# U.S. Department of Energy

**Washington, D.C.**

**ORDER**

**DOE O 241.1D**

Approved: 08-05-2026

**SUBJECT:** SCIENTIFIC AND TECHNICAL INFORMATION MANAGEMENT

1. PURPOSE. United States (U.S.) Department of Energy (DOE) invests in research and development (R&D) and related activities to advance science and technology in support of national objectives. As a result, knowledge is generated and scientific and technical information (STI) is produced.

   DOE must manage and maintain its STI so that the results of DOE-funded or DOE-supported R&D are available to the public in a timely manner, consistent with legal, security, and privacy requirements. This Order establishes requirements and responsibilities for identifying, reviewing, collecting, controlling, preserving, and disseminating STI. It also supports DOE implementation of federal public access requirements, including the *DOE Public Access Plan* as well as the *Restoring Gold Standard Science DOE Implementation Plan* in support of Executive Order 14303, Restoring Gold Standard Science.

   DOE STI management will minimize redundant reporting and submission burdens by leveraging existing STI repositories, publisher platforms, automation, and government-held rights wherever practicable.

2. CANCELS/SUPERSEDES. DOE O 241.1C, *Scientific and Technical Information Management*, dated October 28, 2024. Cancellation of a directive does not, by itself, modify or otherwise affect any contractual or regulatory obligation to comply with the directive. Contractor Requirements Documents (CRDs) that have been incorporated into a contract remain in effect throughout the term of the contract unless and until the contract or regulatory commitment is modified to either eliminate requirements that are no longer applicable or substitute a new set of requirements.

3. APPLICABILITY.

a. Departmental Applicability. This Order applies to all Departmental Elements that conduct or support R&D and related activities that generate STI, including federal DOE staff with programmatic, technical, acquisition, and business management responsibilities for funding, supporting, or overseeing the work. The term "award" will be used throughout this Order to reference all types of agreements made by DOE. For purposes of this Order, the National Nuclear Security Administration (NNSA), a separately organized agency within the Department, is treated as a DOE Element. The Administrator of NNSA must ensure that NNSA employees comply with their responsibilities under this Directive. Nothing in this Directive alters the NNSA Administrator's authority under Section 3212(d) of Public Law (P.L) 10665, National Defense Authorization Act for Fiscal Year 2000, to establish Administration-specific policies, unless disapproved by the Secretary.

b. DOE Contractors. Except for the equivalencies/exemptions in Paragraph 3.c., the CRD, Attachment 1, sets forth requirements of this Order that will apply to contracts that include the CRD or its requirements. The CRD must be included in all contracts for the management and operation (M&O) of DOE-owned or DOE-leased facilities and in site/facility management contracts that involve R&D or related activities that generate STI in the performance of DOE-funded work or work performed at a DOE-owned or DOE-leased facility. For all contracts other than M&O or site/facility management contracts that involve R&D and related activities that generate STI in connection with the performance of DOE-funded projects, the statement of work must include the applicable requirements set forth in the CRD.

c. Equivalencies/Exemptions for DOE O 241.1D, *Scientific and Technical Information Management*.

(1) Equivalency. In accordance with the responsibilities and authorities assigned by Executive Order 12344, Naval Nuclear Propulsion Program, codified at 50 USC Sections 2406, Deputy Administrator for Naval Reactors, and 2511, Naval Nuclear Propulsion Program, and to ensure consistency throughout the joint Navy/DOE Naval Nuclear Propulsion Program, the Deputy Administrator for Naval Reactors (Director) will implement and oversee requirements and practices pertaining to this directive for activities under the Director's cognizance, as deemed appropriate.

(2) Exemptions.

(a) In accordance with Delegation of Authority 00-033.00B, Bonneville Power Administration is exempt from this Order.

(b) Federal and contractor employees conducting only classified R&D are not required to obtain a persistent identifier (PID) for themselves.

4. REQUIREMENTS. STI will be managed and protected consistent with all statutory, regulatory, and Departmental requirements, particularly those related to the protection of Controlled Unclassified Information (CUI), Unclassified Controlled Nuclear Information (UCNI), Export Controlled Information (ECI), nonproliferation information, and classified information.

Compliance with this Order is subject to existing DOE oversight, reporting, and audit mechanisms, including programmatic oversight, procurement administration, records management, and applicable statutory and regulatory reviews.

The term "immediately," for purposes of this Order related to the dissemination of STI, is defined to be as soon as practicable following publication, taking into account programmatic workflows and operational constraints. No adverse finding for contractors or financial assistance recipients may result from delays attributable to these constraints.

a. Identification of STI.

(1) STI resulting from DOE-funded or DOE-supported R&D must be identified, collected, and preserved so that it can be disseminated or otherwise made available consistent with applicable laws, regulations, Executive actions, DOE directives, and program needs. Definitions of STI products may be found in Attachment 3.

(2) DOE must have sufficient rights to the STI that is identified. These rights, as well as any protections, limitations, and/or restrictions, must be provided as part of the award terms. STI products must include acknowledgement of government sponsorship, applicable license rights, any other notices or disclaimers required by the award terms, any applicable access-limitation markings, and attribution to the sponsoring program. Identified STI and its dissemination must be consistent with applicable intellectual property provisions of the award, including provisions addressing invention disclosure, election of title, and the preservation of domestic and foreign patent rights.

(3) R&D activities funded or supported by DOE must provide a Data Management and Sharing Plan (DMSP) for scientific data generated by the award or other authorized work that appropriately identifies datasets as STI products and aligns to written program office requirements and commonly accepted standard practices in the relevant scientific disciplines.

(4) DOE federal employees conducting unclassified R&D work must obtain a PID for themselves, such as an Open Researcher and Contributor ID (ORCID), that meets the common/core standards specified in the National Security Presidential Memorandum 33 (NSPM-33), *Presidential Memorandum on United States Government-Supported Research and Development National Security Policy*, implementation guidance or successor guidance.

b. Collection of STI.

(1) DOE, acting through the Office of Scientific and Technical Information (OSTI), must develop, and maintain information systems, services, and processes for secure and efficient collection, management, and preservation of STI. These systems and processes must support the following:

(a) Direct submission of STI products and bibliographic metadata from DOE staff, contractors, and financial assistance recipients.

(b) The assignment of PIDs, preferably Digital Object Identifiers (DOIs), to STI products where they are not already assigned and appropriate.

(c) OSTI should also endeavor to develop capabilities in these systems and processes that reduce duplicative effort and promote efficiency, including:

(d) Automated or direct acquisition of peer-reviewed, open access publications, and other STI from external publishers when such content is freely and immediately accessible and downloadable and places no restrictions on Government Purpose License Rights to meet the zero-embargo standard of the Public Access Plan.

(e) Automated harvesting of STI and bibliographic metadata from institutional, disciplinary, or other repositories.

c. Dissemination of STI.

(1) STI must be made available to the public immediately, consistent with applicable access limitations.

(2) OSTI must maintain information management systems designed to preserve and make available all collected STI according to any access limitation and provide web search tools and services for publicly releasable STI (see https://www.osti.gov/), along with secure search tools for protected categories of STI, as appropriate.

(3) Contractors and financial assistance recipients must inform OSTI, to the best of the contractor's or financial assistance recipient's knowledge at the time of identification or reporting, subject to correction if additional information becomes available, when STI previously collected by OSTI has been modified, such as changes to access limitations or content corrections. If STI is removed from a website for which a persistent link was provided to OSTI, recipients must inform and work with OSTI to ensure appropriate availability and preservation of the product.

5. RESPONSIBILITIES.Director, Office of Science.

(1) Provides overall leadership and policy direction for DOE STI management as required by federal laws, regulations, Executive Orders, and other federal and DOE requirements.

(2) Ensures that DOE's STI Program is implemented consistent with DOE and NNSA mission and legal requirements.

b. Director, OSTI, within the Office of Science (SC).

(1) Maintains centralized DOE capabilities for access to and preservation of STI and maintains a permanent DOE STI repository.

(2) Leads the Department's STI Program, including engagement with Technical Information Officers (TIOs) representing Departmental Elements and STI managers at contractor sites and facilities, to coordinate implementation of this Order.

(3) Develops and operates information systems, services, and processes for secure and efficient collection, management, dissemination, and preservation of STI.

(4) In consultation with the STI community, issues implementation guidance to support efficient identification, collection, and availability of DOE STI, within applicable laws, regulations, and directives.

(5) Maximizes the acquisition of STI from publishers and other parties and acquires remaining STI from DOE contractors and financial assistance recipients, consistent with award terms and applicable laws.

(6) Makes publicly releasable DOE-funded STI discoverable and accessible through appropriate web search tools and service and provides secure mechanisms for access to protected categories of STI as appropriate.

(7) Manages domestic, interagency, and international STI exchanges, as authorized, to support DOE access to scientific and technical advances and to enable access to DOE STI by others consistent with applicable laws and agreements.

(8) Supports program-specific STI management efforts by offering special support services, upon request, to DOE organizations that provide funding to cover the incremental costs of such services.

c. Heads of Departmental Elements.

(1) Ensure that the objectives and requirements of this Order are incorporated into policy, procedures, performance, and guidance for programs and projects that generate STI resulting from R&D.

(2) Instruct program officials and initiators of requisitions for site/facility management contracts to specify whether the CRD for this Order applies to the award resulting from the requisition and any special instructions for applying the CRD.

(3) Instruct program officials that direct and authorize R&D to be performed (for site/facility management or other R&D/non-site facility contracts) to specify the CRD in the associated statement of work. If the entire CRD is not included, program officials must specify the STI product and DMSP requirements as a clause in Part H of the contract.

(4) Instruct program officials and initiators of requisitions for non-site/facility management contracts to specify whether the CRD for this Order applies in the award resulting from the requisition and any special instructions for applying the CRD.

(5) Instruct program officials and initiators of requisitions for financial assistance awards to specify, in the terms of the award and reporting requirements, the requirements and instructions for providing STI or metadata to OSTI, supporting public access to STI, and providing DMSPs consistent with Attachment 2.

(6) Designate a TIO (federal employee) to participate in the Department's STI Program.

(7) Ensure that DOE federal employees conducting R&D work are instructed to obtain a persistent identifier for themselves that meets the common/core standards specified in the NSPM-33 Implementation Guidance or successor guidance (e.g., ORCID).

d. Senior Procurement Executives (non-NNSA and NNSA). Ensure that the requirements of this Order are effectively integrated into DOE procurement processes and related policy, procedures, and guidance for awards, contracts, and agreements that fund or support R&D.

e. Heads of Contracting Activity and Procurement Directors.

(1) Oversee the procurement functions to ensure that contract management systems, awards, and administration of awards are in accordance with the requirements of this Order.

(2) Appoint Grants Officers (GOs) and Contracting Officers (COs).

(3) Ensure that local policy, procedural, and guidance documentation addresses the requirements of this Order and any additional guidance and direction from the SPE.

(4) Ensure that performance measures for STI management are included in performance-based awards, as appropriate.

f. Grants Officers/Contracting Officers.

(1) After notification by the appropriate program official or initiator of the requisition, incorporate the CRD of this Order into affected existing site/facility management contracts via the laws, regulations, and DOE directives clauses of the contracts.

(2) Assist program officials and initiators of requisitions with incorporating the CRD into new non-site/non-facility management contracts, as appropriate.

(3) Ensure that required STI, data management planning requirements consistent with Attachment 2, schedules for STI reporting, and the assignment of a STI manager are identified in the terms and reporting requirements of the award.

(4) Ensure that a Releasing Official is designated for the award, contract, and/or agreement.

(5) Serve as a contact for guidance and interpretation of the award terms.

(6) Ensure that the award is compliant with STI and data management requirements.

g. Program Managers.

(1) Ensure that requisitions and associated awards for the projects under their purview are implemented and administered to meet the requirements of this Order, including identification of expected STI outputs, data management planning, and coordination with TIOs, GOs/COs, and OSTI as needed.

(2) Program offices are responsible for providing guidance for the development of Data Management and Sharing Plans as required.

h. Technical Information Officers.

(1) Represent their Departmental Element in the STI Program to ensure that the objectives and requirements of this Order are reflected in program policy, procedures, and guidance.

(2) Coordinate with program managers/officials, site/facility management contractors, CO/GOs, and acquisitions/procurement staff associated with the projects/work authorized or awarded to ensure the following:

(a) Program staff are familiar with the STI requirements of this Order.

(b) STI is identified and reported as required for the R&D that the program funds or supports.

(c) STI Managers and Releasing Officials are designated and OSTI is notified as needed so that STI and metadata identified for an award are appropriately identified, reviewed, and made available to OSTI in accordance with this Order.

(3) Participate in STI policy development and implementation through the STI Program and maintain awareness of OSTI and program guidance and practices in order to implement appropriate local procedures.

(4) Raise all questions regarding STI identification, access limitations, or dissemination to the sponsoring program office in coordination with OSTI as appropriate.

6. INVOKED STANDARDS. This Order does not invoke any DOE technical standards or industry standards as required methods. Any technical standard or industry standard that is mentioned in or referenced by this Order is not invoked by this Order. Note: DOE O 251.1D, Appendix J, provides a definition for "invoked technical standard."

7. DEFINITIONS. See Attachment 4.

8. REFERENCES. See Attachment 5.

Definitions found in current directives are listed on the Directives website: https://www.directives.doe.gov/definitions#c2=all&b_start=0.

9. CONTACT. Questions concerning this Order should be addressed to the Office of Scientific and Technical Information at stip@osti.gov.

JAMES P. DANLY
Deputy Secretary

# ATTACHMENT 1
# CONTRACTORS REQUIREMENTS DOCUMENT DOE O 241.1D, *SCIENTIFIC AND TECHNICAL INFORMATION MANAGEMENT*

Regardless of the performer of the work, the contractor is responsible for complying with this Contractor Requirements Document (CRD). The contractor is responsible for sharing the requirements of this CRD with its employees and subcontractors at any tier to the extent necessary to ensure compliance. In addition to the requirements set forth in this CRD, contractors must comply with Attachments 2 and 3 to this Order and with any scientific and technical information (STI)-related provisions incorporated into their contracts or other awards.

1. REQUIREMENTS: Manage STI produced under Department of Energy (DOE) contracts consistent with all statutory, regulatory, and Departmental requirements, particularly those related to the protection of Controlled Unclassified Information (CUI), Unclassified Controlled Nuclear Information (UCNI), Export Controlled Information (ECI), nonproliferation information, and classified information, and support DOE in making that STI available to appropriate audiences through DOE's central STI coordinating office, Office of Scientific and Technical Information (OSTI). STI produced at DOE scientific user facilities but not funded by DOE may be provided to OSTI consistent with user agreements.

    a. Implement a site STI Program to ensure the identification, accuracy, and compliance of STI that results from DOE-funded or DOE-supported research and development (R&D) and related activities. The program must address, as appropriate:

        (1) The appointment of an STI manager who will perform the following:

            (a) Serve as a primary representative for the contractor or site in the Department's STI Program and OSTI to coordinate and implement STI requirements at the contractor site or facility.

            (b) Serve as or appoint one or more qualified Releasing Officials who will coordinate and confirm the submission of STI and metadata to OSTI in a manner consistent with the requirements of this Order.

            (c) Ensure that qualified personnel are assigned responsibility for STI identification, management, and submission to OSTI when not acquired by OSTI through other sources.

        (2) Identifying STI products for work authorized to be performed at the site with responsibility for the product assigned to the organization of the corresponding or lead author to prevent duplicate submissions from collaborating institutions.

(3) Ensuring STI products include the following, as applicable:

(a) Acknowledgement of DOE sponsorship.

(b) Applicable license rights statements, including the government purpose license.

(c) Any required notices or disclaimers specified in the award terms.

(d) Appropriate access-limitation markings.

(e) For DOE-funded work, identification of the sponsor in the product, for example: "U.S. Department of Energy, [name of DOE sponsoring program office], [name of DOE subprogram]." For journal articles, include any notices required by DOE acquisition regulations or award terms concerning government license rights.

(f) Persistent identifiers (PIDs).

1 When a PID has been assigned by a publisher, repository, or other authoritative source, it must be included.

2 For peer-reviewed journal articles and accepted manuscripts, publicly accessible scientific data, technical reports with no distribution limitations, and scientific software with no distribution limitations, any PID assigned by a publisher, repository, or other authoritative source must be included.

3 When a PID has not been assigned, OSTI will assign a PID when practicable, consistent with the nature of the STI product and applicable access limitations, ensuring that STI is discoverable through PIDs, repositories, or publisher platforms.

(4) Providing bibliographic metadata for STI products and the full text of STI products or persistent links to OSTI using OSTI-designated systems and interfaces when OSTI determines that automated discovery or harvesting is insufficient.

(5) Ensuring that STI and associated metadata made available to DOE or OSTI comply with applicable statutory, regulatory, and award-based requirements related to information protection, access limitations, intellectual property, and dissemination, including any notification or coordination obligations triggered by a determination under the DOE Science and Technology (S&T) Risk Matrix, prior to public release or broader availability.

(6) For completed research that is determined to be a Restricted S&T topic, as identified in the most recent version of the DOE S&T Risk Matrix, notification to the DOE sponsoring program office and the sponsoring program office providing stewardship over the laboratory, which must occur prior to publication of STI or other public release.

(7) Responding to OSTI requests for clarification, correction, or provision of STI and associated metadata.

b. To the best of the contractor or financial assistance recipient's knowledge, inform OSTI when STI relied upon by DOE for public access, preservation, or reporting has been materially modified (for example, corrections to a technical report or a major new version of software), and/or when STI that was previously made publicly accessible at a stable Universal Resource Locater (URL) or repository link is permanently removed or relocated so that DOE records and access mechanisms can be updated.

c. Where aligned with contractor-defined research security and national security compliance processes and contractor-determined information protection risk assessments, ensure that DOE contractor employees conducting R&D work obtain a persistent identifier for themselves that meets the common/core standards specified in NSPM-33 Implementation Guidance (e.g., Open Researcher and Contributor ID [ORCID]) and use that identifier in published research outputs.

d. Ensure that for all DOE-funded or DOE-supported R&D work that is authorized to be performed under the contract, a DMSP is provided to DOE consistent with Attachment 2, and that publicly shared scientific data identified in the DMSP are reported to DOE as STI.

# ATTACHMENT 2
# DATA MANAGEMENT PLANNING AND SCIENTIFIC DATA REPORTING

This attachment provides information and requirements associated with data management planning and the reporting of scientific data as scientific and technical information (STI) under this Order. It applies to federal employees and to contracts and financial assistance awards into which the associated Contractor Requirements Document (CRD) (Attachment 1) is incorporated.

Data Management and Sharing Plans (DMSPs) describe what data will be shared, preserved, and protected, but do not by themselves prescribe the mechanisms by which the Department of Energy (DOE) will collect or ingest scientific data or metadata.

DOE requires data management planning for research and development (R&D) that it funds, at least in part, in accordance with applicable Office of Science and Technology Policy memoranda and DOE Public Access Plans. Data management planning requirements apply to R&D generated by federal employees, contractors, financial assistance recipients, and other entities whose work DOE funds or supports. As a result of data management planning, scientific data that are made publicly accessible must be identified and made discoverable to DOE, and associated data records must be reported/submitted or otherwise made available to DOE as STI, consistent with this Order and OSTI-led discovery and collection processes. Approval, oversight, and enforcement of DMSP requirements, consistent with applicable award terms and programmatic oversight authorities, reside with the sponsoring program office.

For the most current DOE policy guidance on data management and sharing, including templates and implementation details, researchers and contractors should consult DOE's public access and DOE Requirements and Guidance for Digital Research Data Management (https://www.energy.gov/datamanagement/doe-requirements-and-guidance-digital-research-data-management).

1. DMSPs. DMSPs must be provided for funded research following DOE and sponsoring office guidelines. Updates to the DMSP, when needed during the course of the R&D, must be provided to DOE for review and approval as part of programmatic oversight, as specified by the sponsoring office.

2. Validation and Replication of Results. The DMSP should describe how scientific data generated in the course of the research project will be publicly shared and preserved in a timely and equitable manner that enables validation and replication of results. If data will not be publicly shared and preserved, the DMSP should describe how results could otherwise be validated and replicated.

3. Data repository Selection. The DMSP should specify digital repositories that will be used to preserve and provide access to scientific data, taking into account federal guidance on desirable characteristics of data repositories for federally funded research. DOE generally does not endorse or require sharing in any specific repository, but individual sponsoring offices may provide specific guidance or designate particular repositories.

4. Data Management and Sharing Resources. The DMSP should describe the data management and sharing resources that may be available and used in the course of the proposed research. When the DMSP relies on data management and sharing resources at a facility beyond what is conventionally available to approved users, it should be accompanied by written approval from that facility.

5. Data Sharing Limitations. The DMSP must address any limitations on scientific data sharing needed to protect confidentiality, privacy, business confidential information, and security, to avoid negative impact on intellectual property rights, innovation, program and operational improvements, and U.S. competitiveness, and to maintain an appropriate balance between the value of long-term preservation and access and the associated cost and administrative burden. Contractors may have rights to assert copyright or data protection for certain scientific data. When contractors assert copyright, the DMSP should address licensing and any limitations on sharing the copyrighted data. When contractors assert data protection, scientific data need not be made publicly accessible during the protection period.

6. Reporting Scientific Data to DOE. Scientific data that are made publicly accessible, as described in an approved DMSP, must be identified and made discoverable to DOE as STI, consistent with this Order and applicable OSTI guidance. Scientific data must also be reported through any other applicable program-specific or award-specific reporting mechanisms, provided such reporting does not require duplicate submission of data already made discoverable to DOE.

# ATTACHMENT 3
# STI PRODUCT TYPE DEFINITIONS

This attachment defines the types of scientific and technical information (STI) products that may be required under DOE awards and specifies when each type must be identified and made available to Office of Scientific and Technical Information (OSTI).

The initiator of the requisition, generally the sponsoring program office, in coordination with the contracting or grants officer (CO or GO) is responsible for identifying the STI for the Department of Energy (DOE) award. When feasible, identification of STI may also occur through DOE OSTI discovery, harvesting, or monitoring of publications, repositories, and other dissemination platforms.

Identification of STI does not, by itself, require duplicate submission of STI products when OSTI is able to collect them through persistent identifiers, publisher platforms, or repositories, provided required acknowledgements, license statements, and metadata are present and accurate.

Certain STI products are automatically required for an award because of DOE or federal-wide policy. However, some STI is identified at the discretion of the sponsoring program office based on the nature of the research and development (R&D) that has been awarded or authorized to be performed. When identifying STI, it is important to consider the different types of STI that DOE OSTI collects and the goals of the sponsoring program.

STI does not include information related to the R&D such as preliminary analyses/results, draft manuscripts of scientific papers, plans for future research, peer reviews, communications with colleagues, laboratory samples, funding proposals, performance or progress reports (management and oversight), or financial monitoring and reporting.

The table below identifies common STI product types resulting from DOE-funded or DOE-supported R&D that are subject to DOE identification and collection. Collection may be accomplished through OSTI discovery or harvesting, metadata/link provision, or direct submission, depending on availability, access limitations, and award terms.

| STI Product | Definition |
|---|---|
| Accepted Manuscripts/Open Access Peer-Reviewed Journal Articles | Published Open Access and accepted manuscripts that have undergone formal peer review and are published or accepted for publication. |
| Books/Monograph | Required if a book or monograph is generated as a result of DOE-funded or DOE-supported R&D. |
| Conference Paper | Papers resulting from conference participation.<br>If the key outcomes or results are published in a journal article or accepted manuscript that is publicly accessible and discoverable by DOE, conference products that are duplicative may not require separate identification. |

| STI Product | Definition |
|---|---|
| Scientific Data | Digital research data used to support findings in peer-reviewed publications or generated through DOE-funded R&D activities. |
| Scientific Software | Source-code files, algorithms, scripts, computational workflows and executables developed to conduct R&D or process research data. |
| Technical Report | Documents that describe the conduct or results of R&D work, including interim progress reports, final reports, topical reports, and white papers.<br>If the sponsoring program identifies that in addition to a protected Final Technical Report, a publicly available version of the report is also required to support public access to the research results, both versions of the report are required. |
| Technical Workshop Report | Required if the workshop communicated primary findings or results of DOE-funded or DOE-supported R&D. Generally, not reported for preliminary findings or duplication of other required STI. |
| Thesis/Dissertation | Required if a thesis/dissertation is generated as a result of DOE-funded or DOE-supported R&D. |

# ATTACHMENT 4
# DEFINITIONS

This Attachment provides definitions associated with DOE O 241.1D and applicable to contracts in which the associated Contractor Requirements Document (CRD) (Attachment 1 to Department of Energy [DOE] O 241.1D) is inserted.

1. Accepted Manuscript. The version of a journal article that has been peer-reviewed and accepted for publication, and includes changes made by the author during the peer-review process. The content is the same as the published article, but it does not have the final formatting and copy-editing done by the publisher in the final published version, and it is not a reproduction copy of what appears or will appear in the journal; it is not a reprint of the published article.

2. Controlled Unclassified Information. Information the government creates or possesses, or that an entity creates or possesses for or on behalf of the government, that a law, regulation, or government-wide policy requires or permits an agency to handle using safeguarding or dissemination controls. Controlled Unclassified Information (CUI) does not include classified information or information a non-executive branch entity possesses and maintains in its own systems that did not come from, or was not created or possessed by or for, an executive branch agency or an entity acting for an agency. Refer to https://www.osti.gov/stip, for the most current information related to CUI scientific and technical information (STI).

3. Contracting Officer/Grants Officer. An official of DOE certified and authorized to execute procurement instruments, including acquisitions/contracts and financial assistance awards on behalf of DOE, and who is responsible for the business management and non-program aspects of the agreement.

4. Data Management and Sharing Plan. A documented plan required for DOE-funded or DOE-supported research and development (R&D) that describes the scientific data expected to be generated or used in the course of the work and specifies how such data will be managed, preserved, protected, and, as applicable, shared or made publicly accessible, consistent with applicable laws, regulations, award terms, and Departmental policy.

5. Departmental Element. A first-tier organization at Headquarters and in the field. First tier at Headquarters encompasses heads of the major Headquarters line programs (e.g., Program Secretarial Officers). First-level field element refers to first-level organizations located outside the Washington Metropolitan area and encompasses Operations Offices, Site Offices, Field Offices, and Regional Offices.

6. Digital Persistent Identifier or Persistent Identifier (PID). A globally unique, persistent, machine-resolvable, and processable digital identifier with an associated metadata schema that enables reliable identification, discovery, linking, and management of research-related entities and outputs over time. A PID provides a stable, managed reference to an object, entity, or resource that can be accessed or described in digital environments, regardless of changes to location or ownership. PIDs are often assigned to people, organizations, funding, and STI. Common examples include Open Researcher and Contributor IDs (ORCIDs) for individuals, Research Organization Registry identifiers for organizations, and Digital Object Identifiers (DOIs) for research outputs and awards.

7. E-Link. The current Office of Scientific and Technical Information (OSTI)-managed information system used by DOE to support the management, coordination, and documentation of STI and associated metadata, including metadata provision, correction, and access control. Use of E-Link is one of several mechanisms by which STI information may be made available to DOE. OSTI may update, replace, or supplement this system consistent with its responsibilities under this Order.

8. Financial Assistance. As defined in 2 CFR § 200.1, Definitions. Assistance that non-federal entities receive or administer in the form of the following:

   a. Grants

   b. Cooperative agreements

   c. Non-cash contributions or donations of property (including donated surplus property)

   d. Direct appropriations

   e. Food commodities

   f. Other financial assistance.

9. Head of Contracting Activity. DOE official with senior management authority for the award and administration of procurement instruments, including acquisitions/contracts and financial assistance.

10. Metadata. Information that describes the attributes of an STI product and supports DOE requirements for identification, discovery, access control, reporting, dissemination, and preservation. Metadata may be obtained through OSTI discovery and harvesting, Contractor or awardee provision, publisher or repository records, or other authoritative sources.

11. Metadata Element/Field. A specific piece of information that describes an attribute of the STI. Metadata elements/fields may include bibliographic information such as title, author, or publication date.

12. Metadata Record. A structured set of metadata elements describing an STI product, maintained by DOE or OSTI for STI management purposes. Metadata records may be created, supplemented, or corrected by OSTI using authoritative sources or provided by contractors or awardees, as appropriate.

13. Originating Research Organization. The organization that performed the research or produced the STI, as identified in STI metadata maintained by DOE or OSTI.

14. Releasing Official. An individual designated by the Grants Officer/Contracting Officer (GO/CO), Technical Information Officer (TIO), and/or contractor who will coordinate and confirm the submission of STI and metadata to OSTI in a manner consistent with the requirements of this Order.

15. Program Manager. An official of a sponsoring program office who has been delegated responsibility for implementation and administration of a specific program, which may include one or more projects.

16. Research and Development. For purposes of this Order, R&D is defined based on relevant laws and federal-wide policy and guidance that authorize and govern the management of DOE R&D and S&T programs. R&D, at a general level, includes basic research, applied research, and/or development activities where new knowledge is acquired and additional knowledge is gained.

17. Scientific and Technical Information. STI is the recorded results of knowledge arising from R&D and/or related activities funded or supported by DOE, including work performed by federal researchers. STI includes, but is not limited to, scientific/technical reports, scientific/technical conference papers, journal articles/accepted manuscripts, scientific data, scientific software, books/monographs, thesis/dissertations, and technical workshop reports. STI does not include information related to the R&D such as preliminary analyses, drafts of scientific papers, plans for future research, peer reviews, communications with colleagues, laboratory samples, performance (management and oversight), or financial monitoring and reporting. For purposes of STI identification and collection, DOE awards provide DOE's rights to STI and identify any applicable markings, access limitations, or restrictions governing dissemination. STI may be collected, managed, and disseminated by DOE through OSTI-led discovery, harvesting, metadata provision, or direct provision, consistent with award terms and applicable access controls.

18. Scientific and Technical Information Program. The DOE-wide program, led by OSTI, that provides policy coordination, governance, and implementation support for the identification, management, dissemination, and preservation of STI resulting from Department of Energy-funded or DOE-supported R&D, consistent with applicable laws, regulations, and Departmental requirements.

19. Statement of Work. A document that defines the work to be performed under a DOE award.

# ATTACHMENT 5
# REFERENCES

The following references provide authority for the Department's Scientific and Technical Information Management Program.

1. Atomic Energy Act of 1954, as Amended, Public Law (P.L.) 83-703, establishes a program for the dissemination of unclassified scientific and technical information and for the control, dissemination, and declassification of Restricted Data, subject to appropriate safeguards, so as to encourage scientific and industrial progress (42 U.S.C. § 2013, 2051, and 2161).

2. Freedom of Information Act, P.L. 89-487, provides for public access to federal agency records, which would include records containing scientific and technical information created with federal funding (5 U.S.C. § 552 et seq.).

3. Energy Reorganization Act of 1974, P.L. 93-438, provides responsibilities for developing, collecting, distributing, and making scientific and technical information available for distribution (42 U.S.C. § 2161, 5813, 5817).

4. Department of Energy Organization Act of 1977, P.L. 95-91, provides for maintaining a central source of information and disseminating information (42 U.S.C. § 5916, 7112).

5. Title XXXII, National Nuclear Security Administration Act, as Amended, P.L. 10665, establishes a separately organized agency within the DOE in 2000 (50 U.S.C. Chap 41).

6. Energy Policy Act of 2005, P.L. 109-58, Section 982, "The Secretary, through the Office of Scientific and Technical Information, shall maintain within the Department publicly available collections of scientific and technical information resulting from research, development, demonstration, and commercial applications activities supported by the Department."

7. America COMPETES Act of 2007, P.L. 110-69, Section 1009, calls for federal agencies that conduct scientific research to develop agency-specific policies and procedures regarding the public release of data and results of research.

8. Presidential Memorandum for the Heads of Executive Departments and Agencies, Subject: Transparency and Open Government, January 21, 2009.

9. Presidential Memorandum for the Heads of Executive Departments and Agencies, Subject: Scientific Integrity, March 9, 2009.

10. 2010 Office of Science and Technology Policy Memorandum on Scientific Integrity.

11. 2021 Presidential Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking.

12. Presidential Memorandum for the Heads of Executive Departments and Agencies, Subject: Open Government Directive, December 8, 2009.

13. DOE O 142.3, *Unclassified Foreign National Access Program*, current version.

14. DOE O 200.1, *Information Technology Management*, current version.

15. DOE O 206.1, *Department of Energy Privacy Program*, current version.

16. DOE O 412.1, *Work Authorization System*, current version.

17. DOE O 413.2, *Laboratory Directed Research and Development*, current version.

18. DOE O 452.7, *Protection of Use Control Vulnerabilities and Designs*, current version.

19. DOE O 452.8, *Control of Nuclear Weapon Data*

20. DOE O 457.1, *Nuclear Counterterrorism*, current version.

21. DOE O 471.1, *Identification and Protection of Unclassified Controlled Nuclear Information*, current version.

22. DOE O 471.6, *Information Security*, current version.

23. DOE O 471.7, *Controlled Unclassified Information*, current version.

24. DOE O 475.2, *Identifying Classified Information*, current version.

25. DOE O 484.1, *Reimbursable Work for the Department of Homeland Security*, current version.

26. DOE O 483.1, *DOE Cooperative Research and Development Agreements*, current version.

27. DOE O 481.1E, *Strategic Partnership Projects [Formerly Known as Work for Others (Non-Department of Energy Funded Work)]*, current version.

28. *DOE Acquisition Guide*, current version.

29. *DOE Guide to Financial Assistance*, current version.

30. *Department of Energy Research and Development Records Schedules*, N1-434-969, N1-434-07-01, and N1-434-08-02, current versions.

31. 2 CFR § 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*, Code of Federal Regulations, October 23, 2023.

32. 2 CFR § 910, *Department of Energy Acquisitions Regulations, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*, Code of Federal Regulations, October 23, 2023.

33. 48 CFR § 935, *Department of Energy Acquisitions Regulations*, Code of Federal Regulations.

34. 48 CFR Chapter 9, *Department of Energy Acquisitions Regulations*, Federal Acquisitions Regulations, Code of Federal Regulations.

35. 48 CFR § 52.227-14, *Federal Acquisition Regulations*, Code of Federal Regulations.

36. N1-434-06-1, *Research and Development (R&D) Technical Report Files (Scientific and Technical Information), National Archives and Records Administration*.

37. *DOE Open Government Plan*, current version.

38. *DOE Science and Technology (S&T) Risk Matrix*.

39. 10 CFR § 1017, *Identification and Protection of Unclassified Controlled Nuclear Information*, Code of Federal Regulations, which establishes policies and procedures for the identification and protection of UCNI.

40. Executive Order 13526, "Classified National Security Information," (32 CFR § 2001).

41. Executive Office of the President, Office of Science and Technology Policy, Memorandum for the Heads of Executive Departments and Agencies, Subject: Increasing Access to the Results of Federally Funded Scientific Research, February 22, 2013.

42. Secretarial Memo from Ernest J. Moniz for Heads of Departmental Elements, National Laboratory Directors, DOE Technology Center Directors, Subject: Public Access to the Results of DOE-Funded Scientific Research, September 4, 2014.

43. Executive Office of the President, Office of Science and Technology Policy, Memorandum for the Heads of Executive Departments and Agencies, Subject: Ensuring Free, Immediate, and Equitable Access to Federally Funded Research, August 25, 2022.

44. *DOE Public Access Plan*, July 24, 2014.

45. *DOE Public Access Plan*, June 2023.

46. National Security Presidential Memorandum (NSPM)-33, *Presidential Memorandum on United States Government-Supported Research and Development National Security Policy*, January 14, 2021.

47. *Guidance for Implementing National Security Presidential Memorandum 33 on National Security Strategy for United States Government-Supported Research and Development*, January 2022.

48. National Science and Technology Council, *Desirable Characteristics of Data Repositories for Federally Funded Research*, May 2022.

49. OMB Circular A-11, *Preparation, Submission, and Execution of the Budget*.

50. OMB Circular A-110, *Uniform Administrative Requirements for Grants and Agreements With Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations*.

51. Department of Energy, *Restoring Gold Standard Science DOE Implementation Plan*, August 2025.