAL_11-19-2015.pdf accessed 26 Dec 2017)

An additional, relevant EROS Center mandate stems from U.S. Public Law 111-314, subtitle VI of Title 51, United States Code, Chapter 601, originally the Land Remote Sensing Policy Act of 1992, Public Law 102-555 (URL https://www.congress.gov/bill/102nd-congress/house-bill/6133 accessed 26 Dec 2017). This legislation established the National Satellite Land Remote Sensing Data Archive (NSLRSDA) and charged the U.S. Department of the Interior, delegated to the EROS Center through our parent USGS, to permanently maintain an archive of land observations. See URL http://eros.usgs.gov/nslrsda/ (accessed 26 Dec 2017) for more details. There are established selection criteria that apply to any collection considered for NSLRSDA inclusion. Note that the legislation and related EROS Center policies address both analog and digital records. Related directly to preservation and access functions, the legislation that has been delegated down from the Department of the Interior (the parent organization to the U.S. Geological Survey) to the EROS Center states, “The Secretary of the Interior, in consultation with the Landsat Program Management, shall provide for long-term storage, maintenance, and upgrading of a basic, global, land remote sensing data set (hereinafter referred to as the 'basic data set') and shall follow reasonable archival practices to assure proper storage and preservation of the basic data set and timely access for parties requesting data.” These principles are applied to all science data entrusted to the EROS Center.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

II. Licenses

R2. The repository maintains all applicable licenses covering data access and use and monitors compliance.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

Situations involving formal licensing agreements are quite rare for the EROS Center. During the late 1980s we were involved with following a compliance procedure to register approved researchers for the NASA Large Format Camera flown on a NASA Shuttle mission. That lasted but a few years and is no longer reuired. In the late 1990s we entered into an agreement with the SPOT Image Corporation to preserve, make available, and to collect a royalty fee for copyrighted satellite imagery. That agreement also lasted for only a few years and is also no longer required. From 1985 to the late 1990s, the civilian satellite program Landsat was commercialized. The EROS Center played a major role by preserving and making accessible the Landsat records commercialized under a Trade Secret arrangement, which was similar to a copyright. The Landsat commercialization effort eventually ended with the program returning to U.S. federal and EROS Center oversight, but considerable experience was gained during the time period. As a U.S. federal agency, any involvement with licensing must be documented including the procedures established for the particular collection. These past situations are offered only as examples of EROS Center experience with restricted/licensed data. The only current examples involve relatively small datasets established for specific defense or federal customers based on commercial licensing of remotely sensed data purchased for U.S. federal users. Specifics on the few collections this applies toward

can be found at https://lta.cr.usgs.gov/UCDP (accessed 9/19/2018).

Since 2008, the EROS Center has followed a free to the user, open data policy as directed by the U.S. Department of the Interior, which is the parent organization for the USGS. Historically, the EROS Center dealt with copyrighted data by attaching labels to physical media that spelled out the acceptable uses allowed. This situation has not been present for many years. Today, when a commercial entity offers a collection to the EROS Center, and after an appraisal recommendation favoring acceptance is documented, the offeror must be willing to provide a company letterhead statement transferring all legal titles to the EROS Center. With that transfer, the EROS Center can accept collections, prepare them for finding aids, and offer them to any and all researchers at no cost. The data are then considered to be in the Public Domain. While we request source credit, even this is not required. The data can be used for any purpose desired. See https://lta.cr.usgs.gov/citation (accessed 9/19/2018) for our Data Use and Citation notices.

All USGS records offer FGDC metadata outputs as an option. Inside those individual FGDC files are the categories of Use_Constraints and Fees. Combined, these fields identify the policies USGS utilizes. Additionally, a metadata contact is provided in case an interested party would like to directly pull information from our databases.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

III. Continuity of access

R3. The repository has a continuity plan to ensure ongoing access to and preservation of its holdings.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

All U.S. federal agencies are required to have a Continuity of Operation Plan (COO or COOP). Additionally, as part of EROS' risk mitigation strategy, all of our electronic, long-term science data are sent to the U.S. National Archives and Records Administration (NARA) Lees Summit, Missouri, which is a five-hour drive from our facility. This offsite arrangement has been part of our risk mitigation procedures since 2009. We currently have over 5 petabytes of data stored on magnetic media at Lees Summit. Our metadata is stored offsite, separately, at a different facility. Our analog film is being scanned and electronic copies of those film are also sent to the NARA Lees Summit, Missouri for offsite, safe-keeping. To date, we have scanned around four million frames of analog film. We have approximately two million frames remaining, though more film may be sent to us in the future.

Additionally, the EROS Center has a Memorandum of Understanding with the U.S. NARA designating EROS as an Affiliated Relationship for analog, aerial photography that requires EROS to follow NARA guidelines and to act on their behalf to preserve and make accessible aerial film records dating to the 1930s. These NARA guidelines include periodic, on-site reviews conducted by NARA. If cessation of funds threatened the EROS Center records, they would be transferred to the U.S. NARA per federal law.

The below extract is from an EROS internal policy directed towards our electronic records. If desired, the complete policy can be made available upon request.

Number: EROS-POL-02 Title: Electronics Records Preservation Policy

Effective Date: September 1, 2017 Expiration Date: September 1, 2019 (updated every two years)

Summary: The Federal Records Act of 1950 requires agencies to establish a records management program, defined as a planned, coordinated set of policies, procedures, and activities needed to manage its recorded information. This policy establishes specific guidelines under which USGS EROS electronic records are effectively and efficiently managed throughout their useful life to facilitate the accomplishment of EROS programmatic and administrative missions in accordance with applicable statutory and regulatory requirements, and to promote access to information by USGS staff, partners, researchers, and the public.

Scope. This policy addresses all electronic records made or received by USGS EROS under federal law or in connection with the transaction of public business and preserved as evidence of USGS EROS functions, organization, and activities or because of the value of the information they contain. This Policy applies to all EROS Center personnel, both Government and contract.

All EROS Center records are covered by a records schedule that determines their useful life. Most of the science records in the Archives are considered permanent records.

As a U.S. federal agency, the EROS Center must abide by multiple laws and regulations regarding the safe-keeping of the records we generate and receive. As an example, we are required to use record schedules to document the records we work with. All observational records are legally labelled as permanent, which means that at some point in the lifecycle of those records, they are to be transferred to the U.S. National Archives and Records Administration (NARA). Two points to note here. First, as the EROS Center is the designated NSLRSDA (National Satellite Land Remote Sensing Data Archive, those satellite observational records are to be forever preserved and made accessible by the EROS Center. Secondly, NARA entered into a Memorandum of Understanding agreement with the EROS that all aerial photography will reside with the EROS Center and that once the date from which the film was flown has reached 40 years, the title of the film will become U.S. NARA, but the continued preservation and accessibility will remain the responsibility of the EROS Center. Additionally, the holdings in the Archives offered to the research community are Public Domain and are offered in a free

and open manner. This free and open policy was established in 2008, following the lead of the Instituto Nacional de Pesquisas Espaciais (INPE) in Brazil. Free and open distribution has become the disciplinary norm, though this is quite different from the way civil agencies around the world had conducted business prior to INPE and the USGS policy changes.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

IV. Confidentiality/Ethics

R4. The repository ensures, to the extent possible, that data are created, curated, accessed, and used in compliance with disciplinary and ethical norms.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

We currently do not possess or distribute confidential, personal data. Prior to 2008, the EROS Center charged for all remotely sensed data requiring strict financial controls to be in place. These controls included the need to protect all Personally Identifiable Information (PII). All staff in the USGS are required to take PII training annually.

Reviewer Entry

Reviewer 1

Comments:

Accept

Reviewer 2

Comments:
Accept

V. Organizational infrastructure

R5. The repository has adequate funding and sufficient numbers of qualified staff managed through a clear system of governance to effectively carry out the mission.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

Since 1972, there has never been a year that adequate funding to conduct records and archive management was not provided. During that time frame, there has never been a significant risk to the records under our management. We firmly believe that funding for all aspects of records and archive management will be secured for each of our fiscal years. The EROS Center (600 employees and approximately $70M annual budget) reports to the U.S. Geological Survey (9,000 employees and approximately $1.1B annual budget) who reports to the Department of the Interior (70,000 employees and approximately $18-20B annual budget). Over 50 EROS Center FTEs are allocated to data management activities addressing the USGS Science Data Lifecycle Model composed of planning, acquiring, processing, analysing, preserving, and publishing/sharing phases. No part-time staff are utilized. Targeted training is provided for database administrators, software engineers, records liaison officers and coordinators (RLOs/RLCs), and records management staff conducting accessioning, appraisal, arrangement, description, access, reference, preservation, disposition, outreach, and advocacy. Training is attained from the NARA, the Society of American Archivists, the Midwest Archives Conference, the ARMA, and the National Association of Government Archives and Records Administrators. NARA has also provided on-site records management training at the EROS Center.
Both FTEs associated with the RLO and RLC positions have gone through U.S. NARA Knowledge Area training certificates. Those certificates are required for all U.S. federal agency Records Officers. The EROS Archivist has also

gone through NARA’s Modern Archives Institute and the NARA supported Archival Leadership Institute (see https://www.archivesleadershipinstitute.org accessed 9/19/2018).
The USGS is the United States’ largest water, earth, and biological science and civilian mapping agency. The USGS provides science about natural resource conditions and problems.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

VI. Expert guidance

R6. The repository adopts mechanism(s) to secure ongoing expert guidance and feedback (either inhouse or external, including scientific guidance, if relevant).

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

The EROS Center actively participates in the agency sponsored Community for Data Integration (CDI) Data Management Working Group. This cross-agency effort maintains a special focus on managing science records that benefits the EROS Center. The relevant URL for this group is https://www.usgs.gov/products/data-and-tools/data-management (accessed 9 Oct 2018). EROS has actively participated with this group of data management experts for more than eight years. Additionally, serving on agency-wide teams helps to develop a network of experts related to data management, scientific publishing, digital object identifiers, data rescue/data at risk, science data lifecycle models, data management position descriptions, metadata standards, data media, and records management policies. The EROS Center has led or

participated on the following agency-wide teams: Best Practices in Data Management (developed the USGS Science Data Lifecycle Model), Data Rescue, Data at Risk, and Scientific Data Guidance (developed four data management polices 1. Foundation infusing peer review, metadata development, data release procedures, and science data preservation requirements into the research data management planning, 2. Scientific Data Management requiring use of the USGS Science data Lifecycle Model, 3. Metadata requiring sufficient information to allow usability and interoperability, and 4. Preservation requiring digital science data to be maintained as long as the relevant records schedules state.). Interactions between the CDI elements ranges from weekly to monthly meetings. Agency records management meetings are typically held monthly. The EROS Archivist has also served as the agency Records Officer on two different occasions for a total of 15 months. Active participation on the Committee on Earth Observation Satellites (CEOS - http://ceos.org accessed 9-19-2018) which includes civil government agencies from around the world engaged in satellite missions has provided access to experts in data management through the CEOS Working Group on Information Systems and Services. EROS has been an active CEOS member for more than 20 years.
As indicated in other responses, for more than 15 years the EROS Center has had an ongoing, active relationship with the U.S. National Archives and Records Administration (NARA). From NARA, onsite training requests and records schedule updating to securing NARA Affiliated Relationship and temperature and humidity ranges, multiple NARA experts have been utilized to secure expert guidance. NARA has conducted two on-site reviews of the EROS Center campus. The NARA site for records managers is located at URL https://www.archives.gov/records-mgmt (accessed 26 Dec 2017).
As mentioned above, the EROS Center also maintains active membership in the National Association of Government Archives and Records Administration (NAGARA). This organization allows us to interact with experts throughout U.S. local, state, and federal records management area. Presentations made at NAGARA conferences allows for constructive feedback to be received. Community feedback is generally received at annual conferences such as the American Society of Photogrammetry and Remote Sensing (see URL https://www.asprs.org/ accessed 7 February 2018) for background on this organization).

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

DIGITAL OBJECT MANAGEMENT

VII. Data integrity and authenticity

R7. The repository guarantees the integrity and authenticity of the data.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

For new collections, our inventory database includes POSSIX standard cyclic redundancy check (CRC) checksum for each data file. If a legacy dataset is reworked, the checksum is added to the inventory database. It is estimated that over 90% of all inventoried data at the EROS Center has a checksum stored in the database. For the archive system, standard filesystem and tape CRC are used. In addition, with Oracle T10K-d tape technology we utilize Data Integrity Validation (DIV) in which checksum per block is stored on tape, and can be verified locally on tape drives. Our current EROS Center policy directs us to write to multiple tape copies (internal policy, available upon request), and includes more than one tape technology. The same policy states that we are to maintain three electronic copies: one nearline or online, one nearline or offline, and one offsite. Our current tape technologies utilize Oracle T10000 and industry standard LTO media. Our policy is to refresh media within five years to ensure archive integrity. In general, collections do not consist of multiple versions. If a data set has multiple versions, it is stored with a version number appended at the top-level directory and basically treated as a new collection.

When we occasionally change the format available for copies of data or when we change a metadata field, extensive fore-warning is provided. Typically, we will post dialog boxes on our online finding aids (e.g. Earth Explorer URL http://earthexplorer.usgs.gov accessed 26 Dec 2017) of the impending change. Provenance data is captured particularly when a donation is offered. We strive to determine the entire lineage so that any ownership issues are averted. This information is also useful when questions about prior processing need to be understood. All of our collections have both collection- and file-based metadata directly linked. Our imagery is geospatially tied so good metadata must contain geographic coordinates. If a collection does not have these, we will strive to generate them. Our finding aids are set up to locate individual files from within collections based on geographics, temporal constraints, and other collection specific fields. Our extensive metadata fields are mapped to the U.S. Federal Geographic Data Committee's (FGDC) Content Standard for Digital Geospatial Metadata. More information on the FGDC metadata standard can be found at URL https://www.fgdc.gov/metadata/csdgm/ (accessed 26 Dec 2017). The U.S. Geological Survey is developing tools to allow metadata catalogs to be mapped to the ISO 19115 standard. When those tools are available, the EROS Center will implement ao that the ISO standard is endorsed.

Different versions of collections are typically treated as distinct datasets.

During our EROS Scientific Records Appraisal process the background of potential donors is checked. Completeness of the data and metadata, provenance of the collection, processing history, physical characteristics, plus temporal and geographic information is documented through the appraisal. We may even perform on-site reviews. While the

documentation pieces for our appraisals are typically internal, examples can be provided upon request. Note: Use of the EROS Appraisal process in required for all offered data.
USGS developed a Scientific Records Data Lifecycle model in 2013. The EROS led the team that developed the Model and strives to follow it through all of our procedures. A public document describing the Model is located at URL https://pubs.usgs.gov/of/2013/1265/pdf/of2013-1265.pdf (accessed 26 Dec 2017).
Metadata for over 300 collections are available from our primary find aid, Earth Explorer (https://earthexplorer.usgs.gov). An API is also available that accepts queries to our metadata server. This machine-to-machine interface is documented at https://earthexplorer.usgs.gov/inventory/documentation#technicalbackground. Note to view the documentation, one must establish an account by registering. Alternatively, if this information is needed, it can be provided by request.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

VIII. Appraisal

R8. The repository accepts data and metadata based on defined criteria to ensure relevance and understandability for data users.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

Because the EROS Center has operated as an Archives for many years, offers or donations of collections are received regularly. In order to address these offers and donations efficiently and responsibly, a formal Scientific Records Appraisal process was developed in 2006. This process is now a required policy that all offers or donations must follow before data

are received. To date, over 90 collections have been appraised. The process has also been used on the collections already residing in the EROS Center Archives. This was done to validate that collections accepted decades earlier continue to align to the mission of the Center. Through this process approximately one-third of the Archives collections have either been disposed of or the offer/donation was not accepted. Part of this process was the creation of a set of questions intended to describe the collection. This 'appraisal tool' set of questions is recognized by the U.S. National Archives and Records Administration (NARA) as a best practice for U.S. Federal agencies. The appraisal tool incorporates the ISO 15489-1:2001(E) elements of Authenticity, Reliability, Integrity, and Usability. While required versus optional information is not identified in the appraisal tool, our emphasis is for comprehensive information to be collected to aid in the decision of whether or not resources should be expended to preserve and provide access to a collection. The EROS Center policy requiring the use of the Scientific Records Appraisal Process is hosted on an internal website. Per a request, however, it can be supplied for the Peer Reviewers. This policy details the minimum pieces of documentation that form the appraisal package: 1) Completed Appraisal Tool set of questions, 2) Scientist review, 3) Day-to-day manager review, 4) Archivist recommendation memo to senior management, and 5) Center Director memo endorsing or rejecting recommendation. If the data has any element of copyright or proprietary involvement, a memo on letterhead must be provided clearly stating a title change from the donor/offeror transferring title to the U.S. Geological Survey. The EROS Center strives to provide Public Domain or open distribution collections. The EROS Center Appraisal Tool set of questions is located at URL http://eros.usgs.gov/government/ratool/ (accessed 26 Dec 2017) This tool identifies mission alignment, provenance, restrictions, spatial and temporal extents, size or volume information, processing levels, amount and quality of metadata, and perceptions of costs to accept the collection. Additional questions are used if the collection is analog film or paper. A representative set of appraisal documentation can be provided upon request.

Data and metadata relevance and understandability are addressed by the following questions in the appraisal tool set of questions. Specifically:

Section 1: Mission Alignment Characteristics

Q 1.0: How do the records fit within the scope of our Collection Policy?

Q 1.1: How does the anticipated current and future utility of the data fit within the EROS mission?

Q 1.2: How significant, different or unique are the records to the remote sensing, cartographic, and Earth science data user community, i.e. what significant and unique contributions does the collection contain that upgrade our current archive holdings?

Q 1.3: How would the contribution of the collection fill gaps or complement the current archive holdings?

Q 1.4: Does the data support the study of geophysical changes over time? Explain.

Q 1.5: What are the consequences to USGS or the U.S. Government if the collection is not obtained or maintained?

Section 5: Metadata Characteristics

Q 5.0: Detail the amount, quality or accuracy, level, availability, and usability of metadata describing this collection.

Q 5.1: What additional information is available e.g. libraries of documentation, guides, Data Information Files, fact sheets, Frequently Asked Questions, instrument documentation, Design Reviews, lessons learned, hardware documentation, engineering models & manuals, computer models, platform documentation, algorithm documentation, URLs, Principle Investigator contact, Algorithm Theoretical Basis Documents?

Regarding completeness and understandability, in addition to the questions listed above, several checks are conducted to validate quality and accuracy expectations. The metadata is ingested and the geographics are plotted to give a visual, human check as to the proper location and orientation of the imagery. Coordinates flipped, wrong hemispheres and

missing values are detected. Sanity checks are also done for temporal fields and sensor-specific information. The full appraisal set of questions is available at https://eros.usgs.gov/government/ratool/ and click on “Download the Appraisal Questions.”
Additionally, the EROS Center NSLRSDA Collection Policy can be found at URL https://eros.usgs.gov/sites/all/files/external/eros/nslrsda/EROS-Collection-Policy-March-2014.pdf (accessed 26 Dec 2017. If data offered need curation work, negotiations commence as to whether the EROS Center or the offeror will undertake the work. Similarly, incomplete metadata is either fixed by the offeror or EROS agrees to complete the metadata records. A preferred file format list can be found at URL https://www.archives.gov/records-mgmt/policy/transfer-guidance-tables.html (accessed 28 Dec 2017). Note that we do not exclude from consideration collections in formats not on the NARA list. NARA’s format transfer list is not a problem to address as their formats include TIFF(GeoTIFF) which covers most of collections. There is a challenge regarding the initial data received from satellites. Typically called “raw” data, this is the lowest level and thus the most critical to retain. The EROS Center worked with NARA to investigate transferring and ingesting of a raw satellite image. NARA was unable to process and read the imagery. To date, the current plan would be to transfer TIFF(GeoTIFF) imagery to NARA when required. We have ongoing discussions with NARA on this subject. This has been a technical discussion and is not viewed as a large problem by either party.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

IX. Documented storage procedures

R9. The repository applies documented processes and procedures in managing archival storage of the data.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:

4 – The guideline has been fully implemented in the repository

Response:

Preservation policy is part of the overall EROS Center Data Management plan, which can be viewed at URL http://eros.usgs.gov/government/records/info.php Our facility has a policy of maintaining three copies of all long-term science records. The first copy is usually on spinning disk to serve research needs. The second is either on a different server, in a silo, or on magnetic media in our Archives. The third copy resides on magnetic tape offsite at the U.S. National Archives and Records Administration (NARA) Federal Records Center located in Lees Summit, Missouri located approximately five-hours drive away from the EROS Center. Updates are generally provided monthly. The current volume is approximately 5 petabytes stored offsite at Lees Summit. The offsite storage facility is part of our Vital/Essential Records strategy and forms a big piece of our risk mitigation planning. Our facility is in a tornado-prone area so with the offsite copies our critical functions could survive. This strategy has been in place for over nine years. We are recalling the oldest media, migrating to new media, and resending the new tapes back to the off-site facility. This is done as part of our policy to migrate away from any media that is five years of age. Annual tests are conducted to randomly recall subsets of our data from the NARA Lees Summit facility. Results indicate that within one business day, we can receive requested data back from the offsite location. In the realm of a disaster, our second, onsite copy would be engaged first. Failing that, the off-site location would provide the third copy data. It is unlikely that in time of a disaster all 5 petabytes would be required immediately. It is recognized that restoring all 5 petabytes would likely take several months, but that is a recognized and accepted condition. The most important initial element is the continued existence of the observational records dating to the 1960s from satellite sources and from the 1930s from scanned aerial collections.

We also have developed an offline archive media trade study to guide us in determining which media should be used. These studies help us determine industry trends as well as to gauge data storage needs. These studies are published every other year. To date we have conducted nine such studies, which can be viewed at URL http://eros.usgs.gov/government/records/tools.php (accessed 27 Dec 2017). The latest study is scheduled to be released the Summer of 2018. Security levels are based on roles and employed with regards to servers as well as to physical access to our Archives. The Archives utilizes a card key system, which is monitored multiple times a year to ensure only the right personnel have access. Additionally, the Archives employ cameras to monitor activity. Checksum values are used to validate copies and versions. Deterioration of storage medium is addressed primarily by attempting to replace all mediums within a five-year period. The three-copy policy, the offsite storage strategy, and the five-year replacement practice are part of internal policy documents that can be made available upon request.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

X. Preservation plan

R10. The repository assumes responsibility for long-term preservation and manages this function in a planned and documented way.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

Since the 1972 formation of the EROS Center, both archiving and access to the holdings have been foundational mission elements. For the collections that are covered by the Public Law 102-555, we are required to provide both long-term preservation and continued access. See URL http://www.gpo.gov/fdsys/pkg/STATUTE-106/pdf/STATUTE-106-Pg4163.pdf (accessed 27 Dec 2017) for the U.S. law pertaining to our obligations. Any obsolescence, whether from hardware, software, operating system, media, firmware, or format are monitored. Our policy to migrate from all electronic media, including hard disk, every five years helps mitigate obsolescence challenges. Our planning involves working with the U.S. National Archives and Records Administration (NARA) regarding long-term data usability. We use the CCSDS definition of long-term, which states "Long Term is long enough to be concerned with the impacts of changing technologies, including support for new media and data formats, or with a changing user community. Long Term may extend indefinitely.” Our Archives utilize 11 environmental data loggers to help manage the temperature and relative humidity levels throughout the year. Example reports are available for these data loggers upon request. Analysis of the environmental data logger reports has led us to make facility changes to our Archives as micro-climates have been discovered. Our data management plan located at URL http://eros.usgs.gov/government/records/info.php details our lifecycle approach to managing the science records entrusted to the EROS Center. Additional preservation plan elements are contained in internal policies that can be furnished upon request.

Collection transfers are preceded by either a title change document providing full and clear title to the EROS Center or, for transfers from U.S. federal agencies, three-party agreements completed with one of the parties being the U.S. NARA. With these documents in place, the EROS Center can copy, transform, store, and make accessible the collections received. All transfers are preceded by our required Scientific Records Appraisal process which documents collection

characteristics including metadata completeness and quality. The Appraisal process is required to be followed for all offers of science data to the EROS Center.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

XI. Data quality

R11. The repository has appropriate expertise to address technical data and metadata quality and ensures that sufficient information is available for end users to make quality-related evaluations.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

All collections preserved and accessible are to conform to the U.S. Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata (CSDGM). We extend that to also include the six million frames of analog, aerial photography from several collections. Without accurate and complete metadata, our collections would be of little value. Good metadata also fuels our data discovery tools. FGDC Content Standard for Digital Geospatial Metadata is provided directly through our online finding aid, Earth Explorer (https://earthexplorer.usgs.gov). Metadata queries using machine-to-machine API interfaces are also available (see documentation on the API at https://earthexplorer.usgs.gov/inventory/documentation#technicalbackground.) Note to view the documentation, one must establish an account by registering. Alternatively, if this information is needed, it can be provided by request. Spatial, temporal and collection-specific characteristics are the foundation that our online finding aids use to provide discovery and

access to the extensive holdings. These data discovery tools describe our collections, provide query tools to determine relevance over a research area of interest, and allow direct data download. The vast majority of the holdings are Public Domain and are available at no cost. If sufficient metadata are not available, the collection will either be rejected from consideration or the ingest delayed until the pertinent information is provided. A primary data discovery and data access tool, Earth Explorer, is located at http://earthexplorer.usgs.gov (accessed 27 Dec 2017). An additional data discovery and access tool using the paradigm of interacting with the actual data as one's query, the Global Visualization (GloVis) is available at http://glovis.usgs.gov (accessed 27 Dec 207).
When we occasionally change the format available for copies of data or when we change a metadata field, extensive fore-warning is provided. Typically, we will post dialog boxes on our online finding aids (e.g. Earth Explorer) of the impending change. Provenance data is captured particularly when a donation is offered. We strive to determine the entire lineage so that any ownership questions are averted. This information is also useful when questions about prior processing needs to be understood. All of our collections have both collection- and file-based metadata directly linked. Our imagery is geospatially tied so good metadata must contain geographic coordinates. If a collection does not have these, we will strive to generate them. Our finding aids are set up to locate individual files from within collections based on geographics, temporal constraints, and other collection-specific fields. Scripts are run to validate that metadata fields are filled in during ingest and reprocessing activities. Whenever a new data format is planned or metadata fields are being added or modified, communication with our user community is begun before the actual change to ensure any concerns are heard.
Users can, and often do, comment on the metadata provided with all files within a collection. Occasionally, users will indicate an incorrect geographic coordinate. More common, are the cloud cover ratings for 1970s and 1980s satellite imagery. Citation links to related datasets are not supported across all of our collections.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

XII. Workflows

R12. Archiving takes place according to defined workflows from ingest to dissemination.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

Being a U.S. federal agency, some of the requirements listed here such as privacy, are dictated by U.S. law. We do, however, have several policy documents addressing collections offered to us (Acceptance of Collections policy and Electronic Records Preservation policy) and how we are to manage electronic records and the workflows associated with them. If desired, these internal policy documents can be made available. The Acceptance of Collections policy details the workflow that occurs during the appraisal of records for consideration. This policy also outlines how decisions are made regarding collection offers. We are also utilizing this policy to appraise collections archived at the EROS Center dating since the Center opened. Retaining these appraisal documents allows us to defend decisions made regarding the acceptance or rejection of collections. It reveals that we have workflows associated with making decisions on which collections merit spending resources on. The appraisal of received collections would have preceded the receipt of the actual data.

Data handling procedures depend on if the source material is digital or analog. Either way, once the data are received, physical control is established by securing them in our Archives. Thereafter, intellectual control is established through creating metadata and eventually adding the records to our online finding aids. An example of a finding aid can be found at URL http://earthexplorer.usgs.gov (accessed 27 Dec 2017). Ideally, all metadata will have already been received prior to receipt of the actual science data.

The guiding principle for all USGS data and metadata workflows is now summarized in the USGS Science Data Lifecycle Model document found at URL https://pubs.usgs.gov/of/2013/1265/pdf/of2013-1265.pdf (accessed 27 Dec 2017). Each element of our workflows is further supported by a USGS site dedicated to data management and structured around the Science Data Lifecycle Model (URL https://www2.usgs.gov/datamanagement/index.php (accessed 27 Dec 2017).

The Archives and three computer rooms maintain strict physical access controls. As detailed in Section VIII, our appraisal process is quite formal with one element of it being a U.S. NARA best practice for U.S. federal agencies. The appraisal process provides documentation and justification to reject collections not aligning to our mission.

The primary types of data preserved and made accessible include:

Remotely Sensed Aerial Photography - > 6 million frames (analog)

Remotely Sensed Satellite Imagery - > 7 million images (electronic)

Cartographic Files - > 6 million files/images (electronic)

Land Use / Land Cover files - > 12 thousand files (electronic)

Analog records have very different workflows until the film is scanned and then workflows are similar to the electronic records. Archival data transformation occurs infrequently and are often related to a major need to convert an older format to a newer one. One example of a large transformation that impacts one of our largest collections, Landsat, is discussed at URL https://landsat.usgs.gov/landsat-collections (accessed 27 Dec 2017).

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

XIII. Data discovery and identification

R13. The repository enables users to discover the data and refer to them in a persistent way through proper citation.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

The EROS Center has always believed that, beyond collections having distribution restrictions, archived data must also be made accessible. To that end, we have various means to discover and access our collections. Since our inception in 1972, a full-time Research Librarian has been on staff who can tap into additional personnel for expert assistance. The in-person research visits have declined dramatically over the last 13 years. By far, most researcher seeking to understand our collections or to acquire copies of our records utilize online finding aids. We offer several, with each serving different ways to discover, learn about, and access our holdings. Earth Explorer (http://earthexplorer.usgs.gov accessed 27 December 2017) is a more traditional “metadata" system allowing users to specify characteristics such as spatial, temporal, and other collection-specific information in order to determine records of interest. GloVis (Global Visualization -http://glovis.usgs.gov/ (accessed 27 December 2017) is in some ways a complete opposite of Earth Explorer in that it begins with a matrix of several images taken from a collection over a geographic area. The user can then drill down through the stack of images acquired over time to determine which are of interest. WELD (Web-Enabled Landsat Data https://landsat.usgs.gov/web-enabled-landsat-data-weld-projects accessed 27 Dec 2017) is a finding aid to only one collection from the Program called Landsat. Its approach is very unique, however. WELD offers Landsat satellite data in a

mosaic-like fashion based on a temporal period of a week, month, season, or year. The uniqueness is that the mosaics are built from individual pixels judged to be the best acquired during the specified time period. Analyzing data stacks of images through time at the pixel level allows for interpretations few researchers can resource themselves.
We also allow outside entities to harvest our metadata as this permits further awareness of our holdings. Persistent identifiers are currently required for all of our publications in the form of digital object identifiers (DOIs). The EROS Center entries are part of the USA data.gov registry. Agency policy requires our metadata to be harvested internally by a service entitled, Science Base (https://www.sciencebase.gov/catalog/) That system is responsible for populating all USGS entries into the federal data.gov register.
The recommended data citation follows:
Acknowledgement or credit of the USGS as data source should be provided by including a line of text citation such as the example shown below.
(Product, Image, Photograph, or Dataset Name) courtesy of the U.S. Geological Survey
Example: Landsat-7 image courtesy of the U.S. Geological Survey

Machine-to-machine metadata harvesting is accommodated through an API developed and made available to all interested parties. Documentation on the API can be found at https://earthexplorer.usgs.gov/inventory/documentation#technicalbackground.) Note to view the documentation, one must establish an account by registering. Alternatively, if this information is needed, it can be provided by request.

DOIs are assigned to every dataset released since October 2016. There currently is not a requirement to assign these persistent identifiers prior to that date.
In addition to the U.S data.gov site required for all U.S. federal agencies, the EROS Center has utilized the NASA Global Change Master Directory (https://earthdata.nasa.gov/search?q=USGS) for decades. Lastly, the Group on Earth Observations (GEO) maintains a portal located at http://www.geoportal.org// that EROS supports.

USGS has not decided definitively whether to cite through a DOI an entire collection of only research subsets from a collection. Once that is determined, the EROS Center will address. In the meantime, any research data published after October of 2016 are required to be reviewed by both a metadata reviewer and a data reviewer. A DOI is also required before the data are shared. An example for elevation data extracted from a larger collection can be found at the ScienceBase URL https://www.sciencebase.gov/catalog/item/59557881e4b04e08be532c9a. The specific DOI for this research data is listed as https://doi.org/10.5066/F7416VXX.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

Efforts should be made to assign DOIs to all data holdings and not only after October 2016.

XIV. Data reuse

R14. The repository enables reuse of the data over time, ensuring that appropriate metadata are available to support the understanding and use of the data.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

All collections preserved and accessible are to conform to the U.S. Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata (CSDGM). We extend that to also include the six million frames of analog, aerial photography from several different collections. Note that four million of the six million aerial images have been scanned and are now made available as free TIFF downloads. Accurate and complete metadata is always our goal. Spatial, temporal and collection-specific characteristics are for online finding aids to function optimally. These data discovery tools describe our collections, provide query tools to determine relevance over a research area of interest, and allow direct data download. The vast majority of the holdings are Public Domain and are available at no cost. If sufficient metadata are not available, the collection will either be rejected from consideration or the public catalog entry delayed until the pertinent information is provided. Complete metadata helps researchers understand the data. We also support a Customer Services group that can respond to researcher understandability questions via phone, mail, email, fax, and online. Their contact information follows:
Customer Services
U.S. Geological Survey
Earth Resources Observation and Science (EROS) Center
47914 252nd Street
Sioux Falls, SD 57198-0001
Tel: 800-252-4547 or Tel: 605-594-6151
Email: custserv@usgs.gov(link sends e-mail) Business Hours: Monday thru Friday, 8:00 a.m. to 4:00 p.m., U.S. Central
Archival formats often are not what is made available for researchers. As an example, it is common for satellite images to

be stored in a "raw" or "level 0" state. The distribution format, however is GeoTIFF which was determined after soliciting community inputs. The distribution formats have also evolved during our Archives history. Originally, output formats were varied and often customized to individual research needs. The last several years we have endorsed the use of TIFF or GeoTIFF, both of which are generally readable by many software packages and by all operating systems. In retrospect, this has been a good strategy. Even for our analog film products, the distribution copy is a scanned image in TIFF format. We have no plans to migrate from GeoTIFF or TIFF at this time.
EROS will transition up to the ISO metadata standard when directed from our parent (Department of the Interior and the U.S. Geological Survey) organizations. We will accomplish this by using mapping tools that sit over our databases, which is how we are currently supporting the FGDC metadata standard. The transition has been looming for several years now and we expect new tools being developed internally will help in the transition. We support machine-to-machine metadata querying. DOI’s are required for all data released after October of 2016. The suggested data citation is described in XIII. An additional catalog finding aid is called GloVis, which is quite different from traditional metadata catalogs. GloVis uses actual imagery from collections allowing researchers to visualize the information. Available at https://glovis.usgs.gov This has become very popular with scientists looking for imagery over their area of interest.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

TECHNOLOGY

XV. Technical infrastructure

R15. The repository functions on well-supported operating systems and other core infrastructural software and is using hardware and software technologies appropriate to the services it provides to its Designated Community.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

Infrastructure developments are planned and follow periods of study and preparation. Having all of our electronic records on spinning disk and offering these holdings for free downloads requires us to continuously monitor our hardware and telecommunications. Currently, we are piloting the use of cloud storage and cloud computing as a means to deliver and process the petabytes of electronic science data more efficiently. Employing a large engineering staff, the EROS Center is also physically well-positioned near the geographic center of North America allowing effective delivery to the east and west portions of the continent. Additionally, our community research base extends globally and delivery of science records internationally is a big part of our distribution scheme. Partnerships exist with National Aeronautics and Space Administration and the European Space Agency to distribute very large science records acquired by those entities. Our operating systems include Windows, Mac, and Linux. Our equipment includes a large robotic silo containing a theoretical capacity near 100 petabytes along with specialized servers to receive and process satellite images received from space. We follow FGDC, OGC, and parts of the ISO 19115. USGS participates on committees of these organizations. The standards are implemented through policy and web server capabilities. Significant deviations are not supported.
The EROS Center has infrastructure update reviews, trade studies, and implementation plans. Software development uses configuration management controls. The software is documented. Bandwidth is the responsibility of the EROS Center. Community-supported software is not used extensively as most needs are either custom driven or can be satisfied through commercial acquisition. Our operations are around-the-clock as data is received from multiple satellites regularly throughout a day in addition to data feeds coming in from around the globe. Our current network infrastructure is described below:
Two Wide Area Networks with bandwidth in the 2 to 2.5 gigabits per second range each
Two Wide Area Networks with bandwidth having 10 gigabits per second each
Average monthly total network traffic is approximately 1.2+ petabytes
Average daily total network traffic is approximately 50+ terabytes
Average monthly data Ingest is approximately 175+ terabytes
Average monthly data Distribution is approximately 1.1+ petabytes
China, Japan, Germany, UK, Australia and Russia are among the top countries for the receipt of data
Through calendar year 2017 (up to 21 Dec) over 15 petabytes of science data have been distributed
We constantly monitor our bandwidth usage and try to upgrade when we expect to reach saturation levels.

Software inventories are maintained for servers and personal work stations. Enterprise software consists of Oracle, ESRI, and MS Office supporting Windows, Apple, and Linux operating systems.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

XVI. Security

R16. The technical infrastructure of the repository provides for protection of the facility and its data, products, services, and users.

Compliance Level:

4 – The guideline has been fully implemented in the repository

Reviewer Entry

Reviewer 1

Comments:
4 – The guideline has been fully implemented in the repository

Reviewer 2

Comments:
4 – The guideline has been fully implemented in the repository

Response:

The EROS Center is located several miles from any city or town and sits on a 300-acre campus. Physical security is provided continuously including a main gate area where the first security check is conducted. After parking, employees are required to swipe their card key for building access. Visitors must sign in at a guard desk and may either freely roam our visitor lobby or must be escorted to other areas of the building. All three computer rooms and the Archives require special access for pertinent staff only. The access lists are periodically reviewed to ensure only proper staff have access to the controlled areas. In addition to the card key access requirement, motion-sensitive cameras are installed throughout the Archives. The cameras are constantly monitored in the security room. The EROS Center maintains both a Continuity of Operations Plan (COOP) and an Occupant Emergency Plan. Both plans outline, measure, and address natural and man-induced risks along with mitigation steps. Roles are identified including time tables of response. These internal documents are not available due to the security elements involved. The EROS Center has both a physical Security Manager and an IT Security Manager on staff. Specifically regarding the science data that we manage and preserve, the off-site storage of the science data in Lees Summit, Missouri is our primary safe-guard to a local catastrophe whether natural or human caused. Three large diesel generators provide emergency backup services in case of power interruptions to our local campus.
While now somewhat dated, the EROS Center has used the DRAMBORA tool to identify and mitigate risk. This was done

in cooperation with the Digital Curation Centre in Scotland.
The IT Security Manager oversees all aspects of our three computer rooms and networks by monitoring physical access sign in, appropriate machine, directory, and file permissions, updating software on servers, personal computers and firewalls. Penetration attempt monitoring, applying new security protocols, and educating all staff on IT security requirements are common activities benefiting the repository.

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept

APPLICANT FEEDBACK

Comments/feedback

These requirements are not seen as final, and we value your input to improve the core certification procedure. To this end, please leave any comments you wish to make on both the quality of the Catalogue and its relevance to your organization, as well as any other related thoughts.

Response:

Reviewer Entry

Reviewer 1

Comments:
Accept

Reviewer 2

Comments:
Accept