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GUIDE TO THE MANAGEMENT OF SCIENTIFIC AND TECHNICAL INFORMATION



**U.S. DEPARTMENT OF ENERGY
Office of Scientific and Technical Information**

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ACRONYMS

ANSI	American National Standards Institute
B&R	budget and reporting
BNL	Brookhaven National Laboratory
CAF	Controlled Access File
CD-ROM	Compact Disk - Read Only Memory
CDIAC	Carbon Dioxide Information Analysis Center
CEMI	Center for Environmental Management Information
CFR	Code of Federal Regulations
CIMS	Classified Information Management System
CLEO	Classified Energy Online
CRADA	cooperative research and development agreement
DOE	Department of Energy
DTD	document type definition
DTIC	Defense Technical Information Center

ECI	Export Controlled Information
ESTSC	Energy Science and Technology Software Center
ETDE	Energy Technology Data Exchange

ACRONYMS (continued)

GPO	Government Printing Office
HTML	Hypertext Markup Language
IPAR	Individual Procurement Action Request
IPAR	Individual Procurement Action Report
LDRD	laboratory directed research and development
M&I	management and integration
M&O	management and operation
NARA	National Archives and Records Administration
NASA	National Aeronautic and Space Administration
NEA	Nuclear Energy Agency
NIH	National Institutes of Health
NISO	National Information Standards Organization
NNDC	National Nuclear Data Center
NPTO	National Petroleum Technology Office
NSF	National Science Foundation
NTIS	National Technical Information Service
OECD	Organization for Economic Cooperation and Development
ORNL	Oak Ridge National Laboratory
OSTI	Office of Scientific and Technical Information
OUO	Official Use Only
PADS	Procurement and Assistance Data System
PDF	portable document format
PDFI	portable document format image
PDFN	portable document format normal
<u>PDOUO</u>	<u>Program Determined Official Use Only</u>
R&D	research and development
RD&D	research, development, and demonstration
RSICC	Radiation Safety Information Computational Center
S&T	scientific and technical
SBIR	Small Business Innovative Research
SGML	standard generalized markup language
SIAC	Specialized Information Analysis Center
STI	scientific and technical information
<u>STIAB</u>	<u>Scientific and Technical Information Advisory Board</u>
STICG	Scientific and Technical Information Coordinating Group
STIP	Scientific and Technical Information Program
STTR	Small Business Technology Transfer Program
TIFF	tagged image file format
U.S.C.	United States Code
<u>UCI</u>	<u>Unclassified Controlled Information</u>
UCNI	Unclassified Controlled Nuclear Information
URL	uniform resource locator
WFO	Work for Others
WWW	World Wide Web
XML	Extensible Markup Language

PART I**MANAGEMENT OVERVIEW OF DOE=S SCIENTIFIC
AND TECHNICAL INFORMATION PROGRAM****1. INTRODUCTION**

This Guide to the management of scientific and technical information (STI) provides nonmandatory guidelines for implementing the objective, requirements, and responsibilities of Department of Energy (DOE) directive DOE O 241.1A, *Scientific and Technical Information Management*. This Guide is for use by all DOE elements, including the National Nuclear Security Administration (NNSA), their contractors and sub-contractors required to implement DOE O 241.1A. For simplicity, "DOE," as used throughout

this Guide, includes NNSA.

~~Because~~ Scientific and technical information is a key outcome of many of the Department's funded activities, STI has an important role in accomplishing DOE initiatives, missions, goals, and objectives. Providing effective management, protection, and access to unclassified (unlimited, ~~or sensitive controlled, or export controlled~~) and classified STI is vital. The Office of Scientific and Technical Information (OSTI), within the Office of Science, is charged with the responsibility of coordinating the Department's Scientific and Technical Information Program (STIP) activities and ensuring that policies and practices are promulgated within the Department for managing STI resulting from DOE's research and development (R&D) and related scientific, technological, and environmental activities.

~~The Department is undergoing a transition to a decentralized, electronic STI management environment. The Concept Paper on Electronic STI Management (see Attachment 1) summarizes the decentralized activities envisioned in FY 1998 and lays the framework for that environment. This Guide reflects a number of procedural changes pertaining to the implementation of this transition.~~

Additional information about the Department's STI activities is located on OSTI's home page at <http://www.osti.gov> and also on the Scientific and Technical Information Program (STIP) home page at <http://www.osti.gov/stip>. Forms mentioned in this Guide are available on DOE's Forms Internet site at <http://www.explorer.doe.gov:1776/htmls/docforms.html> <http://www.directives.doe.gov/forms/index.html> and at <http://www.osti.gov/stip/all241Forms.html>.

2. PURPOSE OF THIS GUIDE

This Guide is based on best ~~business~~ practices as defined by DOE and contractor STIP participants from across the DOE complex. The purpose of the Guide is to assist individuals who are involved in STI whether it is unclassified (unlimited ~~or; controlled sensitive; or export controlled~~) or classified to meet Departmental expectations for ensuring access to STI and for managing STI throughout the various phases of the information life cycle: planning, creation, publication, dissemination, and preservation. It complements other DOE directives relating to information security yet specifically addresses STI products. Information management policies, principles, and practices ~~are evolving~~ continue to evolve as new electronic technologies become available. This Guide is one of the primary STIP mechanisms for sharing ~~Abest in class~~ practices, and it will be modified and updated as changes are identified by the STI community.

2.1 Updating/Modifying This Guide

Because of the rapid changes in information technologies within and external to DOE, the usefulness of this Guide requires that it be kept up to date. Proposed changes to the Guide may be identified by anyone involved in STI and referred to ~~as~~ a STIP participant (an STI point of contact). Normally, items are discussed during regularly scheduled STIP meetings and are referred to ~~a one of the~~ STIP workgroups to make a recommendation to the entire STIP community. Agreed upon changes will then be incorporated into this Guide.

2.2 Source of Guide and Contact

An electronic version of this Guide is available through <http://www.directives.doe.gov/> and also through <http://www.osti.gov/stip/g2411-1a.pdf> <http://www.doe.gov/stip/polbest.htm>. Questions concerning the Guide or recommended changes may be referred to the STI point of contact at the respective site or organization or to OSTI. These individuals are listed at www.osti.gov/stip/peopleandgroups.html. To send suggestions or questions to OSTI, use the comment form on the STIP home page (~~<http://www.osti.gov/stip.htm>~~ <http://www.osti.gov/stip/commentform.html>) or call OSTI's Office of Program Integration at 865-576 1035.

3. STI POLICY

An overarching DOE requirement is to make STI broadly available, within applicable laws and Departmental requirements, toC

- \$ accomplish mission objectives and strategic goals,
- \$ promote scientific advancement,
- \$ satisfy statutory dissemination requirements, and
- \$ ensure a fair return on Departmental and taxpayer investment.

Requirements and responsibilities for STI are provided in DOE O 241.1A. The primary objective of the Order is to ensure that STI is identified, processed, disseminated, and preserved to enable the scientific community and the public to locate and use the unclassified and unlimited STI resulting from DOE research and related endeavors. Additionally, the requirements and responsibilities provide a mechanism to manage and protect ~~classified and; unclassified controlled sensitive unclassified, and export controlled~~ STI yet make it accessible for appropriate access by the Department, its contractors, and others. Attachment 21 lists relevant authorities and other guidance.

4. DEFINITION OF STI

Scientific and Technical Information (STI) consists of the experimental, observational, and analytical findings and conclusions resulting from basic or applied research and development activities, as well as other relevant associated information and data. In other words, STI is the body of scientific, technical, or associated knowledge identified as having value to accomplish DOE's missions and support the advancement of science.

In further clarification of the definition, STI is communicable knowledge or information resulting from sponsored research, development, or demonstration, or derived from scientific and technical studies, analyses, or other endeavors which contribute to the DOE mission and/or the national science or technology base. STI is documented in many formats, including textual or electronic documents such as technical reports and published papers, numeric data, audiovisual materials, etc., regardless of media or level of classification. It is produced by contractors, subcontractors, grantees or other financial assistance recipients, or by Federal staff.

~~STI consists of information products, in any format or medium, derived from scientific and technical studies, work, or investigations that relate to research, development, demonstration, and other specialized areas such as environmental and health protection and waste management. Scientific and technical information products may be unclassified unlimited, sensitive unclassified, export controlled, classified, or declassified. DOE-funded STI originates primarily from research and other activities performed by contractors for management, operation, or integration of DOE-owned/leased facilities, direct DOE-executed prime procurements, DOE-operated research activities, and financial assistance recipients, in addition to DOE employees.~~

~~STI products, and documents that provide findings, statistics, and analysis related to DOE research and development programs (excluding administrative documents) that are appropriate for announcement to OSTI and are listed in Part II, Section 4, of this Guide.~~

Definitions are provided in Attachment 32 for other terms used in the management of STI.

5. SCIENTIFIC AND TECHNICAL INFORMATION PROGRAM

STIP is comprised of DOE program managers, researchers, and STI professionals who collaborate for the timely collection and broad dissemination of the Department=s STI.

Strategic goals of STIP are to C

- \$ ~~provide~~ enhance access to DOE=s STI,
- \$ promote collaboration as a means of doing business,
- \$ ~~use best business practices for the life-cycle management of STI, and~~
- \$ ~~be customer-focused in providing STI products and services.~~ share combined body of knowledge and lessons learned

One component of the Department=s STIP activities is the Scientific and Technical Information Advisory Board (STIAB) which supersedes the Scientific and Technical Information -Coordinating Group (STICG). The Board is cognizant of Departmental STI activities and serves as an advisory body on crosscutting STI policies, issues, and initiatives. The Board is chaired by the Director, Office of Science. Members of the Board are Federal employees and are representatives of the Program Secretarial Offices, the National Nuclear Security Administration, as well as other offices that impact STI policies.

~~The STICG is made up primarily of representatives from Headquarters elements that either fund research or set policies or practices affecting STI. The group, chaired by the Director of OSTI, is cognizant of Departmental STI activities and serves as an advisory body on crosscutting STI issues and initiatives.~~

Although OSTI has the responsibility to coordinate STIP, the success of the program depends on the active participation and involvement of each of the STI representatives from the various DOE ~~programs, field offices, and contractors~~ and contractor sites. Activities are coordinated through DOE Technical Information Officers, who are the designated STI points of contact at DOE ~~operations and field offices,~~ with STI managers and STI points of contact at major contractor operated facilities and the national laboratories.

6. STI PROGRAM REVIEW/ASSESSMENT

In keeping with the ~~Paramount among the recent management reforms within the Federal Government is the~~ Government Performance and Results Act of 1993, ~~which requires agencies to~~ STIP best practices and priorities include:

- \$ focusing on program outcomes,
- \$ establishing measurable annual objectives that link to long term goals,
- \$ developing budgets that are based on planned performance, and
- \$ reporting results.

DOE has initiated a number of management changes as part of that reform. Those relevant to STI include the following:

a. Review and oversight of laboratory performance under performance based management contracts, primarily through performance measures and self assessments. Other influences on the annual laboratory evaluation include peer reviews, program office evaluations, external reviews (e.g., Office of Inspector General, Government Accounting Office), and day to day operational experience.

~~b. The most recently issued DOE Strategic Plan (of September 2003) includes a strategy for protecting our national and economic security by providing world-class scientific research capacity and advancing scientific knowledge.~~

~~cb. The Business Management Oversight Program, where STI management/administration was identified as a specific functional area. Performance objectives were established for the FY 1998 Headquarters review of Field Federal Activities (agreements were negotiated between OSTI and each operations office). Some of those agreements have begun to be referenced in operations offices oversight of contractor activities.~~

~~e. The most recently issued DOE Strategic Plan (of September 2000) included a strategy for ensuring the success of DOE's science mission through scientific and technical information access and use. This strategy appears in the Science business line.~~

d. With STI being recognized as a key outcome of R&D and related activities, initiatives have begun for placing STI as a component of technical program reviews and of the laboratory appraisal process.

~~d. Establishment of the Scientific and Technical Information Advisory Board (STIAB) to ensure the effective management and dissemination of scientific and technical information (STI), a key deliverable of the Department's research and development (R&D) programs, and in support of the President's Management Agenda for expanded electronic government.~~

~~e. The Department's first STIP Strategic Plan was issued in September 1997 (see Part I, Section 5), thereby establishing goals and strategies for the DOE's STI community and its activities. The overarching goal is the Departmental initiative to transition STI activities to an electronic environment.~~

Those who either sponsor activities that produce STI or who conduct or manage activities that are within the STI life cycle should consider the points listed above as well as the information below for review or assessment of STI.

6.1 STI Performance Objectives

The following ~~four~~ STI performance objectives have been established for use in evaluating STIP performance at the various levels ~~the Headquarters Review of Field Federal Activities Business Management Oversight Program~~. Several strategies are listed with each goal. They are intended to complement and help assess progress in accomplishing the STIP strategic goals. Specific measures and expectations for each objective are to be developed by the appropriate program manager when being applied to program reviews, or by the ~~DOE operations~~ office for contractor assessments on a case by case basis.

Objective 1: Enhance ~~Provide access to STI access by making it available to OSTI.~~

~~Strategy 1: Utilize site-hosted electronic collections\$ to ensure timely availability of STI~~

~~Strategy 2: Enhance access to legacy collections~~

~~Strategy 3: Enhance accessibility and ease of use of site collections with state-of-the-art search tools~~

~~Strategy 4: Enhance availability of site-developed software ~~Non-management and operation/integration (non-M&O/M&I)-generated STI deliverables are made available to OSTI in a timely manner.~~~~

~~\$ Useful M&O or M&I-generated STI products are made available to OSTI in a timely manner.~~

Objective 2: ~~Transition is being made to a decentralized electronic environment.~~Promote Collaboration

~~Strategy 1: Establish a means of engaging Program Offices in reinforcing expectations for reporting of STI deliverables~~

~~Strategy 2: Identify and address incentives/disincentives to collaboration.~~

~~Strategy 3: Continue to identify and publicize successful collaborations at least annually.~~

~~Strategy 4: Educate users/providers on value added by STI processes.~~

Strategy 5: Enhance communication.

~~\$ Non-M&O/M&I-generated STI deliverables are increasingly provided to OSTI in appropriate electronic formats (i.e., increasing numbers of contracts are changed to require electronic formats).~~Communication across business lines (OPSEC, CIO, Classification, Research Programs, and STI).

~~\$ M&O/M&I contractor announcement records and full-text STI documents are increasingly made available to OSTI in agreed-upon electronic formats.~~Integrate changes of NNSA and other Programs.

Objective 3: ~~STI policies and procedures are collaboratively developed.~~Share combined body of knowledge and lessons learned.

~~-~~
Strategy 1: Define outcomes based on OSTI mission; determine when consistency must take precedence over flexibility at each site.

~~-~~
Strategy 2: Improve compliance with information release at each DOE site.

~~-~~
Strategy 3: Establish a communication plan and process for the STI community.

~~-~~
Strategy 4: Identify common barriers and needs for process improvements.

~~-~~

\$ STI points of contact actively participate in scheduled and ad hoc teleconferences, meetings, and STIP working groups to determine STI procedures based on best business practices.

\$ Leadership and innovation are demonstrated by STI points of contact both locally and DOE wide.

~~Objective 4: STI performance objectives are implemented with performing R&D contractors.~~

~~\$ Performance expectations based on adopted performance objectives are negotiated with each performing R&D contractor.~~

~~\$ Periodic reviews of performing R&D contractor self-assessments are conducted and operational awareness of each one is maintained.~~

~~\$ Provide assistance and data to contracting officers on status of direct procurement type technical information policies and deliverables.~~

The contribution of the overall STIP activities to meeting Departmental goals and objectives, such as those mentioned in the DOE Strategic Plan and individual program plans, is also an important assessment.

6.2 Program Reviews

In evaluating the quality of the science and technology performed by the major site/facility management contractors~~laboratory~~ and its relevance to their programmatic goals, DOE program managers may periodically review the programs they fund. One aspect of the effectiveness and efficiency of research program management is the effectiveness with which technical results are communicated to maximize the value of the research results and to gain appropriate recognition for DOE and the major site/facility management contractor~~laboratory~~. Therefore, Headquarters programs that fund activities resulting in STI may want to consider criteria such as the following in their program reviews:

- a. Effectiveness of making STI results available to maximize value of the research. (Are useful STI products or identified technical reporting deliverables made available to OSTI so that DOE reporting and public release can be completed as appropriate? What other means are used to announce the STI?)
- b. Implementation of electronic reporting and access as a Departmental initiative. (Are researchers ~~beginning to use~~utilizing electronic reporting? Are laboratories and other major facilities modifying their information infrastructure; ~~such as hosting more full-text STI documents on Web sites~~to make the various product types and classification categories of data available electronically?)
- c. Incorporation of STI into projects and plans. (Is STI recognized as a key outcome of R&D that is planned for during the activity? Are activities coordinated with STI counterparts?)

7. INFORMATION SYSTEMS AND DATABASES

Several information systems or databases operated and maintained by OSTI provide information of interest to the scientific community as well as assistance in various aspects of managing the Department's STI. Some of the tools helpful in managing and providing access are described below:

- a. Classified Information Management System (CIMS) contains bibliographic records (metadata) for the Department's central collection of classified DOE and other technical reports. Contact OSTI for more information about this database and related information resources.

~~EnergyFiles. EnergyFiles, the Virtual Library of Energy, Science and Technology (<http://www.osti.gov/energyfiles>), provides the umbrella for the other Web-based OSTI and STIP community information systems. This ever-expanding virtual collection of information sources, tools, and technologies supports the finding and use of energy-related information and the conduct of energy research. EnergyFiles serves as a central locator for various DOE and laboratory resources. It includes subject pathways comparable to technical literature subject areas of interest to DOE and end users. A key feature of Energy Files, EnergyPortal Search, is a search engine with the capability to return distributed full text. EnergyPortal Search employs a single search strategy to search across approximately 500 heterogeneous databases and Web sites, including OSTI-developed products, that are linked through EnergyFiles.~~

- b. DOE R&D Accomplishments (<http://www.osti.gov/accomplishments>) is a publicly-available central forum for information about the outcomes of past DOE-sponsored or generated research and development. The outcomes featured have had significant economic impact, have improved people's lives, or have been widely recognized as a remarkable advance in science. An R&D accomplishment is the outcome of past research whose benefits are being realized now. It consists of the Database, Feature Topic pages and Snapshots. The Database contains searchable full-text and bibliographic citations of documents reporting accomplishments from DOE and DOE contractor facilities. Featured Topic pages spotlight an individual scientist or an area of research. Snapshots provide quick pictures, introductions, overviews, or synopses of DOE accomplishments.

~~DOE Energy Link or AE-Link@ (<http://www.osti.gov/clink>) is the OSTI-developed system that facilitates electronic announcement and/or submission of DOE STI. E-Link enables DOE sites to enter data for the DOE announcement record through a Web interface or to upload data files, as well as to upload the associated full-text STI products as needed. Sites may also use E-Link to review the status of records or to revise previously submitted information. Password-protected access is granted to DOE or major DOE contractors routinely submitting records to OSTI. Financial assistance recipients and non-facilities management contractors have a separate E-Link interface to the Web form available for their use at <http://www.osti.gov/elink-2413/> to provide the announcement record and associated full-text.~~

c. Energy Citations Database (1948 - Present) (<http://www.osti.gov/energycitations>) (ECD) contains publicly available bibliographic citations for energy and energy-related scientific and technical information (STI) from 1948 forward, with links to electronic full text when available. Citations are from DOE and its predecessor agencies, the Energy Research & Development Administration (ERDA) and the Atomic Energy Commission (AEC). ECD provides citations to report literature, conference papers, journal articles, books, dissertations, and patents. It includes bibliographic citations of literature in disciplines of interest to the Department of Energy (DOE) such as chemistry, physics, materials, environmental science, geology, engineering, mathematics, climatology, oceanography, computer science and related disciplines.

- d. EnergyFiles, the Virtual Library of Energy, Science and Technology (<http://www.osti.gov/energyfiles/>), is an ever-expanding collection of energy-related information sources, tools, and technologies. It is a well-rounded and well-researched compilation of scientific and technical databases and Web sites, providing desktop access to energy-related information and research results, as well as links to professional organizations, conferences, funding information, and other reference material. Users may explore the site by following subject pathways or by choosing multidisciplinary databases and resources. EnergyFiles employs deep web technology to allow information seekers to perform a distributed search across selected databases and Web sites. Users may also create a unique, personalized search by combining subject-specific resources with broader, multidisciplinary sources. Energyfiles supports the discovery and use of energy-related information and the conduct of energy research, while offering users and contributors a place to aggregate and search collections of scientific and technical information.

~~DOE Information Bridge (<http://www.osti.gov/bridge>) is the Web-based collection of DOE's full-text technical reports provided by STIP partners throughout the DOE complex. It can be used to access, locate, search, and download full-text and/or bibliographic information electronically. Public access is provided through an agreement between DOE and the Government Printing Office (GPO), located on the GPO Access system. A DOE version, which also includes bibliographic citations (full text when available) of energy-related scientific and technical information obtained from a variety of domestic and international sources, is available to DOE and DOE contractors who obtain access from OSTI.~~

e. DOE Energy Link or AE-Link@ (<http://www.osti.gov/elink>) is the OSTI-developed system that facilitates electronic announcement and/or submission of DOE STI. E-Link enables DOE sites to enter data for the DOE announcement record through a Web interface or to upload data files, as well as to upload the associated full-text STI products as needed. Sites may also use E-Link to review the status of records or to revise previously submitted information. Password-protected access is granted to DOE and DOE major site/facility management contractors routinely submitting records to OSTI. Financial assistance recipients and non-facilities management contractors have a separate E-Link interface to the Web form available for their use at <http://www.osti.gov/elink-2413/> to provide the announcement record and associated full-text.

df. The E-Print Network (<http://www.osti.gov/eprints>) is a vast, integrated network of electronic scientific and technical information created by scientists and research engineers active in their respective fields, intended for use by other scientists, engineers, and students at advanced levels. It is a gateway to Web sites and databases worldwide, containing e-prints in basic and applied sciences, primarily in physics but also including subject areas such as chemistry, biology and life sciences, materials science, nuclear sciences and engineering, energy research, computer and information technologies, and other disciplines of interest to DOE. The E-print Network provides one-stop browse/search access to websites containing e-prints, full-text searching of e-print documents indexed from websites, deep web searching, and links to professional societies.

~~GrayLIT Network (<http://www.osti.gov/graylit>) is an interagency collaboration between DOE's Office of Scientific and Technical Information (OSTI), the Department of Defense Defense Technical Information Center (DTIC), the National Aeronautic and Space Administration (NASA) Jet Propulsion Lab and Langley Research Center, and the Environmental Protection Agency National Environmental Publications Center which provides the world's most comprehensive portal to governmental full-text technical reports on the Internet. By offering one stop for this previously hard-to-find Government information, the GrayLIT Network enables convenient access to over 100,000 full-text scientific and technical documents residing at disparate locations. A distributed search tool allows one search across the combined deep Web information and returns results in one integrated listing. The GrayLIT Network is available to the public in partnership with the Government Printing Office through GPO Access (http://www.access.gpo.gov/su_docs).~~

ge. ~~R&D Project Summaries Web Database (<http://www.osti.gov/rnd>) contains the publicly accessible subset of the Department's research projects beginning in FY 1995. Over 75 percent of the total Department's R&D project summaries are available through this Web-based application. ETDEWEB (<http://www.osti.gov/etdeweb>) is the Energy Technology Data Exchange (ETDE) World Energy Base, an Information Bridge-like Web product serving the domestic and international community. Conceived, developed, implemented, and operated by OSTI on behalf of the International Energy Agency Energy Technology Data Exchange Implementing Agreement, ETDEWEB contains both U.S. and international information exchanged since 1974, including links to available full text. The international information included in ETDEWEB is a result of OSTI's longstanding international information exchange agreements. U.S. public access is free, but registration is necessary to ensure compliance with these agreements.~~

hf. ~~Federal R&D Project Summaries (<http://www.osti.gov/fedrnd>) combines over 2740,000 records of research and development summary and awards data from ~~three~~six governmental agencies: DOE, ~~the~~National Institutes of Health (NIH), ~~and the~~ National Science Foundation (NSF), Environmental Protection Agency (EPA), Small Business Administration (SBA), and U.S. Department of Agriculture (USDA). Federal R&D Project Summaries provides a unique window to the Federal research community, allowing both agencies and the public to better understand the research and development efforts within Government. A distributed search tool allows one search across the records residing at disparate locations. Federal R&D Project Summaries is available to the public in partnership with the Government Printing Office through GPO Access (http://www.access.gpo.osti.gov/su_docs/fedrnd).~~

~~g. R&D Tracking System (<http://www.osti.gov/rd/>) provides DOE a centrally managed database of project summaries of active R&D projects. It contains summaries collected annually starting in FY 1995, with a cumulative total of over 18,000 projects performed by the national laboratories and other DOE facilities. The system is sponsored by the Office of the Chief Financial Officer and is maintained and operated by OSTI. Access to the system is provided to authorized DOE and DOE contractor representatives.~~

~~h. PubSCIENCE (<http://www.osti.gov/pubscience>) provides access to peer-reviewed scientific and technical journal literature with a primary focus on physical sciences and other disciplines of concern to DOE. The PubSCIENCE system enables searching across thousands of bibliographic citations from multiple journal sources with direct links to the publisher's doorstep. The user can then view the full text, if the publisher has made it available, or with a subscription, with a site license, or by pay-per-view.~~

i. GrayLIT Network (<http://www.osti.gov/graylit/>) is an interagency collaboration between DOE's Office of Scientific and Technical Information (OSTI), the Department of Defense Defense Technical Information Center (DTIC), the National Aeronautic and Space Administration (NASA) Jet Propulsion Lab and Langley Research Center, and the Environmental Protection Agency National Environmental Publications Center which provides the world's most comprehensive portal to governmental full-text technical reports on the Internet. By offering one stop for this previously hard-to-find Government information, the GrayLIT Network enables convenient access to full-text scientific and technical documents residing at disparate locations. A distributed search tool allows one search across the combined deep Web information and returns results in one integrated listing. The GrayLIT Network is available to the public in partnership with the Government Printing Office through GPO Access (<http://www.gpoaccess.gov/index.html>).

~~PrePRINT Network (<http://www.osti.gov/preprints>) is a searchable gateway to preprint servers that deal with scientific and technical disciplines of concern to DOE. Access is provided to thousands of electronic preprints available from diverse sites. Users may search a single site or search several sites simultaneously using a distributed search tool. The PrePRINT Alerts feature allows users to create personal profiles to match their interests. Users then receive weekly notification of new information~~

~~that matches their profile.~~

- j. Information Bridge (<http://www.osti.gov/bridge>) is the Web based collection of DOE's full text technical reports provided by STIP partners throughout the DOE complex. It can be used to access, locate, search, and download full-text and/or bibliographic information electronically. Public access is provided through an agreement between DOE and the Government Printing Office (GPO), located on the GPO Access system.

~~Research and Development (R&D) Accomplishments Database (<http://www.osti.gov/accomplishments>) is a publicly available central forum for information about the outcome of past DOE R&D that had significant economic impact, improved people's lives, or was a significant advance in science. The core of the database consists of searchable bibliographic citations and full text of documents reporting accomplishments from DOE and DOE contractors.~~

- k. R&D Project Summaries Web Database (<http://www.osti.gov/researchanddevelopment>) consists of ongoing and recently completed Department of Energy research projects. This is a subset of data that is suitable for public release available through online searching. It contains summaries of projects performed by the national laboratories and other DOE facilities that have been collected annually since FY 1995. Projects pertain to a range of R&D disciplines in energy, science and technology. Through this same website, there is an R&D Tracking System that contains a complete set of R&D data that is available to authorized DOE and DOE contractor representatives. The R&D Tracking System is operated by the Office of Scientific and Technical Information (OSTI) with oversight by the Office of Management, Budget and Evaluation/Chief Financial Officer. An annual R&D Data Call is distributed by the CFO requesting each national laboratory and other DOE facilities that perform R&D projects to submit their data to OSTI. OSTI collects and distributes this data to the White House Office of Science and Technology Policy (OSTP).

~~ETDEWEB (<http://www.osti.gov/etdeweb>) is the Energy Technology Data Exchange (ETDE) World Energy Base, an Information Bridge-like Web product serving the domestic and international community. Conceived, developed, implemented, and operated by OSTI on behalf of the International Energy Agency Energy Technology Data Exchange Implementing Agreement, ETDEWEB contains both U.S. and international information exchanged since 1995, including links to available full text. The international information included in ETDEWEB is a result of OSTI's longstanding international information exchange agreements. U.S. public access is free, but registration is necessary to ensure compliance with these agreements.~~

- l. ScienceLab (www.osti.gov/sciencelab/) highlights the nation's Department of Energy Office of Science research facilities, emphasizing each facility's educational resources. Included at ScienceLab are special sections on internships, science careers, science art, ask-an-expert sites, and grade-level appropriate materials. Students will find homework help, experiments, and science games at ScienceLab; teachers will find lesson plans, grant opportunities, and professional development resources. Classified Energy Online (CLEO) contains bibliographic records (metadata) for the Department's central collection of classified DOE and other technical reports. Contact OSTI for more information about this database and related information resources.

~~m. Controlled Access File (CAF) contains bibliographic records (metadata) for the Department's central collection of DOE sensitive unclassified or other restricted access technical reports. Contact OSTI for more information about this database and related information resources.~~

- m. Science Research Connection (<http://www.osti.gov/src>) (SRC) delivers science information to the U. S. Department of Energy (DOE) community. Using a variety of search options, patrons can access approximately four million bibliographic records and over 125,000 full-text documents spanning more than six decades of DOE research. Domestic energy R&D performed by DOE and predecessor agencies, as well as foreign energy research obtained by the Department are available. SRC includes both unclassified/unlimited and controlled access information, depending on the level of approved access. The product requires registration and access is free of charge. Special features include search result manipulation, save search capability, alerts, shopping cart, field sorting and downloadable bibliographic data to EndNote. Basic search is available, as well as sophisticated search options including wild card, proximity, full-text, author, and taxonomy.

PART II

ANNOUNCEMENT AND DISSEMINATION OF SCIENTIFIC AND TECHNICAL INFORMATION PRODUCTS

1. INTRODUCTION

This part of the Guide describes the procedures for accomplishing the broadest possible availability through appropriate review, access determination, and central announcement. It also defines STI products, electronic full text formats and transfer procedures, announcement record submission, and some other activities carried out by DOE and DOE contractor elements as well as those carried out by OSTI. General information is provided on the agreed upon STIP practices and procedures, but the Guide does not attempt to provide all details necessary for the complete life cycle management of STI. If further information is needed, contact OSTI or consult with the STI Program contact at the respective site or organization

(<http://www.doe.gov/stip/programmecontacts.htm><http://www.osti.gov/stip/peopleandgroups.html>). ~~Two A~~central locators to the

bibliographic citations and electronic full-text of DOE=s publicly available STI are is maintained by OSTI through the Energy Citations Database and DOE-Information Bridge, respectively. - Additionally, OSTI fulfills Departmental mandates for broad public dissemination by administering various agreements with intermediaries for public access, including the National Technical Information Service (NTIS), GPO, and international exchanges.

NOTE: Much of the information in this Guide describes practices for management, announcement, and dissemination of unclassified unlimited STI. Additionally, exceptions are noted where applicable for practices related to ~~sensitive unclassified, export controlled unclassified controlled and~~ -classified, ~~and declassified~~ STI. References are also provided to other DOE Orders, Manuals, Guides, and other specific guidance on the management of ~~sensitive unclassified unclassified controlled and~~; classified, ~~declassified, and export controlled~~ STI. Users of this Guide should always refer to these specific references when determining the most up to date and appropriate treatment of ~~sensitive unclassified unclassified controlled and~~; classified, ~~declassified, and export controlled~~ S_STI. For specific references, see Attachments 21 and 43.

2. **SCIENTIFIC/TECHNICAL REPORTING DELIVERABLES PRODUCED BY FINANCIAL ASSISTANCE RECIPIENTS AND NON-MAJOR SITE/FACILITY MANAGEMENT CONTRACTORS**

This section specifically addresses STI reporting for financial assistance awards and non-major site/facility management contracts (non-M&O/M&I contracts). The Departmental requirement for scientific/technical reporting for this type of award or contract is stated in DOE O 241.1A, 10 CFR 600, and 48 CFR 935.010. -The primary purpose of scientific/technical reporting is to enable the Department to share the results of research, development, and demonstration (RD&D) funded by DOE within the Department as well as publicly. Other sections of this Guide provide additional information for use in preparing the deliverable and delivering it to the Department for announcement and availability.

2.1 **Identifying the Required Deliverables**

The initiator of the procurement request, usually the sponsoring program office, specifies the type, frequency, and content of any scientific/technical reports or products required under the corresponding award or contract. The contracting officer then ensures that these reporting requirements and performance objectives and measures, if any, are included in the solicitation and/or resulting award or contract. It is the contracting officer=s responsibility to communicate to the awardee/recipients the expectations and requirements regarding scientific/technical deliverables and the associated Departmental submission process.

For financial assistance instruments the A Federal Assistance Reporting Checklist@ (DOE F 4600.2) specifies the required technical reporting deliverables, including the announcement form and the form of delivery. For ~~non-major facilities non-major site/facility management contracts, the statement of work or the A Reporting Requirements Checklist@ (DOE F 1332.1)~~ specifies the required technical reporting deliverables, including the announcement form and the form of delivery; the reporting requirements shall be identified in Section J, List of Attachments, of the contract as part of the Performance Work Statement/Statement of Work or as a separate attachment. The form of delivery shall also be specified. DOE=s contracting officers are required to ensure that the reporting deliverables are provided to OSTI as specified.

Generally, research and development awards require a final scientific/technical report or product, which is to be submitted within a certain time after the expiration of an award. Additionally, awards may call for identification of products developed under the award and technology transfer activities, i.e., journal publications; other public releases of results; Web or Internet sites that reflect project results; software; databases; inventions; patent applications and/or licensing agreements, some of which are suitable for announcement and availability as STI. Another example of an appropriate scientific/technical submission includes documents that provide an analysis or summary of what a Program is doing, ~~intended for public issuance~~. Documents issued by DOE must come to OSTI if DOE intends to make them publicly available through GPO and NTIS.

Scientific/technical reports and products provide the results of scientific and technical studies, investigations that relate to research, development, demonstration, and other specialized areas such as environmental and health protection and waste management. Technical reports document the findings of the funded R&D project. Commercially published books, copyrighted papers, or journal reprints cannot be disseminated by DOE. If these products are identified as deliverables, citations should be provided, showing the publisher availability. Project status reports or other status reports including project management, financial or budget, administrative information or those generated by support service contractors performing non-technical tasks are considered to be management reports and should not be sent to OSTI.

The contracting officer should ensure that the OSTI deliverable code described in item ~~5+18~~ of the Individual Procurement Action Report (IPAR) corresponds to the STI deliverable(s) specified by DOE F 4600.2 or ~~DOE F 1332.1 technical reporting requirements specified in the contract document~~. This code is used by in DOE=s Procurement and Assistance Data System (PADS) to specifically ~~to~~ identify required scientific/technical reporting deliverables that are to be submitted to OSTI. The code should not be used to identify any other reporting requirements (e.g., they should not be used for management or financial reporting, such as project status reports).

Values for the IPAR, Item ~~5+18~~ for financial assistance and ~~32~~ for contracts, -AOSTI Deliverable@ code used to specify the required scientific/technical reporting deliverable for a particular award are described as follows:

Code	Description
AD	Final Report
CO	Conference Paper
AU	Conference Proceedings (scientific and technical conferences only)
YY	Computer Software
YZ	Computer Software Plus Final Report
DD	Other (e.g., reports at the end of a phase or task, documents prepared for public release, videos or movies, etc.)
AZ	No Technical Information Deliverable Required

2.2 Submitting Deliverables to DOE

The awardees and financial assistance recipients submit the required scientific/technical reporting deliverables resulting from R&D funded work as specified by the AFederal Assistance Reporting Checklist@ (DOE F 4600.2) and the ~~technical reporting requirements identified in the contract~~~~A Reporting Requirements Checklist@ (DOE F award 1332.1) under A Technical Information Reporting@.~~ Information on the recommended attributes to be included in STI products is ~~provided~~~~included~~ in Part II, Section 5 of this document. Attachment 45 provides a report cover and title page example that may be provided to awardees for guidance.

Each report or other STI product should be accompanied by a completed electronic version of the ~~DOE F 241.3 appropriate DOE F 241.3~~; AAnnouncement of U.S. Department of Energy Scientific and Technical Information.@ ~~for use by The recently developed DOE F 241.3 is specific to the~~ financial assistance recipients and ~~non-major facilities~~non-major site/facility management contractors~~business lines and has been streamlined for easier, more expeditious submittal~~. The Web-based announcement forms and instructions are available on the Internet-accessible DOE Energy Link (E-Link) System (~~E-Link~~) available at <http://www.osti.gov/elink-2413/>. ~~Financial assistance recipients and non-major facilities management contractors should be directed to use the DOE F 241.3 available at http://www.osti.gov/elink-2413/.~~

~~Although uncommon, deliverables created in Scientific and technical deliverables to be transmitted electronically by DOE should be submitted by E-Link at www.osti.gov/elink/. Financial assistance recipients and non-major facilities management contractors should transmit electronic scientific and technical deliverables through www.osti.gov/elink-2413/. Electronic copy of other~~ computer-generated media~~um~~ (DVDs, CD-ROMs, diskettes, videocassettes, etc.) may be transmitted by U.S. Postal Service or other shipment method; however, an electronic copy of the announcement record (~~appropriate DOE F 241~~) should be submitted ~~by~~ via E-Link prior to the shipment and a ~~paper~~ copy of the DOE F 241.3 should accompany the shipment.

The format for report submission is indicated in the award instrument. Electronic documents should be submitted in one integrated file that contains all text, tables, diagrams, photographs, schematic, graphs, and charts. Information about formats and converting a file to portable document format (PDF) is available through E-Link in the AAbout E-Link@ area.

~~As stated in the award language, if the deliverable is provided on diskettes or CD-ROMs, they should include the scientific/technical report or product in an integrated file and a copy of the accompanying DOE F 241. Diskettes should be labeled as follows:~~

- ~~\$ — DOE award number~~
- ~~\$ — Type of report(s)~~
- ~~\$ — Reporting period~~
- ~~\$ — Name of submitting organization~~
- ~~\$ — Name, phone number, and fax number of preparer~~

If an award=s reporting requirements include DOE F 241.2, ANotice of Energy RD&D Project,@ the ~~non-major facilities~~non-major site/facility management contractor or financial assistance recipient should submit the form directly to OSTI with a copy to the contracting officer. This RD&D form may be submitted electronically to OSTI by the Web. The Web form is available at https://secure.osti.gov/rd/owa/rd_doe_contract_input_page http://rd.osti.gov/241_2.jsp. An optional PDF form is accessible at <http://www.osti.gov/elink/>. The PDF form can be printed, completed, and mailed to OSTI. OSTI will process the ANotice of Energy RD&D@ form for inclusion in the Department=s R&D Tracking System, maintained and operated by OSTI for the Office of the Chief Financial Officer.

Contracting officers and contracting officer technical representatives are responsible for ensuring that the receipt of required interim and final scientific/technical reporting deliverables as identified on DOE F 4600.2 ~~and/or DOE F 1332.1~~~~included in the contract~~ are monitored and provided to OSTI. DOE contracting officers, DOE STI releasing officials, and other select DOE ~~operations/field~~ office staff will be provided access to E-Link upon request to ensure appropriate review of the DOE F 241.3 data and the accompanying report file. Prior to releasing the DOE F 241.3 and corresponding deliverable, the respective DOE ~~operations/field~~office=s STI releasing official is responsible for ensuring appropriate review of the announcement data and the accompanying report file for restrictions on the announcement and availability of the full-text information. Their review will include the identification of any restrictions on the announcement and availability of the full-text information; correction of previously submitted records, if necessary; and the release of reports to OSTI. Considerations for the review process to release STI products for announcement are referenced in Part II, Section 3 of this Guide.

2.3 Contract Award Closeout

Contracting officers are to ensure that scientific/technical reporting deliverables are received by the Department prior to closing the award. To enable DOE ~~operations/field and program office staff~~ to verify receipt of deliverables at OSTI, certain data on new awards is being obtained from PADS, including the awardee name, award number, award date, completion date, and the OSTI deliverable code referenced in IPAR, Item ~~5+18 for financial assistance and item 32 for contracts~~. When STI deliverables are received by OSTI, the PADS data and data from the STI deliverable indicated on the DOE F 241.3 will be recorded in E-Link. Contracting officers or other DOE staff may obtain a password to access the system and query the data for their respective awarding office. The data may be searched by contract/grant number, title, author, ~~or~~ report number, and OSTI identification number. The database may be queried to identify required technical reporting deliverables ~~required~~ and will also provide a link to the full text of STI products previously submitted (if submitted electronically). E-Link access instructions are available through E-link in the AAbout E-Link @ area.

3. APPROPRIATE REVIEW PROCESS TO RELEASE STI PRODUCTS FOR ANNOUNCEMENT

DOE elements or DOE major ~~facilities~~ site/facility management contractors originating STI determines which reviews are appropriate for that site in accordance with funding agency policies; Departmental guidelines; and other applicable statutes, laws, and regulations. The DOE Information Security Program (DOE O 471.2A) requires owners of data to determine the sensitivity of information before it is used, processed, or stored on information systems. (See Attachment 21 for additional statutes that relate to STI.) STI products should be reviewed for restrictions on both the announcement and availability of the full text information. Section 4 describes criteria to consider when determining the submission of STI products to OSTI. DOE ~~operations~~ offices review STI products produced by financial assistance recipients and non-major ~~facilities~~ site/facility management contractors appropriately according to DOE O 241.1A. Reviews to determine announcement and availability of STI products, or restrictions thereto, may include, but are not limited to, the following:

- \$ classification/declassification,
- \$ ~~copyrighted materials or other intellectual property;~~
- ~~\$ — export controls or distribution restrictions, and unclassified controlled information (see definition in Attachment 2)~~
- \$ ~~sensitive content, such as Unclassified Controlled Nuclear Information or~~ subject-specific limitation that limits access. (See descriptions in Attachment 43).

4. STI PRODUCTS APPROPRIATE FOR ANNOUNCEMENT

DOE and its major ~~site/facilities~~ management contractors determine which STI products are announced to OSTI based on the criteria outlined in Section 4.1 and provide announcement and ~~full-text~~ availability instructions to OSTI through the metadata elements contained in the announcement record. Any limitations dictated by content or contract and collaborative agreement terms restrict the announcement and availability to the appropriate audience and prescribe what method the sites will use to report the product to OSTI.

4.1 STI Products

Any STI product is appropriate for announcement to OSTI that (1) is considered useful to others outside the originating organization, (2) is a contract or financial assistance deliverable, or (3) includes findings, statistics, or analysis related to research and development. The originator of the STI product may be DOE or a DOE funded contractor or grantee. The completeness, accuracy, and quality of such STI products are ensured by the originating site prior to announcement to OSTI.

Typical STI products produced by DOE or its contractors/financial assistance recipients that are sent or announced to OSTI include the following (see Attachment 32 for definitions):

- | | |
|--|--|
| <ul style="list-style-type: none"> \$ scientific/technical reporting deliverables for financial assistance recipients/non-major facilities contractors \$ commercially published books (an announcement record only may be submitted if copyright restrictions are imposed on product) \$ conference papers/<u>presentations</u> \$ conference proceedings (for commercially published conference proceedings, an announcement record only may be submitted if copyright restrictions are imposed on product) | <ul style="list-style-type: none"> \$ cooperative research and development agreement (CRADA) deliverables \$ laboratory directed R&D (LDRD) STI deliverables \$ journal article preprints and postprints (an announcement record only may be submitted if copyright restrictions apply, e.g., for reprints) \$ noncommercially published books <ul style="list-style-type: none"> • <u>publicly releasable declassified STI documents (identified for OpenNet)</u> • <u>patents (only an announcement record should</u> |
|--|--|

- ~~\$ environmental impact statements (may be provided to OSTI if not being provided to DOE's Center for Environmental Management Information (CEMI); if full-text document is provided to CEMI, an announcement record submitted to OSTI would show CEMI as the availability)~~
- ~~\$ cooperative research and development agreement (CRADA) deliverables~~
- ~~\$ NEPA documents (e.g., environmental impact statements and environmental assessments; at a minimum an announcement record should be submitted)~~
- ~~\$ journal article full-text (an announcement record only should be submitted if copyright restrictions apply, e.g., for reprints)~~
- be submitted)
- \$ patent applications
- \$ programmatic analysis documents
- \$ software
- \$ scientific and technical (S&T) accomplishment reports
- scientific/technical reporting deliverables for financial assistance recipients/non-major site/facility contractors
- \$ technical reports (topical, final, etc.)
- \$ theses/dissertations
- \$ translations
- \$ Work for Others (WFO) deliverables (unless excluded in WFO agreement)

The following information products are also submitted to OSTI for central processing and announcement at the direction of Headquarters program offices. They do not follow the STI product submission process and do not require an announcement record (~~DOE-F 241.1 or DOE-F 241.3~~):

- \$ foreign trip reports,
- \$ OpenNet ~~documents~~ (non-STI)
- \$ R&D project summaries.

Products that may contain some STI but are not submitted to OSTI for announcement or and-availability, regardless of medium, include the following:

- | | |
|------------------------------------|---|
| \$ administrative materials | \$ monthly reports |
| \$ brochures | \$ newsletters |
| \$ catalogs | \$ policies |
| \$ correspondence | \$ procedures |
| \$ databases | \$ proposals/predecisional information |
| \$ draft documents | \$ public communications (except S&T accomplishments) |
| \$ empirical data | \$ report sections (when full report is STI) |
| \$ engineering drawings | \$ weekly reports |
| \$ field work proposals | \$ WWW pages (except those applicable as a URL for an STI product) |
| \$ financial information | \$ non-R&D scientific or technical or non-programmatic publications (e.g., strategic, institutional, or facility plans) |
| \$ future conference announcements | |
| \$ notices | |
| \$ memoranda | |

~~An STI product can be created in one or more media, including~~

- | | |
|-----------------------------------|-------------------------------|
| \$ audiocassettes | \$ microform |
| \$ compact disks | \$ paper |
| \$ diskettes | \$ videocassettes |
| \$ film | \$ videodiscs |
| \$ magnetic cartridges | \$ Web-based files |
| \$ magnetic tapes | - |

4.2 Announcement/Availability Categories for STI Products

STI products are announced and made available based on contractor or DOE review. (See Part II, Section 3.) When the announcement record for the STI product is submitted to OSTI, it identifies the appropriate announcement category. The definitions of the controlled STI products, ~~specific notices and restrictive legends~~ and any special procedures are listed in Attachment 34. The ~~five~~~~six~~ announcement and applicable availability categories are shown in Table 1.

5. THE CONTENT OF STI PRODUCTS

5.1 Introduction

This section contains information on the recommended attributes of STI products. Additional details are available in *Scientific and Technical Reports Elements, Organization, and Design* [American National Standards Institute/National Information Standards Organization (ANSI/NISO) Z39.18 1995].

Table 1. Announcement/Availability Categories for STI Products

Category	Where OSTI Announces or Makes Product Available
Unclassified Unlimited Information (worldwide publicly releasable)	DOE Information Bridge, (DOE and Public versions) ; <u>Energy Citations Database, Science Research Connection, EnergyFiles, NTIS, GPO, ETDE, and other U.S. and international outlets</u>
Declassified Publicly Releasable Documents	OpenNet
<u>Unclassified Controlled Information (UCI)</u> Sensitive Unclassified (also referred to as Sensitive or Limited in this document) or Other Protectable Information: \$ Official Use Only (OUO) information - <u>ECI</u> - <u>Protected Data</u> - <u>Patent Pending</u> - <u>Limited Rights Data</u> - <u>Applied Technology</u> - <u>Program-Determined OUO</u> - \$ Program-Directed Special Handling (e.g., applied technology) \$ Protected Data (e.g., CRADA) \$ Small Business Innovation Research (SBIR) \$ Small Business Technology Transfer Research (STTR) \$ Copyrighted Material \$ Limited Rights Data <u>Naval Nuclear Propulsion Information (NNPI)</u>	Controlled Access File <u>Science Research Connection, Special Program Sponsored Databases with Access Limitations</u>
Export Controlled Information	Controlled Access File, Special Program-Sponsored Databases with Access Limitations
Unclassified Controlled Nuclear Information (UCNI)	<u>Classified Information Management System</u> Energy Online (CIMSLEO)
Classified Information	<u>Classified Information Management System</u> Energy Online (CIMSLEO)

Information on classifying and declassifying documents and materials is located in DOE M 475.1 1A, *Identifying Classified Information*. This Manual also specifies an organizational requirement to submit bibliographic information and availability information to OSTI for every document that is declassified and determined to be publicly releasable.

5.2 Recommended Attributes of STI Products

Recommended attributes of STI products, and their traditional location in ~~paper-based~~, stand alone technical reports, are shown in Table 2. Attachment 45 shows a typical published technical report cover and title page.

Table 2. Recommended Attributes of STI Products

Table 2. Recommended Attributes of STI Products		
Attribute	Typical Placement on STI Product	Explanatory Comment
FRONT MATTER		
<u>Acknowledgements</u>	<u>Follows Title Page</u>	<u>Credits substantial contributors to the work who are not authors.</u>
<u>Author</u>	<u>Cover and Title Page</u>	<u>Includes primary author and all contributing authors</u>
<u>Abstract *</u>	<u>Title Page</u>	<u>Briefly informs of purpose, scope, and findings</u>
<u>Award/Contract/Financial Number</u>	<u>Cover, inside front cover, and title page</u>	<u>DOE funding agreement</u>
<u>Caveats</u>	<u>Cover</u>	<u>Special markings that will further identify information sensitivity and applicable laws or regulations</u>
<u>Classification Level</u>	<u>Refer to DOE M 471.2-1C, <i>Classified Matter Protection and Control Manual</i></u>	<u>Classification level and category of information</u>
<u>Control Markings</u>	<u>Refer to DOE M 471.2-1C, <i>Classified Matter Protection and Control Manual</i></u>	<u>Markings that identify the classification level and category of information</u>
<u>Date</u>	<u>Cover or title page</u>	<u>Month and Year of release</u>
<u>Disclaimer</u>	<u>Inside front or back cover</u>	-
<u>Distribution Statement</u>	<u>Cover or title page</u>	<u>Outlines restrictions or limitations on distribution</u>
<u>Funding Office</u>	<u>Cover, inside front cover, title page</u>	<u>Specifies the DOE office funding work product</u>
<u>List(s) of Figures and Tables *</u>	<u>Follows Table of Contents</u>	<u>Lists 5 or more figures or tables or any combination thereof</u>
<u>Performing Organization</u>	<u>Cover, title page, outside back cover</u>	<u>Name and address of the performing or research organization and/or site of origin</u>
<u>Report/Product number</u>	<u>Cover, title page or outside back cover</u>	<u>Report number unique to releasing company/laboratory/agency</u>
<u>Report Type (report documentation page)</u>	<u>Before title page</u>	<u>Used by federal agencies for database building</u>
<u>Reporting Period</u>	<u>Included in title on cover or title page and first page of text</u>	<u>Month/year of reporting period</u>
<u>Table of Contents *</u>	<u>Follows Title Page</u>	<u>Outlines organization and scope of a report</u>
<u>Title</u>	<u>Cover and title Page</u>	<u>A brief title and if necessary, subtitle</u>
<u>Title Page *</u>	<u>First page of product</u>	<u>Provides information for description and bibliographic control</u>
TEXT (BODY)		
<u>Conclusions *</u>	<u>Final paragraph of text (prior to Summary)</u>	<u>Presents substantiated findings, discusses their implications and presents author's option</u>
<u>Introduction *</u>	<u>1st page of text</u>	<u>States subject, purpose, scope and plan for developing report</u>
<u>References *</u>	<u>Citations within the text or footnotes</u>	<u>Cites sources of information used by author(s) of reports</u>
<u>Summary *</u>	<u>Follows Lists of Figures and Tables and/or Table of Contents</u>	<u>Summarizes problem, results, conclusions, recommendations</u>
BACK MATTER		

<u>Appendixes</u>	<u>Follows Bibliography</u>	<u>Contains supplemental information not essential to the text</u>
<u>Bibliography</u>	<u>Follows Acknowledgements</u>	<u>Lists additional sources of information not cited in the text of a report</u>
<u>Distribution List</u>	<u>Last page of product</u>	<u>Gives permanent record of initial distribution of report</u>

* Required report elements per ANSI/NISO Z39.18-1995

Attributes	Typical Placement on STI Product
Abstract	First text page
Author	Cover or title page, or first page of text
Award/Contract/Financial Number	Cover, inside front cover, title page
Date	Cover or title page
Disclaimer	Inside front or back cover
Distribution Statement	Cover or title page (Statement A can be placed on inside front cover)
Funding Offices	Cover, inside front cover, title page
Performing Organization	Cover, title page, outside back cover
Report/Product Number	Cover, title page or outside back cover
Report Type	Included in title on cover or title page and first page of text
Reporting Period (period of coverage)	Included in title on cover or title page and first page of text
Title	Cover or title page and first page of text
Classification Level and Category (if applicable)	Refer to DOE M 471.2-1C, <i>Classified Matter Protection and Control Manual</i>
Caveats (Special Markings) (if applicable)	Refer to DOE M 471.2-1C

5.2.1 Abstract

An abstract is a concise statement of the purpose, scope, and major findings of the information product. The abstract is intended to be stand alone text, independent of the full product, and is written appropriately for wide dissemination. The abstract is especially important in nonprint information products. For more information, see *Guidelines for Abstracts* (ANSI/NISO Z39.14 1997).

5.2.2 Author

Author(s) and their employers are typically identified on the information product. Editors and compilers also may be identified.

5.2.3 Award/Contract/Financial Number

Any of the following numbers that apply are usually included on the cover/title page: DOE award or contract number(s), budget and reporting (B&R) number, unique project identifier, or technical plan number under which the work was funded.

5.2.4 Date

A publication or issuance date and the basis for it are recommended to be provided on the information product. Examples of dates are shown in Table 3.

Table 3. Publication or Issuance Date

Type of Date	Sample Text
Date published/ <u>issued</u>	August 4, 1998 2005 July 1998 2005 <u>Summer 2005</u>
Manuscript date	June 13, 1998 2005
Date compiled	January March 1998 2005

5.2.5 Legal Disclaimer

In accordance with Federal law and the guidance of appropriate legal counsel, disclaimer(s) are to be included where appropriate. See Attachment [56](#) for typical disclaimer statements.

5.2.6 Distribution Statement

A distribution statement may be required on some STI products. Unclassified controlled STI products ~~with sensitive/limited content~~ require special, unique controls in conformance with applicable statutes, laws, regulations, Executive orders, international agreements, directives, and Departmental policy. Such markings are to be consistent with the access limitations indicated on DOE F 241.1 or DOE F 241.3. The appropriate ~~notices, restrictive legends, distribution statements, and restrictive markings~~ are provided in Attachments ~~4 and 76~~.

5.2.7 Funding Office

The funding office(s) or sponsoring organization(s) may be identified by name, symbol/logo, or B&R code of the DOE ~~epartment~~ office providing the support or funding.

5.2.8 Performing Organization

The name and address of the performing or research organization and/or site of origin are typically identified. Subcontract work is normally submitted through the performing R&D contractor or laboratory.

5.2.9 STI Product/Report Number

To assist in retrievability, it is recommended that every product published by the origination organization be assigned a standard product/report number that contains some unique identifier that can be traced to the site of origin. The report number formats typically used within the Department are based on the *American National Standards Institute Standard Technical Report Number (STRN) Format and Creation* (ANSI/NISO Z39.23 1997). Examples are shown in Table 4.

Special numbering may be used for a report series or sequence and translations. Existing series or numbering guidelines used within the Department are available from OSTI.

Table 4. Standard Report Number

Description	Standard Report Prefix
DOE Program Office	DOE/XXB nnn, where XX is 2 letter office code, followed by numerical sequence
DOE Field Element	DOE/ZZB nnn, where ZZ is 2 letter field code, followed by numerical sequence
Major Project Office	DOE/XXB nnn, where XX is 2 or 3 letter office code, followed by numerical sequence
National Energy Technology Laboratory	Example: DOE/NETLB nn/nnnn
Major Laboratories/Contractors	Most laboratories have approved report series prefixes; e.g., ANL/TNB nnn. May also use DOE/XXXB nnn, where XXX represents approved site codes.
Other Contractors and Financial Assistance Recipients	DOE/XX/nnnnnB where letters and numbers are extracted from contract number.

Additional information may be added to the product number, such as the following types of suffixes:

Table 5. Additional Identifying Information

Description	Standard Suffix
Abstract	ABS
Addendum	ADD
Edition	ED
Executive Summary	ES
Part	PT
Revision	REV
Supplement	SUPPL
Volume	VOL

For multimedia products, it is recommended that the characters in Table 6 be used at the end of the number to indicate the medium.

Table 6. Multimedia Identifiers

Description	Standard Suffix
Audiocassette	AC
CD-ROM	CD
Diskette	DK
16-millimeter film	FM
Magnetic cartridge	MC
Magnetic tape	MT
Slide	SL
Videocassette	VC
Videodisc	VD
Viewgraph	VG

5.2.10 Title

A brief title is recommended that describes the subject matter covered. A subtitle may be used for further clarification. Additional guidelines are provided below:

- \$ When an STI product has more than one volume, repeat the primary title on each volume. Use a subtitle to identify the specific subject of the individual volume.
- \$ If the report is other than topical, provide the report type and the period covered, if appropriate, as part of the title or subtitle. For non-major site/facility management contractor M&O/M&I generated reports, the report type and period covered are critical for acknowledging receipt of specified deliverables.
- \$ Except for extraordinary circumstances, unclassified titles must ~~are to~~ be used for classified documents. The titles must be marked with the appropriate classification level, category, and any caveats, as applicable (see DOE M 471.2-1C).

5.3 Miscellaneous Information

5.3.1 Company Names and Logos

In accordance with the Joint Committee on Printing's Government Printing and Binding Regulations, S. Pub 101 9, Title III, Paragraph 13, company names, logos, and similar material may not appear on the internal text pages of Federal publications or on photographs therein.

5.3.2 Measurement System

Use of the metric system for all units of measure in scientific and technical products is recommended on the basis of direction contained in Executive Order 12770, A Metric Usage in Federal Government Programs, @ dated 7 25 91; the Metric Conversion Act of 1975 (Public Law 94 168, as amended by Public Law 100 418); and various Title 15 Code of Federal Regulations parts and subparts, use of the metric system for all units of measure in scientific and technical products is recommended. English may be included in parentheses after the metric unit if necessary.

5.3.3 Reproduction

Reproduction of information must comply with the Joint Committee on Printing's Government Printing and Binding Regulations; and with DOE directives.

5.3.4 Report Documentation Page

The report documentation page, used by some Federal agencies in announcing and cataloging reports, is not used by DOE; the DOE announcement record contains similar information. DOE laboratories and facilities that conduct work for others may need to obtain the report documentation page (Standard Form 298) from the agency sponsoring the work.

5.3.5 Copyrighted Material

~~Items-Works~~ produced by U.S. Government employees as part of their official duties cannot be copyrighted (17 U.S.C. 105). If a ~~workn item~~ produced by one or more Government employees is copyrighted as part of a larger work, and the fact of Government employment is not noted in the STI product, a notice affirming the status of the author(s) as Government employee(s) should accompany the product.

If the U.S. Government has been granted authority to reproduce, sell, distribute, or otherwise make the STI product available by virtue of contract language or otherwise, the following statement should appear on the cover or title page:

The U.S. Government is authorized to reproduce, sell, distribute, or otherwise make available this copyrighted work. Permission for exercise by the recipient of any of the exclusive rights mentioned in 17 U.S.C. 106 must be obtained from the copyright owner.

A translation of a copyrighted work is itself a derivative work, and permission from the copyright owner of the original work should be secured before the translation is performed and the translation sent to OSTI. Translations made from text published in a country signatory to the Geneva Copyright Convention should contain one of the following signed statements:

The U.S. Government has been authorized to reproduce, distribute, and sell this copyrighted work. Permission for further reproduction or distribution must be obtained from the copyright owner.

or

The original text is not copyrighted.

Most copyright restrictions, however, pertain to the use of third-party copyrighted material incorporated ~~with~~ in a DOE-sponsored STI product. If the STI product, or parts thereof, is copyrighted, a letter obtained by the STI product originator and signed by the copyright owner or authorized representative is to be maintained by the originating site. The letter should state the scope of the release or permission to reproduce, distribute, prepare derivative works, display, or perform publicly so that access and availability can be accurately provided in the announcement record (DOE F 241.1 or DOE F 241.3) for STI products made available to OSTI.

Announcement and dissemination of the STI product will be based on DOE F 241.1 or DOE F 241.3 data (see also Part II, Section 4.2).

5.3.5.1 Guidance Relative to ~~M-M&O-Type~~ Major Site/Facility Management Contracts

In general, major site/facility management ~~M&O-type~~ contracts provide for Government ownership and unlimited rights in the Government for all technical data first produced in the performance of the contract. One exception to the Government's unlimited rights is data in which the contractor has asserted copyright.

For scientific and technical articles submitted to and published in journals, symposia, proceedings, or similar works, the contractor

can assert copyright without prior permission of DOE, but the Government is granted a nonexclusive, paid-up, irrevocable worldwide license to reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, by or on behalf of the Government (broad license). As specified in the major site/facility management M&O contract, when copyright is claimed and the article is submitted for publication, the contractor should affix the appropriate copyright notice reflecting the Government=s rights. For DOE purposes of disseminating R&D results, it is preferable for the originator=s manuscript (unpublished form of the full text) to be provided to OSTI, rather than submitting copyrighted journal reprints that may have copyright restrictions.

For all other technical data first produced in the performance of the contract, such as in technical reports, permission from DOE is required to establish and claim copyright. If permission is granted, a notice is to be included acknowledging the Government=s license. For items granted copyright, DOE F 241.1 should be marked Acopyrighted@ ~~with any restrictions specifically noted~~. If permission to establish or claim copyright has not been requested or granted, no copyright marking is warranted and the document will have unlimited distribution.

For graduate theses in which DOE has sponsored the work, such as those provided to OSTI by DOE laboratories, DOE retains the right to use the scientific and technical information, similar to guidance stated above. The author=s copyright notice may be applied to the document, but it does not limit DOE=s use of the information. ~~Therefore, DOE F 241.1 is to be marked Acopyrighted@ with Ano@ restrictions.~~

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Most contractors have standard procedures that their researchers are not to include third-party copyrighted material within their STI products. If such material is included (such as a chart or illustration), release is to be obtained ~~prior to publication~~ from the copyright holder of the STI product. This release ~~should be reflected is to be shown~~ on the DOE F 241.1 by indicating Aunclassified unlimited copyrighted material@ -with Ano@ restrictions. If the publisher permits use with restrictions, the DOE F 241.1 should indicate Acopyrighted@ -with Ayes@ marked and the type of restriction specified (e.g., Adistribute full text upon request only@; Alimit distribution to DOE@; Arefer requests to publisher@; etc.); and include the type of restriction specified in the “Other Information” (other criteria limiting access or restricting announcement) data field

-

For translations, as noted above, if needed ~~warranted~~, permission should be obtained before preparing the translation and such permission stated in the translation. In addition, if permission is granted and DOE funds the translation, DOE retains the right to use the translation similar to other works as described above. Thus, if no marking appears on the translation, no copyright restrictions are assumed. If copyrighted, the work may still be used for DOE and DOE contractors for Government use, as described above for other STI products.

See Part III, Section 4.3.1, for guidance relating to copyrighted software.

5.3.5.2 Guidance Relative to Financial Assistance Recipients

DOE adds a full data clause to all R&D grants relative to protecting Government-funded data, resulting in either unlimited rights or broad government license in data delivered to DOE. Procurement offices work with their respective patent counsels on specific language.

The following statement, which is specific to copyright, appears in 10 CFR 600.27, paragraph (b) (2)(c):

The recipient grants to the Government a royalty-free, nonexclusive and irrevocable right to reproduce, publish, or otherwise use the work for Federal purposes, and to authorize others to do so. The right to publish includes the right to publicly distribute. The right to use the work for Federal purposes includes the right to prepare derivative works.

The following statement, which is specific to intangible property, appears in 10 CFR 600.136, paragraph (1):

The recipient may copyright any work that is subject to copyright and was developed, or for which ownership was purchased, under an award. DOE reserves a royalty-free, nonexclusive and irrevocable right to reproduce, publish or otherwise use the work for Federal purposes, and to authorize others to do so.

5.3.6 Digitized Signatures

An image of a hand-written signature may appear within an electronic information product as part of the content of the original product. However, inclusion of the signature may pose a risk when electronic STI products are posted on the Internet. The actual signature is not a required element for submittal of an STI product for announcement and availability. Therefore, it is recommended that those who transmit STI products to OSTI or post them on the Internet consider the potential risk, if any, of including an image of the hand-written signature in an electronic version of the STI product.

6. MAKING SCIENTIFIC AND TECHNICAL INFORMATION AVAILABLE

To centrally announce the availability of DOE's STI products, each DOE element and DOE ~~major site/major facilities~~ management contractor that originates an STI product is required by DOE O 241.1A to provide an electronic announcement record (via ~~e.g., 241 DOE F 241.1 or DOE F 241.3~~ webforms, DTD, or harvesting) to OSTI, as well as the STI product (unless copyrighted publisher version). OSTI will process the record and announce the product's availability to the appropriate audience (DOE, other Government agencies, the public, etc.). ~~Unclassified~~; unlimited STI products will be announced in the ~~DOE~~-Information Bridge, Energy Citations Database, and Science Research Connection.

~~Electronic records with electronic STI products released to OSTI currently require about two work days processing time.~~

The DOE STI processing system, called DOE Energy Link or AE-Link@, is available for electronic transmittal of announcement records and full-text STI products. See <http://www.osti.gov/mlink> for more information. Paper STI products should no longer be submitted to OSTI. An exception is for classified and Unclassified Controlled Nuclear Information (UCNI) that can be submitted in paper.

6.1 Announcement Record

~~There are several different options for submitting. In FY 1997, DOE and contractor STIP partners adopted the Dublin Core metadata elements as the basis for creating the metadata-based announcement record DOE F 241.1 (which replaced DOE F 1332.15). In FY 2001, the announcement record to OSTI. Non-major site/facility management contractors and financial assistance recipients use the DOE F 241.3 web form became available for use by non-M&O/M&I contractors and financial assistance recipients. The DOE Programs and major site/facility management contractors have the option to provide metadata via the DOE F 241.1 webform, batch upload via DTD, or harvesting.~~

The metadata based announcement record generated and supplied by DOE and ~~DOE~~ contractors for STI products includes the basic Dublin Core metadata elements, supplemented by a few DOE data elements, and a minimal number of subelements necessary to further identify the announcement/availability of the STI product (see Section 6.1.1).

The announcement record is for all STI products; however, for software, the announcement record ~~DOE F 241.4~~ varies slightly (see Part III). Electronic submission of the announcement record to OSTI is required per DOE O 241.1A. Announcement records for ~~sensitive unclassified information unclassified controlled information; and classified, and declassified~~ STI products, should contain only unclassified; unlimited data when transmitted over open system networks. Likewise, an STI product determined to be classified or Unclassified Controlled Nuclear Information (UCNI) ~~must should~~ not be transmitted over open system networks (see Part II, Section 6.4) ~~per DOE M 471.2-1C and DOE M 471.1-1, respectively.~~ An announcement record containing classified or ~~UCNI unclassified controlled nuclear information~~ should be submitted in paper, ~~form~~ CD-Rom, zip disk, or diskette and accompany the STI product. This determination is noted by the originating site's releasing official, who indicates on the DOE F 241.1 the authorized announcement of STI products. Each site has an STI point of contact who may serve as or designate others to serve as releasing official(s).

6.1.1 List of Metadata Elements

Table ~~67~~ lists the metadata and other data elements contained in the announcement record, with descriptions and indications for required (R), required, but has a default (RD), and optional (O) fields. Sub-elements are noted in italics. Note that most of these elements with the exception of those for unclassified controlled, UCNI, and classified and sensitive STI products will appear in databases/systems accessible to many users; thus, the primary bibliographic information should be appropriate for public unclassified/unlimited release (i.e., the title and abstract should not contain information inappropriate for public release such as personal or financial data). Classified metadata information contained in the announcement record for classified STI products should be identified. The metadata should not contain controlled information ~~Classified metadata information contained in the announcement record for classified STI products should be identified.~~

Table 6. DOE STI Metadata Elements

The columns for the various methods for providing metadata to OSTI list "R", "RWD", or "O". These codes represent: Required; Required, but system will default; or Optional, respectively. Rows left blank indicate that the metadata field/value is not applicable.

Metadata Element	Description	DOE F 241.1 Webform	DTD	Harvesting	DOE F 241.3 Webform
Author(s)	Include all author names; the primary author should be listed first. Allows for "Not Available" as an option for few cases where necessary.	R	R	RWD	R
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
<i>E-mail Address(es)</i>	<i>Provide in same order as author names. Will not be available to the</i>	<i>O</i>	<i>O</i>	<i>O</i>	<i>O</i>

	<i>end user. This data is used by OSTI to automate author notification.</i>				
Country of Publication	Include if country of publication is not United States; defaults to United States	RWD	RWD	RWD	RWD
Description/ Abstract	Defined as the abstract for STI Products. Provide if available (it can be excerpted from the technical report). Text should be publicly releasable information (not personal, financial, or sensitive). Text should be spell checked, limited in length to 5000 characters, and follow input standards for special characters.	Q	Q	Q	Q
Language (non English)	Include if language of the STI product is not English; defaults to English	RWD	RWD	RWD	RWD
Location - STI Product is available electronically at: -	Provide the specific location of the electronic STI Product not transmitted to OSTI. - Values: Unique Uniform Resource Locator (URL); Digital Object Identifier (DOI)	Q	Q	Q	Q

Metadata Element	Description	DOE F 241.1 Webform	DTD	Harvesting	DOE F 241.3 Webform
Media/Format Information					
Detailed information about the media and format of the STI product.					
Medium	Identifies the medium of the product. One selection is required. Values: electronic document, computer medium, audiovisual material, no full-text.	R	R	R	R
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	The means by which the STI product is made available to OSTI.	Q	Q	Q	Q
Electronic Document-	Values: posted at site, transmitted to OSTI	-	-	-	-
-	-	-	-	-	-
Subelements:	-	-	-	-	-
- STI Product is:	-	-	-	-	-
- If posted at site,	Values: Searchable PDF, HTML	-	-	-	-
file format is:	-	-	-	-	-
- If transmitted to OSTI, file format is:	Values: Searchable PDF, Non-Searchable PDF	-	-	-	-
-	(MS-Word is an additional acceptable value for the DOE F 241.3)	-	-	-	-
-	-	-	-	-	-
Size of STI Product	Provide if applicable. Specify unit of measure.	Q	Q	Q	Q
-	Values: images, kilobytes, minutes, page range, pages, other	-	-	-	-
-	-	-	-	-	-
Computer Medium or Audiovisual	Provide if STI product is computer medium or audiovisual material.	Q	Q	Q	Q
-	-	-	-	-	-
Sub-elements:	-	-	-	-	-
- Quantity/type	Provide if applicable.	-	-	-	-
- Machine Compatibility	-	-	-	-	-
- Other Information	-	-	-	-	-
-	-	-	-	-	-
Originating	The organization/site/financial	RWD	RWD	RWD	R

Research Organization(s)	assistance recipient or non-major site/facility management contractor conducting the research or the facility where the work was performed.				
-					
-					
-					

Metadata Element	Description	DOE F 241.1 Webform	- DTD	- Harvesting	DOE F 241.3 Webform
Publication/Issue Date	Identifies the publication or issue date. Allows for text date.	R	R	R	R
Publisher Name and Location	Include if different from originating research organization. The name and location of the organization/publisher that issued the document for dissemination. Expected if full-text is not provided	Q	Q	Q	Q
-		-	-	-	-
-		-	-	-	-
-		-	-	-	-
Availability (Refer Requests To [if applicable])	Provide if applicable (e.g., if STI product is available only from originator or publisher, particularly if electronic document is not available). State source where document can be obtained upon request.	Q	Q	Q	Q
-		-	-	-	-
-		-	-	-	-
-		-	-	-	-
Recipient/Contractor Point of Contact	Contact other than author who will receive any external questions about the content of the STI Product. Will be included in published announcement record	-	-	-	Q
Related Document Information	Information useful to include in published announcement record which is not suited for any other metadata field.	Q	Q	Q	-
Releasing Official	DOE or Site's designated official(s) who ensure(s) that all appropriate intellectual property/dissemination limitation reviews of the STI full-text product are completed. This is also the site's POC for announcement records for external publications (journals, books, etc.) provided to OSTI.	R	R	RWD	R
Sponsoring Organization	The DOE Office funding the work reported in the STI product.	Q	Q	Q	Q
STI Product Reporting Period	Indicates the period of time covered (beginning and ending dates) by the STI product. Standard format mm/dd/yyyy to be followed.	-	-	-	Q

Metadata Element	Description	DOE F 241.1 Webform	- DTD	- Harvesting	DOE F 241.3 Webform
STI Product Reporting Requirement Review	Information about the STI product that is used to determine if reporting requirements are met and/or if the product is worthy of public dissemination.	-	-	-	-
-		-	-	-	-
-	Include if the STI product is the last deliverable completing the requirement for STI deliverables for the respective award.	-	-	-	-
-		-	-	-	-
Completes all required deliverables for this award	Indicates that the STI product is not suitable for dissemination outside of DOE based on report type or content; however it does fulfill a technical reporting requirement.	-	-	-	Q
-		-	-	-	-
-		-	-	-	-
No further dissemination		-	-	-	Q
STI Product Review/Release Information					
Distribution of the STI Product					

-	UCNI and Classified STI Products.)	-	-	-	-
-	-	-	-	-	-
-	Provide information product filename of the transmitted electronic STI product. Include the appropriate format extension.	<u>Q</u>	<u>Q</u>	<u>Q</u>	<u>Q</u>
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-

Table 7. DOE STI Metadata Elements:

DOE F 241.1	DOE F 241.3	Metadata Element	Description
R	R	Author(s)	Include all author names; the primary author should be listed first. Allows for ANONE@ as an option for few cases where necessary.
Ø	Ø	E-mail Address(es)	Provide in same order as author names. Will not be available to the end user. This data is used by OSTI to automate author notification.
Ø	-	Contact (refer to Recipient/Contractor Point of Contact for DOE F 241.3)	Site contact (other than authors), as determined appropriate by the site, who will receive any external questions about the content of the STI product. Will be included in the published announcement record.
R	-	Date of Publication (refer to STI product Issue Date/Date of Publication for DOE F 241.3)	Identifies the publication or issuance date. Standard format mm/dd/yyyy to be followed, but requires at least a standard 4-digit year and 2-digit month. If day is A00@, default value will be A01@ for certain DOE output products where a full date is required.
Ø	Ø	Description/ Abstract	Defined as the abstract for technical reports. Provide if available (it can be excerpted from the technical report). Text should be publicly releasable information (not personal or financial). Text should be spell checked, limited in length to 5000 characters, and follow input standards for special characters.
N/A	R	DOE Releasing Official (see Releasing Official for DOE F 241.1)	DOE operations office=s designated official(s) who ensure that all appropriate intellectual property/dissemination limitation reviews of the STI product are completed.

Table 7. DOE STI Metadata Elements (continued):

DOE F 241.1	DOE F 241.3	Metadata Element	Description
R	R	Intellectual Property/ Distribution Limitations	One value selection is required. Non-conflicting multiples are allowed. Includes minimum supporting fields (e.g., release dates). Values: - Unlimited - OpenNet (N/A on DOE F 241.3) - Copyrighted Material - Limited Rights Data (N/A on DOE F 241.3) - Patentable Material - Protected Data - SBIR (N/A on DOE F 241.1)

Θ	Θ	Information-Product Filename	Provide information-product filename-of transmitted electronic-STI-product.
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6.1.2 ~~Forms~~ **Announcement Record Options Available**

Announcement record forms DOE F 241.1, DOE F 241.3, and DOE F 241.4 are available at <http://www.osti.gov/elink>. The version of the DOE F 241.3 used by financial assistance recipients and non-major site/~~major~~ facility management contractors is available at <http://www.osti.gov/elink-2413/>. ~~There are three ways in which DOE and major site/facility management contractors can provide announcement record data to OSTI~~ ~~DOE F 241.1 may be sent electronically in two ways:~~ -a Web based form, ~~harvesting, or -or tagged document instance~~ batch file (based on a document type definition (DTD) as a means of tagging the data elements to identify the content of the announcement record). ~~The~~ DOE F 241.3 can only be sent using a Web-based form. Additional information about the announcement records is available through E-Link.

6.1.2.1 *Web Form*

Web based versions of the DOE announcement record input forms, based on HTML, are available at <http://www.osti.gov/elink>. The Web input forms provide a number of features, such as distinguishing mandatory from optional fields, choosing from pick lists of values, and indicating appropriate sub-elements. Certain data elements and sub-elements are then checked by validation built into the Web forms prior to submission of the forms to OSTI. Submission of the Web forms are managed by the originating site=s designated releasing official(s), whose submission of the form is password validated.

6.1.2.2 *Harvesting*

~~Harvesting allows OSTI to "harvest" or automatically retrieve metadata from the site's STI database on a nightly or weekly basis. Each time the site updates an unclassified unlimited citation in its own database, the update triggers a re-harvest of the citation by OSTI. Harvesting requires coordination and effort up-front, since OSTI's harvesting software actually queries a script that is written by and resides at the DOE site. That script passes the query to the site database and retrieves metadata that is converted to XML format on the fly and captured by OSTI for processing into E-Link.~~

6.1.2.3 ~~Tagged Document Instance~~ **Batch File (Based on DTD)**

~~Batch file submission~~ ~~The tagged document instance~~ is based on an ~~SGML~~ XML DTD for the DOE announcement record DOE F 241.1 and is available for those sites that choose to export their data directly from an existing bibliographic database. The DTD may be obtained at <http://www.osti.gov/elink>. By validating data elements and sub-elements within the batch process before submitting the file, sites will facilitate parsing and processing of the data at OSTI.

6.2 **Submission of the Announcement Record**

Once an announcement record has been compiled, it is submitted to OSTI electronically. Sites can choose to submit electronic batch files containing multiple announcement records. Methods for transmitting the announcement records or electronic file and standard media storage specifications are listed in ~~Table 8~~ Table 7.

Announcement records containing classified or UCNI matter should be submitted in electronic media (i.e., CD-ROM, zip disk, or diskette) or paper form with the STI product through appropriate security channels. The classification/sensitivity of the announcement record as well as the STI product should be indicated.

Once an announcement record or file has been received, OSTI will verify acceptability of the information (i.e., verify that a URL is a live link, that the file is machine readable, ~~and~~ and that required elements are provided). ~~and~~ and OSTI will then complete the process of announcing and distributing the information, as appropriate, as well as archiving the announcement records. The originating site will receive a communication stating that the record or file has been received and is acceptable for processing. If the record or file is unusable, OSTI will notify the originator of the problem and request resubmission of the electronic record or file or use of another acceptable file format. Questions regarding specific acceptance of electronic announcement record submissions should be directed to OSTI.

~~Table 8~~ **Table 7. Submission of Announcement Record**

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Electronic Form Option	Transmission Media	Additional Specifications	Category
<u>Harvesting</u>	OSTI Retrieves from site	XML DTD	Unclassified unlimited
<u>Batch Files Tagged Document Instance</u> (based on SGML XML DTD)	Upload to OSTI	Upload by E-link	Unclassified; unlimited, and unclassified controlled information, and unclassified unlimited versions of limited (except classified and UCNI and classified) form information
	Diskette	1.44 megabyte, 3.5 inch diskette	UCNI and classified AH
	CD ROM		AH UCNI and classified
	Zip Disk	100 megabyte	AH UCNI and classified
Web	Web Browser	http://www.osti.gov/elink	Unclassified; unlimited and limited (except classified and UCNI) form information

or file has been received and is acceptable for processing. If the record or file is unusable, OSTI will notify the originator of the problem and request resubmission of the electronic record or file or use of another acceptable file format. Questions regarding specific acceptance of electronic announcement record submissions should be directed to OSTI.

6.3 Acceptable Electronic Formats for Full Text STI Products

DOE and major facility management contractors have transitioned to electronic exchange of full text STI. The acceptable electronic formats were adopted by the STIP community to encourage this transition:

Acceptable electronic formats are determined by the level of search capability, accessibility and file integrity, and file management capability. As technologies evolve, this list of formats will be revised and updated. The current acceptable formats accommodate a range of needs within the DOE information environment. ~~environment to ease the transition from a paper-based system to an electronic delivery system.~~

Current acceptable electronic formats are

- ~~\$ Corel WordPerfect (Versions 5.0 or greater)~~
- ~~\$ Extensible Markup Language (XML)~~
- \$ Hypertext Markup Language (HTML)
- \$ Microsoft Word* (Versions 5.0 or greater)
- \$ Portable Document Format (PDF) ~~(image)~~Non-Searchable (i.e., PDF Image)
- \$ Portable Document Format (PDF) Searchable (i.e., PDF Normal) ~~(normal)~~
- ~~\$ Postscript~~
- \$ ~~Standard Generalized Extensible Markup Language (X)SGML~~
- ~~\$ Tagged Image File Format (TIFF) Group 4~~

*Word was chosen because it is the most used word processing application.

While some STI products may be created in media types, such as

- | | |
|-------------------------------|--|
| \$ <u>audiocassettes</u> | \$ <u>microform</u> |
| \$ <u>compact disks</u> | \$ <u>paper (for UCNI and classified only)</u> |
| \$ <u>diskettes</u> | \$ <u>videocassettes</u> |
| \$ <u>film</u> | \$ <u>videodiscs</u> |
| \$ <u>magnetic cartridges</u> | \$ <u>Web based files</u> |

\$ _____ magnetic tapes

these STI products are more the exception than the rule. STI Products should not be created in an electronic format and saved to one of the media types above for submission to OSTI.

6.4 Submission of Full Text STI Products to OSTI

Sites should submit STI products to OSTI electronically. ~~Table 9~~Table 8 shows the acceptable media and transmission method for categories of STI (see Part II, Section 4.2).

~~Table 9~~Table 8. Access Limitation Categories with Acceptable Media and Transmission Methods for Categories

<u>Access Limitation Category</u> Transmission Media	<u>Transmission Media</u> Additional <u>Specifications</u>	<u>Additional Specifications</u> <u>Category</u>
<u>Unclassified Unlimited and Unclassified Controlled Information</u> File Upload to OSTI	File Upload to OSTI Upload via E-link	<u>Unclassified, Unlimited and Limited Upload via E-link</u> (except classified and UCNI)
<u>Classified and UCNI</u> Diskette	Standard electronic media (Word, PDF, Gif, etc) as well as multimedia formats 1.44 megabyte, 3.5 inch diskette (magnetic storage media); zip disk	<u>Mail or transmit through appropriate security mail channels</u> All Limited, Classified, and UCNI
<u>Classified and UCNI</u> CD-ROM	Electronic physical media may consist of (DVDs, CDs, videocassettes, 3.5 inch diskettes, zip disks, etc.)	<u>Mail or transmit through appropriate security mail channels</u> All Limited, Classified, and UCNI
<u>Classified and UCNI</u> Zip Disk	Paper 100 megabyte	<u>Mail through appropriate security mail channels</u> All Limited, Classified, and UCNI

There are several ways of making STI products available to OSTI. Sites can provide a unique URL for full-text products that are maintained on the site's public access server via harvesting, web form, or batch file for unclassified unlimited STI products or ~~preferred method for~~ electronically submitting unclassified ~~the~~ unlimited and unclassified controlled information ~~limited STI product is~~ via file upload ~~available~~ through E-Link. ~~In addition, videocassettes, DVDs, and other computer media continue to be an acceptable information exchange medium in the rare cases they are used to submit unlimited and unclassified controlled information. While not recommended, CDs, zip disks, and 3.5 inch diskettes, videocassettes, etc. are continue to be an acceptable information exchange medium for classified and UCNI, although it does require additional processing once received by OSTI. Unlimited STI products submitted by this medium may not be available on the Information Bridge in a timely manner.~~ If different methods of transmitting the electronic record and product are used, timing of the transmittal should be coordinated. For example, if a site uses the Web based announcement record but mails an electronic STI product that is a DVD or other A/V or computer medium, ~~etc. n electronic STI product (CD, 3.5 inch diskette, videocassettes, etc.)~~, OSTI prefers receipt of both items to coincide as closely as possible. Additionally, STI products that are mailed should be clearly marked with the OSTI identification number for the corresponding announcement record.

Paper, diskettes, CDs, and zip disks are ~~is~~ no longer ~~an~~ acceptable exchange mediums for unclassified unlimited and ~~unclassified controlled information~~ ~~sensitive unclassified~~ announcement records or STI products. If a DOE element is unable to make an unlimited STI product available to OSTI in one of the acceptable electronic formats listed in Part II, Section 6.3, the site or office will need to list itself as the source of availability on the announcement record submitted to OSTI.

For unclassified unlimited and unclassified controlled information STI products sent to OSTI as non-print media (i.e., physical media such as DVDs, videocassettes, or slides, ~~CDs, etc.~~), one copy is preferred, accompanied by a copy of the announcement record that has been submitted electronically containing a descriptive abstract and specific information about the medium (e.g., speed, machine compatibility, quantity/type of medium, physical description, color or black and white, playing time, and sound).

Because of digitization of text and electronic access to full-text information, sites may want to avoid having original signatures contained within an STI product (see also Part II, Section 5.3.6).

Classified/UCNI STI products are to be submitted to OSTI through appropriate security/mail channels. Although paper is still an

acceptable medium for submission of classified and UCNI STI products, eElectronic medium is the preferred method for delivery. ,
~~†These electronic STI products will be accepted in magnetic media or multimedia (as identified in Table 6 DVDs, CDs, videocassettes, etc.).~~

6.5 Announcing STI Products in a Distributed Environment

~~OSTI and its STI partners across the Department are Working closely with STI partners across the Department, OSTI is~~ leveraging the opportunities provided by the Internet to facilitate access to and use of the unclassified; unlimited STI generated by Departmental R&D programs. Many contractor-operated sites host ~~ave developed~~ Internet ~~home pages websites~~ that provide access to both metadata and full text STI. To capitalize on that site investment, the Department has developed a system that ultimately will provide electronic access to the entire Departmental STI collection distributed at sites across the complex in a variety of formats.

In this distributed system, the Internet accessible STI at each local site is being linked to a DOE wide STI locator system, which in turn provides user access to electronic STI residing at the individual sites. This distributed system offers the following benefits:

- \$ Removes the requirement for sites to physically submit full text STI to OSTI. Sites ~~can now~~ submit metadata that indicates where the corresponding full text resides on the ~~local Internet web home pages~~ by providing the unique URL to the STI product. In turn, OSTI remotely accesses the electronic full text, ~~indexes it for fulltext searching from a central database,~~ and fulfills its STI responsibilities.
- \$ Levies no additional workload on sites already using the Internet technology to distribute STI.
- \$ Eliminates duplication of effort where both the local site and OSTI ~~would otherwise be~~ are loading the same document on the Internet.
-
-
- \$ Encourages sites to plan for electronic life cycle STI management.
- \$ Facilitates user access and searchability to the entire DOE STI collection.

For various reasons, some ~~Internet proficient~~ sites do not make their entire STI collections accessible through the Internet; ~~further, some sites are not yet able to use the Internet technologies.~~ ~~These sites should submit~~ ~~OSTI will negotiate special arrangements with these sites to acquire~~ their electronic full text STI ~~to OSTI~~ for subsequent processing ~~at OSTI.~~ ~~The submission must~~ ~~These exceptions to processing requirements will require~~ adhere ~~nee~~ to mutually agreed upon electronic formats and standards, which are further described in Part II, Section 6.5.1.

~~OSTI will continue to cooperate with sites to further streamline and enable harvesting of site-posted, publicly available STI collections accessible through the Internet.~~

6.5.1 Distributed Announcement and Product Availability

OSTI supports distributed access and dissemination of unclassified; unlimited STI for public availability. Site posted STI (via an electronic repository or Web site) is accessed by OSTI when sites are able to participate in the distributed environment. Distributed announcement and product availability are supported by metadata in the announcement record supplied by the site to OSTI. Metadata elements ~~will~~ include the location of the document through provision of a uniform resource locator (URL). ~~Table 10~~ Table 9 shows the relationship between site posted ~~and~~ or site submitted STI in agreed upon formats and OSTI supported processes.

~~NOTE:—~~ Data transmissions via E-Link between the client and OSTI occur over a secure connection (i.e., https) which is 128 bit encryption. EElectronic documents submitted to OSTI via E-Link are protected. Therefore these documents should not be submitted as Are only@ or encrypted because OSTI will not be able to perform required ~~of~~ additional processing ~~required at OSTI.~~ Documents posted at the site should be publicly accessible. Electronic classified documents should not appear on public websites or be submitted to OSTI via E-Link and they require encryption when transmitted by U.S. Mail ~~An exception is with electronic classified documents which are required to be encrypted when transmitted by U.S. Mail.~~

6.5.2 STI Product Available from Originator

If a major site/facility ~~ies~~ management contractor or other DOE STI originator chooses to make its unclassified; unlimited STI products available through a site hosted server rather than submitting them to OSTI, the following steps will enable OSTI to link to the STI product for subsequent indexing and; user accessibility; ~~and harvesting~~:

- \$ Post STI products on publicly available server (outside any site imposed ~~A~~ firewall@) in a full-text accessible format.
- \$ Provide to OSTI the metadata announcement record for the product, which includes the unique URL A pointer@ to the full text of the STI product. Approved methods to transfer metadata announcement records are described in Part II, Section

5.2.

\$ Keep the STI product posted at the specified URL with the same configuration.

\$ Notify OSTI of changes to the URL or to the server, etc.

Table 9. Electronic Formats in a Distributed Environment.

Full Text Document Format	Site Function	OSTI Function if Site Posts	OSTI Function if Site Submits*
SGML XML HTML	Post at site and provide URL as metadata to OSTI in DOE F 241.1 (alternatively post as HTML); or submit to OSTI	Index and link	Convert to HTML, index, and post Not an acceptable format for STI products submitted to OSTI
Corel Word Perfect (5.0+)	Convert to PDFN, post, and provide URL in DOE F 241.1; or submit to OSTI	Index and link	Convert to PDFN, index, and post
Microsoft Word (5.0 or greater+)	Convert to PDFN, post, and provide URL in DOE F 241.1; or Submit to OSTI	N/A for DOE F 241.1 Index and link	Convert to PDFN Searchable, index, and post
PDFN (PDF Normal Searchable)	Post as PDFN and provide URL in DOE F 241.1; or submit as metadata to OSTI	Index and link	If URL, Index and link; If product is uploaded index and post
PDFI (PDF Image Non-Searchable)	Submit to OSTI		OCR, index, and post
PostScript	Submit to OSTI	-	Convert to PDFN, index, and post
TIFF-G4	Submit to OSTI	-	OCR, index, convert to PDFI, and post
Paper (as of January 1, 2001; paper is no longer accepted by OSTI)	Submit to OSTI	-	Scan, OCR, index, convert to PDFI, and post; convert to TIFF-G4 for archival+

* STI products available through OSTI's ~~Output products for the DOE Information Products Bridge (InfoBridge)~~ will be in native (original) format in addition to HTML, PDF (~~Normal~~Searchable), or PDF (~~Image~~Non-Searchable). Because electronic format conversion processes and scanning may not provide an exact representation of the original electronic document, users of ~~OSTI's Information Products InfoBridge~~ will be advised of availability of the native format.

+ In OSTI's capacity as the ultimate DOE repository for DOE's STI, OSTI has an agreement with the National Archives and Records Administration (NARA), which establishes OSTI's collection as a working file that exempts OSTI from providing its records to NARA. Provisions specify that OSTI will maintain the electronic STI in its native format and migrate the STI, as required, to a NARA acceptable format as the technology evolves to do so.

For example, if the URLs for products change at a site, ~~OSTI recommends~~ the site should revise the announcement records to correct the URLs. ~~OSTI also recommends~~ The site should also revise the announcement record to indicate that the linked STI product has been revised. A description of how to revise or correct the announcement record, which will serve as a notification of the changes to OSTI, is available in E-Link Help (see <http://www.osti.gov/mlink> for more information).

If STI products are removed from the site-hosted server or if the server changes, etc., OSTI should be notified. Notice of other changes, such as the product's removal from the system, or server changes, for example, should be provided to OSTI as well. The process to notify OSTI is dependent upon whether the action is considered unscheduled or scheduled.

Unscheduled: A contractor or other originator takes action because an STI product posted on the Web requires immediate removal or change. Reasons for this immediate action may include sensitivity issues, errors, etc. To avoid a broken link when removing the STI product, a contractor or other originator may choose to replace the STI product with a statement that would inform the user that the STI product is no longer available and that gives contact information for help. In a timely manner, the contractor or other originator would also provide to OSTI a revised announcement record describing the change.

Scheduled: A contractor or other originator has decided to stop hosting specific STI products (i.e., STI products are being permanently removed from a site hosted server); therefore, the site intends to transfer the STI product to OSTI for public access. The DOE O 241.1A Contractor Requirements Document requires contractors and other originators to notify OSTI of its intent to permanently remove an STI product from a site-hosted server. A minimum of 30 days advance notice is recommended before removing the STI product from the contractor=s or other originator=s server. The contractor or other originator will also provide to OSTI a revised announcement record to describe the change (i.e., to change the location of the document from a site URL to submission of the document to OSTI).

6.5.3 Transferring STI Product Availability from Originator to OSTI

As required in DOE O 241.1A, the contractor must notify OSTI when permanently removing STI products from site hosted servers. This notification allows OSTI to ensure continued availability of the STI product after its removal from the site hosted server. Sites can revise the announcement record and upload the full-text through E-Link or submit the information by batch upload. OSTI will then ensure the STI product is included in the central repository.

6.6 Announcing Classified STI Products

Announcement records for classified STI are made available through the Classified ~~Energy Online (CLEO) system~~ Information Management System (CIMS) and other means to authorized users in accordance with need-to-know and other security requirements.

6.6.1 Classified Product Availability

Classified STI may be obtained by authorized individuals in accordance with need-to-know by contacting OSTI through approved channels.

6.7 Archiving and Retention of the STI Product

~~Whether submitted directly to OSTI or harvested by OSTI from the site=s public server,~~ DOE STI R&D reports have a permanent retention schedule under the National Archives and Records Administration (NARA) Job Number NCI-430-76-2. OSTI will provide STI from the OSTI repository to NARA consistent with that schedule.

OSTI serves as the ~~ultimate~~ permanent repository for DOE=s STI and will manage the collection for long term retrieval. Often the collection maintained at OSTI is the only place that historic or specific technical information (such as for closed out projects) can be accessed. OSTI will address NARA requirements and make recommendations for archiving and storing DOE STI electronic records.

Closeout project, program, and site records should be checked to determine whether all STI contained in the records has been transmitted to OSTI. ~~This requirement is implied on the last page of DOE Research and Development Records Retention Schedule, N1-434-96-9. (This schedule can be obtained from the site records manager or at <http://cio.doe.gov/Records/doeprs.htm>.)~~ STI that has not been transmitted to OSTI should be provided in electronic form (i.e., acceptable electronic format, digitized/scanned, etc.). ~~Acceptable electronic formats are located in Part II, Section 6.3, of this Guide.~~

7. REQUESTS AND PUBLIC ACCESS

Unclassified; unlimited document information is provided to requesters ~~is~~ through electronic delivery, primarily through the ~~base product, the DOE~~ Information Bridge, Energy Citations Database, and Science Research Connection. DOE STI products requested by DOE and DOE contractors in paper form are available from OSTI, provided that such products have previously been made available to OSTI ~~(through either electronic submission to OSTI of the STI product or electronic linkage using acceptable formats).~~ OSTI is responsible for ensuring that NTIS and GPO obtain DOE documents. As DOE=s NTIS and GPO affiliate, OSTI will coordinate with NTIS and GPO to ensure that unclassified; unlimited STI products are available to the public. ~~Table H~~ Table 10 includes agreed upon STI submission formats, associated access formats for Web view and download via the ~~DOE~~ Information Bridge, and interim archival formats.

~~Table H~~ Table 10. STI Submission, Access, and Archival Formats.

Submission Formats for Full Text STI	Access Formats on OSTI's Information Products InfoBridge* (Web/View/Download)	Archival+ Formats
HTML (posted at site)	HTML	HTML
XML	HTML	XML
-	-	-

SGML	HTML	SGML	
Corel Word Perfect (5.0+)	PDFN	Word Perfect (5.0+)	
Microsoft Word (5.0 or higher+)	Word (5.0 or higher) & PDFN Searchable	Word (5.0+ or higher)	
PDFN (PDF Normal) Searchable (PDF Normal)	PDF SearchableN	PDF SearchableN	
Postscript	PDFN	Postscript	
PDF Non-Searchable (PDF Image)I (PDF Image)	PDFI Non-Searchable & PDF Searchable	PDFI Non-Searchable	
	TIFF Group 4	PDFI	TIFF Group 4 & PDFI
	Paper (as of January 1, 2001, paper will no longer be accepted by OSTI)	PDFI	TIFF Group 4

* ~~STI Output products~~ products available through OSTI's ~~for the DOE~~ Information Products ~~Bridge (InfoBridge)~~ will be in native (original) format in addition to HTML, PDF (~~Normal~~Searchable), or PDF (~~Image~~Non-Searchable). Because electronic format conversion processes and scanning may not provide an exact representation of the original electronic document, users of ~~OSTI's Information Products~~ ~~InfoBridge~~ will be advised of availability of the native format.

+ In OSTI's capacity as the ultimate DOE repository for DOE's STI, OSTI has an agreement with NARA that establishes OSTI's collection as a working file that exempts OSTI from providing its records to NARA. Provisions specify that OSTI will maintain the electronic STI in its native format and migrate the STI, as required, to a NARA acceptable format as the technology evolves to do so.

~~CONCEPT PAPER ON ELECTRONIC STI MANAGEMENT~~

~~Presented at DOE STIP Meeting, February 3, 1998~~

~~BACKGROUND~~

~~The Office of Scientific and Technical Information like the entire Scientific and Technical Information Program (STIP) community is in a state of transition to electronic STI. OSTI is re-engineering its paper-based processing of incoming scientific and technical information, with accompanying workflow tasks and software designed for paper reports, to a primarily electronic processing environment. With this change, it is redesigning a number of processes using new software, new descriptions of the workflow functions, and generally a new perspective on the requirements.~~

~~In 1994, OSTI and its STI partners and stakeholders recognized that the Departmental STI Program was in a changing environment of~~

~~\$ — less centralized control;~~

~~\$ — reduced reliance on compliance; and~~

~~\$ — more focus on outcome than process.~~

~~Over the past four years, OSTI and the STI community together have made significant strides in defining agreeable electronic exchange formats; streamlining paper-based processes to the bare essentials; creating collections of digitized STI; and developing the Energy Science and Technology Virtual Library: Energy Files. Energy Files is envisioned as the umbrella system for the STI collections and more. Now, with the STIP Strategic Plan as the blueprint and coupled with the latest information technologies, the Department's STI Program is positioned to define the next generation of STI access and dissemination processing in a decentralized environment. This paper provides a concept of the approach to be taken, envisioned changes, roles and responsibilities of involved parties, and the anticipated benefits.~~

~~FUTURE APPROACH TO ELECTRONIC STI PROCESSING~~

~~Changes at OSTI~~

~~OSTI is committed to meeting the paper-to-electronic challenge in FY 1998. Right now, it is in the midst of planning and defining~~

significant changes within OSTI=s processing systems which will allow greater flexibility to all those who submit STI. These changes will forever alter the Department=s STI Program.

~~OSTI is procuring commercial, off-the-shelf software to replace the existing inflexible Report Processing System and affiliated processes. A new database management system, electronic document management system, and other associated hardware/software platforms will be in place by the end of FY 1998 which will make better and easier use of network technology, provide automated workflow, and broaden acceptance of electronic formats.~~

~~The new system configuration and functional requirements will be defined to meet the needs of our primary customers and stakeholders. Considerations include~~

~~B reduction of bibliographic data requirements to a core set of metadata for DOE=s STI collections;~~

~~B acceptance of a range of native full-text formats;~~

~~B empowerment of originators in the review, release, and quality assurance standards for STI; and~~

~~B providing a final repository for the originating sites or programs which do not intend to host public access to full-text documents permanently.~~

~~The design is largely to expedite electronic full-text and electronic metadata, although the system will accommodate paper STI to a lesser extent when needed.~~

~~The focus of OSTI staff will be on value-added functions, such as subject analysis or product innovation, proactively supporting the needs of the STI originating sites, providing problem resolution, facilitating life-cycle practices, as well as serving the full-text needs of the end-users. The redesigned process will require fewer resources for routine processing and creation of bibliographic databases.~~

What remains **unchanged** is OSTI=s dedication to meet the needs of its customers and stakeholders who desire access to DOE=s STI. OSTI will continue to maintain a central locator to DOE=s STI through the DOE Information Bridge, which will be innovatively improved over the next few months. OSTI will continue to fulfill Departmental mandates for broad public dissemination by administering various agreements with intermediaries for public access to include NTIS, GPO, and international exchanges. Agreements with external partners will be modified to reflect the changing environment for electronic STI.

Acknowledging Efforts of Originating Sites

~~Sites routinely review the STI product prior to publication for proper clearances such as patent or intellectual property review, classification review, and other approvals. OSTI has traditionally provided a second review to ensure that markings were consistent and that only appropriate documents were publicly released. Electronic or Web-based publishing through distributed sources makes a second review by OSTI impractical and unwarranted. Therefore, OSTI will be eliminating most of its evaluation function and will accept the release and announcement markings provided by the sites.~~

~~Validation of metadata elements provided to OSTI in the future will be accomplished via automation as much as possible; rules will be relaxed significantly. Some consistency will be built in by having computerized pick-lists for certain metadata elements provided to the sites. Which Aauthorities@ are needed will soon be determined. However, the traditional OSTI process of intervening through manual input or editing of data will be significantly curtailed.~~

~~The advent of site-hosted publicly accessible servers has also changed who accounts for public release. Traditionally, DOE=s external stakeholders (OMB, GAO, Congress, and others) have relied on OSTI=s publication dates as the official public release record for DOE=s STI. Both credit and accountability will properly rest with the site which publicly releases and makes STI openly available.~~

~~A broader range of electronic full-text formats, such as standard word processing formats, will be accommodated in the redesigned process. OSTI will be able to carry the native format (one of the accepted formats in which the originating site created the STI) for certain uses, as well as making a number of electronic formats available for access in STI products (such as DOE Information Bridge). OSTI currently has scanned over 23,000 DOE technical reports and made them available through the DOE Information Bridge. Significant costs and issues exist in the search/retrieval, user access, and the required hardware/software systems to handle such information. Scanning will continue, on a decreased basis, until hard-copy submittal of information is eventually phased out. This change in practice will allow users to view the STI product in its original version as created by the site, in addition to accessing the product in a standard format (currently THFF G4 is used, but OSTI is planning for a future standard to be a full-text searchable format, although transition plans are not firm at this time).~~

ROLES AND RESPONSIBILITIES

In this new electronic paradigm, traditional roles and responsibilities of OSTI will change, as will the role of submitting sites. The distributed processing model which is envisioned would include the following:

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- \$ A reduced set of metadata would be provided by sites to OSTI in lieu of the current data provided on DOE F 1332.15. The metadata record would serve as the official notification of the release and announcement of an STI document/product. There will be a number of methods for providing the metadata: (1) via a new Web form similar to the process for using the Web version of DOE F 1332.15; (2) batch processing from site databases that capture the metadata during the site=s document preparation; or (3) Attachment 1 providing appropriately tagged elements accompanying an electronic full-text document.

-

- \$ Methods for including electronic full-text documents into the ADOE collection@ will also be broadened. Envisioned are: (1) a full-text document may be transmitted to OSTI with the corresponding metadata; (2) the site may post it at a location for OSTI to capture it upon notification via the metadata; or (3) the site may choose to host access to the full-text and provide OSTI the metadata record with a unique URL to link to each full-text document on the site=s server.

-

- \$ OSTI will then process the incoming metadata through automated validations and authorities and create a metadata repository@ as a central locator of DOE=s STI.

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- \$ Based on STIP stakeholder feedback, OSTI intends to continue to provide subject expertise for search/retrieval purposes and to use automated tools to the extent possible to create subject categories, keywords, and abstracts when not provided by the sites. OSTI will potentially maintain controlled vocabularies/thesauri to facilitate subsequent search/retrieval and dissemination.

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- \$ Metadata stored in the central repository will provide the locator to all full-text, which will be made available to users through an improved DOE Information Bridge that incorporates distributed linking and searching features such as those tested in the Federated Collections Pilot project, but with the additional feature of providing a comprehensive full-text index to DOE=s STI, which will serve as a key component of Energy Files.

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- \$ In the near term, OSTI will maintain the capability to process paper-copy received from sites unable to submit electronic full-text documents in one of the accepted formats, but the priority for processing and access will be lower than for the electronic documents.

BENEFITS

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Several benefits will occur within the DOE STI community as a result of a Departmental redesigned electronic STI management concept:

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- \$ Places management of information closer to originator, who best knows the information.

-

- \$ Recognizes the site which created and made the STI available.

-

- \$ Imposes less control and compliance.

-

- \$ Focuses on the outcome (broader access to STI) rather than the process.

-

- \$ Reduces costs incurred for processing paper documents.

-

- \$ Improves timely availability of scientific and technical information.

-

- \$ Establishes the framework for distributed access to scientific and technical information across disparate Departmental sites.

-

- \$ Reduces processing costs of the sites through the acceptance of more electronic native formats.

-

- \$ Positions the Department to better respond to changing technologies.

-

- \$ Eliminates creating and maintaining duplicative data systems (at sites and at OSTI), thus saving costs for STI processes DOE-wide.

-

- \$ Encourages/facilitates STIP community to identify and implement best business practices associated with electronic STI life-cycle management.

-

- \$ Promotes integration of the STI Program across the Department.

SUMMARY

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Based on the Departmental needs, the changing technology, the growing end-user expectations for full-text at the desktop, and

~~budget restrictions, OSTI is proposing an aggressive time line for the initial implementation of this concept. To meet that commitment, several factors must be addressed quickly and consensus reached by all parties involved. We will use all available resources in the near term to identify and define a smooth transition plan. Through the STIP goal working groups, implementation guidelines will be created for the metadata record and electronic formats. STICG and other Headquarters forums will be used to notify the funding programs and to obtain buy-in on the role of the sites which create STI and the role of OSTI. The Order and the Guide will then document these agreed-upon changes.~~

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PART III

DOE SCIENTIFIC AND TECHNICAL SOFTWARE

1. INTRODUCTION

Software management is ~~transitioning continually advancing~~ from a centralized collection, announcement, and dissemination activity to a decentralized activity. During this transition, paper-based submission guidelines will be replaced with electronic submission guidelines for certain categories of software. New guidelines ~~will~~ also allow for distributed hosting and dissemination of certain categories of software.

~~A STIP work group established in 1998, developed the procedures necessary to transition scientific and technical computer software management from a centralized collection, announcement, and dissemination paper-based activity to a decentralized electronic environment. This part of the Guide has been revised to reflect the new procedures for the software activity that has already been transitioned.~~ These procedures will continue to be reviewed and changed, as more of the new decentralized procedures are adopted and implemented.

Procedures for announcing software and submitting software for dissemination are detailed in the following sections. The manner for distributing software is defined through the announcement and submission procedures (see Part III, Section 3).

1.1 Departmental Requirements

DOE O 241.1A requires that STI (including scientific and technical computer software) be made broadly available, within applicable laws and Departmental requirements, to accomplish mission objectives and strategic goals, promote scientific advancement, satisfy statutory protection and public dissemination requirements, and ensure a fair return on Departmental and taxpayer investment. Specifically, DOE O 241.1A requires that useful STI products, including software, resulting from scientific and technical endeavors be made available and announced to OSTI so that OSTI can fulfill its announcement, dissemination, and exchange responsibilities on behalf of the Department.

1.2 Electronic Software Management

~~As part of the Department's transition to a decentralized, electronic STI management environment, steps were taken in October 1998 to decentralize STI products other than software. Software management is making a similar transition, changes to with the procedures necessary for to transitioning scientific and technical computer software described in this Guide.~~

The objectives for decentralizing software management are to

- \$ consolidate and simplify announcement and submission procedures,
- \$ use efficiencies offered by electronic network technologies,

- \$ allow greater flexibility while meeting stated departmental requirements, and
- \$ manage software in a manner similar to other STI products.

This transition will enable sites to continue announcing STI software through OSTI, but with ~~the options on how to distribute software. These options are based on criteria through OSTI, a Specialized Information Analysis Center (SIAC), or site-hosted on-line access, depending on certain criteria of the software. The criteria for useful software to be centrally announced and the categories of software appropriate for site hosting or for submission to OSTI are~~ described in Part III, Section 3.

2. RESPONSIBILITIES

2.1 OSTI

OSTI, located in Oak Ridge, Tennessee, serves as the Department=s central announcement mechanism for DOE sponsored software. It also serves as the Department=s software management facility for the collection, licensing, and distribution of federally funded software that is developed by national laboratories and other DOE facilities/contractors (subject to the exceptions listed in paragraph 3.1). OSTI uses the services of the Energy Science and Technology Software Center (ESTSC) for unclassified software distribution.

OSTI also serves as the Department=s liaison for software requests from sensitive countries. Upon a request for software from a sensitive country, OSTI coordinates any necessary reviews by the ~~Nuclear Transfer and Supplier Policy Division (NN-43)~~ Office of Export Control Policy and Cooperation (NA-242) (see Part III, Section 4.2).

OSTI serves as the operating agent for implementing portions of the DOE international exchange agreements with the Nuclear Energy Agency (NEA) of the Organization for Economic Cooperation and Development (OECD), which provides for the exchange of unclassified nuclear related scientific and technical software.

OSTI works with SIACs Organizations sponsored by DOE to perform data analysis, including the collection, evaluation, announcement, and dissemination of computer software in specialized subject areas to maximize its effectiveness, avoid duplication of efforts, and ensure that requesters are referred to an appropriate SIAC.

OSTI serves as the Department=s ~~exclusive~~ availability point, other than the copyright holder (or its licensees), for DOE and DOE contractor originated software for which copyright has been asserted. In a decentralized environment, the originating site may choose to retain the software, but must provide form, DOE F 241.4 to OSTI for announcement according to DOE O 241.1A.

2.2 Specialized Information Analysis Centers

SIACs may receive and make available software within their scope of interest/operation, as described below. SIACs should ensure that an announcement record is provided to OSTI for each software package they receive and make available. OSTI and the SIACs should work together to ensure the implementation of consistent procedures for the dissemination of computer software in accordance with DOE O 241.1A. As determined by the applicable contract rights and technical data clause, OSTI may share the right to license and distribute the software through a specific agreement with an individual SIAC. Recognized SIACs, as of the date of this Guide, are the following:

- \$ The Radiation Safety Information Computational Center (RSICC) of the Radiation Information Analysis Section of the Oak Ridge National Laboratory (ORNL) specializes in computer programs and data sets pertinent to radiation transport and safety.
- \$ The National Nuclear Data Center (NNDC) of Brookhaven National Laboratory (BNL) specializes in computer programs and data sets pertinent to nuclear cross sections.
- \$ The Carbon Dioxide Information Analysis Center (CDIAC) of the Environmental Sciences Division of ORNL supports the nation=s carbon dioxide climate research effort by providing a focal point for the compilation and distribution of global change related information under systematic quality control.
- \$ The National Petroleum Technology Office (NPTO) specializes in oil reservoir engineering software designed to assist the petroleum industry and maximize the economic production of domestic oil.

2.3 ~~Software Originators~~ Submitting Sites/Creators

To centrally announce the availability of DOE=s STI products, each DOE and DOE contractor element that ~~originates~~ submits useful software is required by DOE O 241.1A to provide an announcement record (~~an acceptable method to provide announcement information to OSTI is by using~~ DOE F 241.4, ~~a PDF fillable form~~ available at <http://www.osti.gov/estsc/link>). OSTI processes the record and announces the software=s availability to the appropriate audience (~~DOE, other Government agencies, the public, etc.~~).

~~The originating site may distribute the software by submitting it to OSTI or an appropriate SIAC or by using local distribution channels, as appropriate (see Table 12 and Part III, Section 4.1). Software originators should ensure all software meeting the exception criteria in Part III, Section 3.1 is reviewed by the Nuclear Transfer and Supplier Policy Division (NN-43) prior to its announcement or submission.~~

2.4 Software Sensitivity Review

~~As required by DOE O 241.1A, software originators submitting sites are to review all software for classified and sensitive unclassified information according to approved local procedures before sending to OSTI or a SIAC and before any distribution outside the organization is made. Software should also be reviewed for patentable subject matter and if present it should be reported to Patent Counsel. Software originators submitting sites should also ensure all software is reviewed for export controlled information (see Attachment 4) in accordance with the *Guidelines on Export Control and Nonproliferation*, published by the Nuclear Transfer and Supplier Policy Division (NN-43) Office of Export Control and Cooperation (NA-242). The software should be clearly labeled if it is classified, contains sensitive unclassified information, or contains export controlled information. See Part II, Section 3, Appropriate Review Process to Release STI Products for Announcement, for instructions on labeling.~~

~~Unclassified software meeting the following criteria should be reviewed by the Site's releasing official unless further review is needed for classification. In which case the Office of Export Control Policy and Cooperation (NA-242) will determine if public dissemination of the software would help proliferants. This review should be completed prior to announcing the software to OSTI, hosting the software on a Web server, or submitting the software to OSTI or a SIAC. The criteria are listed below:~~

~~\$ any software code identified as containing Export Controlled Information (ECI) (see Attachment 4) by the originator;~~

~~\$ software codes that contain algorithms for any of the following:~~

~~B hydrodynamics.~~

~~B radiative transfer.~~

~~B high explosives detonation.~~

~~B strength of materials.~~

~~B equations of state;~~

~~\$ any software code that can be used for coupled neutron/photon/electron codes;~~

~~\$ compiled executables of the above;~~

~~\$ all codes with a version that fits the criteria above, even if the version of the code lacks one of the components specified above;~~

~~\$ any software code that would meet the above criteria if a publicly available code could easily be integrated into it.~~

~~In accordance with DOE O 241.1A, potentially classified software must be reviewed by the site classification office prior to announcing the software to OSTI for appropriate announcement in accordance with security and need-to-know restrictions.~~

3. SOFTWARE ANNOUNCEMENT AND SUBMISSION

3.1 STI Software Appropriate for Announcement

Organizations and individuals who have developed and/or modified software during work supported by DOE or during work carried out for others at DOE facilities should announce the software with the appropriate announcement record to OSTI (per DOE O 241.1A), if the software meets the following criteria:

\$ the software meets the definition of STI as defined in Part I, Section 4 of this Guide;

\$ the software is known or expected to have broad usefulness within or outside the DOE community (i.e., is useful outside the originating site); and

\$ a stable, useable, documented version of the software exists (i.e., the software is not under development).

~~Although all software that meets the above criteria is to be announced to OSTI. Using Table 11 as a guideline, the software may be made available by either submitting the software package to OSTI, submitting it to a SIAC (for software of applicable scope for a SIAC), or hosting the software on the originating site's Web server (e.g., applicable freeware).~~

Exclusions. Software that meets the above criteria need not be announced to OSTI if it falls under one of the following exclusions:

\$ operational systems software that is site specific, unique to a particular hardware, or necessary to ensure the fundamental

operability of automated data processing equipment, whether supplied by the manufacturer of the system hardware or others;
~~and whether or not proprietary, which is not covered under a commercialization or copyright release request;~~

\$ computer software programs developed and/or modified during work carried out for others at DOE facilities specifically excluded in the agreement under which the non DOE funded work was performed;

\$ software generated under the auspices of the Energy Information Administration; and

\$ specific software used by power administrations for the operation, control, planning, and modeling of electric power transmission systems and the interconnected utilities; however, modification/enhancements to portions of this software that are not an integral part of the whole and have potential application outside the power administrations should be announced.

~~**Exceptions.** Unclassified software meeting the following criteria should be reviewed by the Nuclear Transfer and Supplier Policy Division (NN-43) to determine if public dissemination of the software would help proliferants. This review should be completed prior to announcing the software to OSTI, hosting the software on a Web server, or submitting the software to OSTI or a SIAC. The criteria are listed below:~~

~~\$ any software code identified as containing Export Controlled Information (ECI) (see Attachment 4) by the originator;~~

~~\$ software codes that contain algorithms for any of the following:~~

~~B hydrodynamics;~~

~~B radiative transfer;~~

~~B high explosives detonation;~~

~~B strength of materials;~~

~~B equations of state;~~

~~\$ any software code that can be used for coupled neutron/photon/electron codes;~~

~~\$ compiled executables of the above;~~

~~\$ all codes with a version that fits the criteria above, even if the version of the code lacks one of the components specified above;~~

~~\$ any software code that would meet the above criteria if a publicly available code could easily be integrated into it.~~

~~In accordance with DOE O 241.1A, potentially classified software must be reviewed by the site classification office prior to announcing the software to OSTI for appropriate announcement in accordance with security and need-to-know restrictions.~~

3.2 **Announcement/Submission Criteria**

~~Software announcement requirements have been consolidated into one form (DOE F 241.4). To announce and make available a software package, the following components are considered necessary for inclusion in the package in order for the software to be provided to requesters:~~

\$ announcement record/metadata contained in DOE F 241.4, which includes all required information for announcing and describing the software;

\$ source code and/or executable file; and

\$ documentation, which may consist of a user manual, sample test cases, or similar information required for properly using the software (whether included in the software itself or provided in a separate file or in paper format).

3.3 **Software Categories**

Different categories of software have different distribution requirements or limitations. Table 11~~2~~ defines the various software categories and identifies the appropriate distribution channels.

Table 11~~2~~. Software Categories.

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Category	Description	Announcement	General Availability
Classified	Software that has been categorized according to DOE M-475.1-1	OSTI	site*
Declassified publicly releasable	Previously classified software that has been declassified	OSTI	OSTI/SIAC/site
Sensitive unclassified or other protected	<p>Copyrighted B Software in which a DOE contractor has asserted rights:</p> <ul style="list-style-type: none"> - Proprietary Data/Trade Secrets - Protected Data (e.g., software resulting from CRADA, SBIR, STTR) - UCNIC Software that is protected by law from disclosure to persons not having a need to know for the information without appropriate review by DOE. - Program Directed Special Handling <p>EXAMPLE:- Applied technology C Software related to engineering, development, design, construction, operation, or other activities pertaining to nuclear technology advances (see Attachment 4 for details).</p>	OSTI/Limited Announcement	OSTI or in accordance with DOE approved site agreements
Export Controlled Information (ECI)	Software containing unclassified information subject to export controls and whose unrestricted public dissemination could help proliferants or potential	OSTI/limited announcement	OSTI

	adversaries of the United States.		
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<u>Category</u>	<u>Description</u>	<u>DistributionLimitation</u>	<u>Audience</u>	<u>Announcement</u>	<u>Distribution_Source</u>
<u>Classified</u>	Software that has been categorized according to DOE M 475.1-1	<u>Limited</u>	<u>Requires security clearance. Based on need-to-know</u>	<u>OSTI</u>	<u>Submitting Site</u>
<u>Copyrighted - Limited Government License (COPY/LIM)</u>	Software that a DOE contractor has asserted rights and limits <u>ESTSC distribution to Federal agencies and their contractors only. All other requests are referred to submitting site.</u>	<u>Limited (OUO)</u>	<u>Federal Agencies and Their Contractors</u>	<u>OSTI</u>	<u>OSTI or in accordance with DOE-approved site agreements</u>

<u>Copyrighted - Broad Government License (COPY/UNL)</u>	Software that a DOE contractor has asserted rights but does not limit ESTSC distribution.	<u>Limited</u>	<u>Public/ Foreign (Subject to EAR)</u>	<u>OSTI</u>	<u>OSTI or in accordance with DOE-approved site agreements</u>
<u>Proprietary Data/Trade Secrets</u>	Software containing proprietary data not for public disclosure	<u>Limited (OUO)</u>	<u>DOE/DOE Contractors -Special Approval Required</u>	<u>OSTI</u>	<u>OSTI or in accordance with DOE-approved site agreements</u>
<u>Protected Data</u>	Software resulting from CRADA, SBIR, STTR	<u>Limited (OUO)</u>	<u>DOE/DOE Contractors - Special Approval Required</u>	<u>OSTI</u>	<u>OSTI or in accordance with DOE-approved site agreements</u>
<u>Unclassified Controlled Nuclear Information (UCNI)</u>	Software that is protected by law from disclosure to persons not having a need-to-know for the information without appropriate review by DOE.	<u>Limited UCI</u>	<u>DOE/DOE Contractors - Special Approval Required</u>	<u>OSTI</u>	<u>OSTI or in accordance with DOE-approved site agreements</u>
<u>Applied Technology</u>	Applied technology- Software related to engineering, development, design, construction.	<u>Limited (UCI)</u>	<u>DOE/DOE Contractors - Special Approval Required</u>	<u>OSTI/Limited Announcement</u>	<u>OSTI or in accordance with DOE-Approved site agreements</u>

	operation, or other activities pertaining to nuclear technology advances				
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Table 11 Software Categories

Export Controlled Information (ECI)	Software containing unclassified information subject to export controls and whose unrestricted public dissemination could help proliferants or potential adversaries of the United States	Limited UCI	DOE/DOE Contractors - Special Approval Required	OSTI/Limited announcement	OSTI
Patent Hold-Pending	Information to be withheld pending patent clearance	Limited	DOE/DOE Contractors-Special approval Required	OSTI	OSTI
OpenNet	Previously classified software that has been declassified	Unlimited	Public	OSTI	OSTI/SIAC/Site
Unclassified/Unlimited	Software that is not freeware according to the definition provided: Software a contractor develops, but does not copyright, and is fully willing to make available through OSTI or the specialized centers:	Unlimited	Public	OSTI	OSTI/SIAC/Sites

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Table 11 Software Categories

Freeware/Share ware	Software distributed, after all appropriate reviews, by the	Unlimited	Public	OSTI/Sites	Sites
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<p>developing site at no charge. Thought to have general value to other application domains. Level of user support provided is determined by the developing site and communicated to the user. May be Web hosted or distributed in other manners deemed appropriate by the sites.</p>				
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Table 11 Software Categories

Open Source Software	<p>Computer software that is distributed under a license that grants the user the rights to use, copy, modify, prepare derivative works, and distribute the software without having to make royalty payments. Such distribution may include original or modified source code, other formats, and any derivative works thereof. Contractor must submit DOE F 241-4 to ESTSC and provide unique URL on the form for ESTSC to distribute.</p>	Unlimited	Public	OSTI/Sites	Site
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~~Table 12. Software Categories (continued)~~

Category	Description	Announcement	General Availability
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* Sites needing assistance in making classified software available should contact OSTI at (865) 576-1269.

NOTE: This table is not intended to be an exhaustive list. Contact OSTI if you have questions regarding the appropriate announcement or distribution channel.

3.4 Announcement Record (Metadata)

Announcement record data is defined in DOE F 241.4. Table 13 lists the data elements contained in the DOE F 241.4 announcement record, with required (R) and optional (O) fields noted.

Table 123. DOE Software Metadata Elements.

Metadata Element	Description	DOE F 241.4
Record Status	Identifies the software product as new or revised.	R
Software Title	The title, acronym, and short KWIC (keywords in context) title of the software.	R
Software Developer(s) <i>E mail Address(es)</i>	Unlimited number is acceptable; the primary software developer should be listed first. Allows for ANONE@ as an option for few cases where necessary. <i>Provide in same order as developer names. Will not be available to the end user.</i>	R - - - - - - - - - O
Site Product Number <i>DOE Contract Number</i> <i>R&D Project ID</i> <i>Other Identifying Number(s)</i>	Unique site number that identifies software product. <i>Required for all (can be ANONE@).</i> <i>A unique and permanent ID assigned to identify a particular research project or funding source.</i> <i>If appropriate, includes CRADA number, LDRD number, B&R code, etc.</i>	- O - - - - R - - O - - - - O
Originating Submitting Research Organization(s)	The organization/site submitting the software.	R
Release Date/Date of Issuance	Identifies the software release date. Standard format to be followed (e.g., follow rules of inputting), but requires standard four digit year.	R
Sponsoring Organization	The sponsoring or funding office of the work reported in the STI product. Allows for ANONE@ as an option for few cases where necessary.	R
Description/Abstract	Text should be spell checked, limited in length to 2000 characters, and in compliance with input standards for special characters. Describe the purpose of the computer program, state the problem being	R

	solved and summarize the program functions and capabilities (highlight the advantages, distinguishing features, and/or special capabilities). Provide a short summary of the mathematical methods, engineering principles, numerical algorithms, and procedures incorporated into the software.	
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Table 123. DOE Software Metadata Elements (continued).

Metadata Element	Description	DOE F 241.4
Other	Information useful to include in published announcement record, which is not suited for any other field.	Q
<u>Legal Notices and Disclaimers</u>	May address the conditions under which the software is to be distributed. These notices may be attached as an electronic file or sent as a hard copy.	R
Hardware Requirements	Platform field. Values: PC, Mac, Supercomputer, Mainframe, Multi-platform, Workstation, Other	R
Software Requirements <i>Operating System/Version</i> <i>Compiler/Version</i> <i>Limitations/Restrictions/Timing</i> <i>Requirement Estimate</i> <i>Other Special Requirements</i> <i>Related/Auxiliary Software</i> <i>Type(s) of Files</i>	Identifies requirements related to utilizing the software. <i>Values: source code, text library, object library, user guide, executable module(s), auxiliary materials, compilation instructions, linking instructions, sample problem input data, sample problem output data, control information, program flow diagram, program flow data, programmer documentation, installation instructions, other.</i>	R R R R R R R
Media Type Information	Required if electronic media. Values: 3.5 diskette, Zip Disk, CD-ROM. Provide quantity and capacity.	Q
Format	Select one. Values: PC, MAC, UNIX (Tar format).	R
Location/Transmission	Required if product resides on site server or transmitted electronically. Not applicable to products submitted in paper or on electronic media by mail or other shipment. Values: URL, FTP filename.	Q

Table 123. DOE Software Metadata Elements (continued).

Metadata Element	Description	DOE F 241.4
Documentation Type Information	Select one. Values: user manual, read me file, other.	R
Format	Select one. Values: electronic, paper,	R

Location/Transmission	<p>other.</p> <p>Required if documentation resides on site server or transmitted electronically. Not applicable to documentation submitted in paper or on electronic media by mail or other shipment. Values: URL, FTP filename.</p>	- - - R
References	<p>List citations of pertinent publications by author, title, report number, bar code, or order number if available, and date. References are to be grouped as: (1) reference documents provided with the submittal package and (2) additional background reference materials generally available.</p>	- Q
Intellectual Property/Distribution Limitations	<p>One selection is required. Non conflicting multiples are allowed.</p> <p>Values (includes minimum supporting fields; e.g., release dates, etc.):</p> <ul style="list-style-type: none"> - Unlimited Announcement - OpenNet - Copyrighted Material - Small Business Innovative Research (SBIR) - <u>Small Business Technology Transfer (STTR)</u> - Proprietary/Trade Secret <u>Limited Rights Data</u> - Patent Hold Pending - Protected Data - Export Controlled Information (ECI) - Unclassified Controlled Nuclear Information (UCNI) - Program-Directed Special Handling - Classified; Classification Level/Category of this Form 	- R
Contact	<p>Site contact that will receive any external questions about the software.</p>	- R
Releasing Official	<p>Site=s designated official(s) who will ensure that all appropriate sensitivity reviews are completed for announcement and availability purposes (i.e., classification, export control, patent, copyright, UCNI, etc.)</p>	- R

4. SOFTWARE ACCESS

4.1 Distribution of Software

After submission or announcement to OSTI, software may also be made available by the developing organization in accordance with the categories in Table 121, consistent with approved local procedures, and only with authorization of the cognizant management. Agreements to prevent further dissemination and to protect intellectual property rights should be obtained.

4.2 Software Dissemination

DOE O 241.1A requires that all STI, including STI software, generated by DOE and its contractors be reviewed as appropriate for classification and sensitivity (including nonproliferation, national security, and export control) and appropriate announcement and

availability restrictions applied. Software originators should not disseminate copies of software packages to foreign nationals without first ensuring the export is lawful in accordance with Federal export regulations, to include those published by the Department of Commerce (15 CFR 730-774), the Department of Energy (10 CFR 810), the Department of State (22 CFR 120-130), and the Nuclear Regulatory Commission (10 CFR 110). Even dissemination of software packages to foreign nationals within the United States may be considered a deemed export and may require an export license in accordance with the Federal export regulations.

All requests for software from sensitive countries should be sent to OSTI for coordination of approval from the ~~Nuclear Transfer and Supplier Policy Division (NN-43)~~ Office of Export Control Policy and Cooperation (NA-242). If approved, the appropriate requesting site may then disseminate the software to the requester.

4.3 License Agreements

4.3.1 Copyrighted Software

Software ~~for which~~ that the developing DOE contractor organization has not asserted copyright (for commercialization purposes) is available to the public subject to the license agreement described below. Software ~~that~~ ~~for which~~ the contractor has asserted such rights is not publicly disseminated but is available to DOE contractors and other government organizations from OSTI in accordance with the terms of the developer's contract with DOE. Requests for copyrighted software from those other than DOE contractors or governmental entities are referred by OSTI to the copyright holder (or their licensees) for licensing.

4.3.2 OSTI Software License

Any DOE sponsored software package distributed by OSTI's ESTSC requires a license agreement. This form (see Attachment 10) establishes conditions and requirements for requester's use of the software package after purchase from OSTI's ESTSC. Requesters need to return the properly completed and signed form to OSTI before the order will be processed. OSTI encourages SIACs to follow this Departmental policy.

Under the international exchange agreement with the NEA, OSTI has determined that NEA distribution procedures are appropriately consistent with OSTI's licensing policy; therefore, the NEA is not required to sign license forms for packages they receive from OSTI or SIACs covered by the exchange agreement.

4.3.3 Disclaimers for Software

Rights in technical data clauses for many DOE contracts require a statement acknowledging DOE sponsorship/data rights for information products. The following distribution statement and disclaimer meet those requirements for software and should be affixed to all distributed DOE sponsored software. Legal counsel should review any appropriate additional markings that are desired; such markings should be consistent with restrictions indicated on the announcement form (DOE F 241.4). Markings should be affixed to all software package elements provided to the OSTI or a SIAC.

Distribution Statement

The following distribution statement should be included on all software subject to license agreements:

This computer software has been developed under sponsorship of the U.S. Department of Energy. Any further distribution or use by anyone other than the named licensee of this software package or any data contained therein, unless otherwise specifically provided for, is prohibited without the approval of the Office of Scientific and Technical Information. Requests for DOE developed computer software shall be referred to the Energy Science and Technology Software Center at the Office of Scientific and Technical Information, P.O. Box 1020, Oak Ridge, TN 37831-1020.

Disclaimer

The following disclaimer should be included on all software subject to license agreements:

This material was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor the United States Department of Energy, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.

5. ARCHIVING AND RETENTION OF SOFTWARE

The Energy Science and Technology Software Center's collection record schedule was approved by NARA under Job Number N1-434-93-2. The disposition of a software package is based on its utility over time. Each package should go through three reviews to

determine its obsolescence before it can be destroyed.

Attachment 1

AUTHORITIES AND OTHER GUIDANCE

Dissemination of scientific and technical information (STI) resulting from Department of Energy (DOE) research and development programs to promote scientific progress and public understanding has been a fundamental requirement since the founding of the Department and its predecessor agencies. A number of laws require the Department to make its information available, while others place some limits on the dissemination of scientific and technical information for which the unauthorized release would be detrimental to national interests. DOE O 241.1A provides the overall DOE objective, requirements, and responsibilities within which these mandates are to be met. Following are statutes, Executive orders, and directives relevant to the management of STI.

\$ American Technology Preeminence Act of 1991, Public Law 102 245, dated 2 14 92.

\$ Arms Export Control Act, Public Law 94 329 (22 U.S.C. 2751 et seq.)

\$ Assistance to Foreign Atomic Energy Activities, Title 10, Code of Federal Regulations (CFR), Part 810, effective 7-26-93.

\$ Atomic Energy Act of 1946, Public Law 79-585.

\$ Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 2296.

\$ DOE M 471.2-1C, *Classified Matter Protection and Control Manual*, dated 04-17-01.

\$ Classified National Security Information, Executive Order 12598, dated 04 20 95.

\$ DOE O 5610.2, *Control of Weapon Data*, dated 08-1-80.

• Classified National Security Information; Executive Order 12958, as Amended.

\$ Copyrights, 17 U.S.C.101-B601 et seq.

\$ Department of Energy Organization Act of 1977, Public Law 95 91, ~~Title I, Section 102.~~

• DOE M 483.1-1, *DOE Cooperative Research and Development Agreements Manual*, dated 01-12-01.

- \$ DOE Programmatic Records Schedules, U.S. DOE Research and Development Records Retention Schedule (N1-434-96-9).
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- ~~\$ *DOE Scientific and Technical Information Program Strategic Plan: A Complex-Wide Collaboration to Lead DOE in the Information Age, Office of Scientific and Technical Information, dated 9-17-97.*~~
- \$ DOE Strategic Plans, ~~September 1997 and~~ September 2003~~0~~.
- \$ Energy Policy Act of 1992, Public Law 102 486 (42 U.S.C., various sections).
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- ~~• E-Government Act of 2002, Public Law 107-347.~~
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- ~~\$ Energy Conservation, Public Law 102 381, Title II, 106 Stat. 1405 of 10 05 92.~~
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- ~~\$ *Electronic Freedom of Information Act Amendments of 1996, Public Law 104 231 (5 U.S.C. 552).*~~
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- ~~\$ *Energy Conservation, Public Law 102 381, Title II, 106 Stat. 1405 of 10 05 92.*~~
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- \$ Export Administration Act of 1979, as Amended, Public Law 96 72, as amended (50 U.S.C. 2401).
- \$ Export Administration Regulations, Title 15 CFR, Parts 730 799.
- \$ Export and Import of Nuclear Equipment and Material, Title 10 CFR, Part 110.
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- ~~• Facilitating Access to Science and Technology, Executive Order 12591, dated 04-10-87~~
- \$ Federal Information Resources Management Regulation, Title 41 CFR, Chapter 201.
- \$ Federal Nonnuclear Energy Research and Development Act of 1974 (42 U.S.C., Chapter 74, Sec. 5916).
- \$ Freedom of Information, 5 U.S.C. § 552, ~~Act of 1974, Public Law 89 487, as amended by Public Law 93 502 (5 U.S.C. 552, 88 Stat. 1561).~~
- \$ *Guidelines on Export Controls and Nonproliferation*, issued by the Director of the Office of Nonproliferation and National Security, July 1999.
- \$ Identification and Protection of Unclassified Controlled Nuclear Information, Title 10, Code of Federal Regulations, Part 1017.
-
- ~~• DOE O 471.3, *Identifying and Protecting Official Use Only Information*, dated 04-09-03.~~
-
- ~~• DOE M 471.3-1, *Manual for Identifying and Protecting Official Use Only Information*, dated 04-09-03.~~
- \$ DOE M 471.1-1, *Identification and Protection of Unclassified Controlled Nuclear Information Manual*, dated 06-30-00.
- \$ DOE O 471.1A, *Identification and Protection of Unclassified Controlled Nuclear Information*, dated 06-30-00.
- \$ DOE M 475.1 1A, *Identifying Classified Information*, dated 05 8 98.
- \$ DOE G 1324.5B, *Implementation Guide for Use with 36 CFR Chapter XII, Subchapter B, Records Management*, dated 07-19-96.
- \$ DOE O 200.1, *Information Management Program*, dated 09 30 96.
- \$ *Information Processing Text and Office Systems Standard Generalized Markup Language (SGML)*, ISO 8879, International Standards Organization.
- \$ DOE O 471.2A, *Information Security Program*, dated 03-27-97. [DOE N 251.4057, dated 045 283-014, extends this directive until ~~1204-3128-051~~.]
- \$ International Traffic in Arms Regulations, Title 22 CFR, Parts 120 128.
- \$ Management of Federal Information Resources, Office of Management and Budget (OMB) Circular A 130 ~~of 6 93, as amended 11-30-00. Supersedes OMB Circulars A 3, A 71 partial, A 90, A 108, A 114, and A 121.~~

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- DOE O 413.2A, *Laboratory Directed Research and Development*, dated 01-08-01.
- \$ Metric Conversion Act of 1975, as Amended, Public Law 94 168 (U.S.C. 205a et seq.) ~~as amended by Public Law 100-418.~~
- \$ Metric Conversion Policy for Federal Agencies, Title 15 CFR, Part 1170.
- \$ Metric Usage in Federal Government Programs, Executive Order 12770 of 07 25 91.
- \$ National Competitiveness Technology Transfer Act of 1989, Public Law 101 189 (15 U.S.C. 3701).
- ~~\$ National Security Information, Executive Order 12356 of 1982.~~
-
- \$ National Technology Transfer and Advancement Act of 1995, Public Law 104 113.
- \$ Naval Reactor and Military Application Programs, Public Law 98 525 (42 U.S.C. 7158).
- \$ Nuclear Non proliferation Act of 1978, Public Law 95 242.
- \$ DOE O 551.1A ~~B~~, *Official Foreign Travel*, dated 08-~~25~~19-003.
- \$ Paperwork Reduction Act of 1995, Public Law 104-13 (44 U.S.C. ~~Sec.~~ 3501)
-
- Patents, Data, and Copyrights, Title 48 CFR, Part 927.
- \$ Printing, Title 48 CFR, Part 952.227, A Provisions and Clauses Related to Patents, Technical Data and Copyrights @ [952.227 79 A Limited Rights in Proprietary Data @].
- \$ Privacy Act of 1974, Public Law 93 549, as amended (5 U.S.C. 552a).
- \$ DOE M 452.4-1A, *Protection of Use Control Vulnerabilities and Designs*, dated 073-11-04 ~~1999~~.
- \$ Public Printing and Documents, Title 44 (44 U.S.C. ~~Sec.~~ 3506)
- \$ Rights in Data General, Federal Acquisition Regulation (FAR) 52.227 14.
- \$ Stevenson Wydler Technology Innovation Act of 1980, Public Law 96 480, 15 U.S.C. 3710a note.
- \$ U.S. Patent Laws, 35 U.S.C. 205.
-
- Utilization of Federal Technology, (15 U.S.C. 3710)
- \$ DOE O 412.1, *Work Authorization System*, dated 04-20-99.
-
-
- DOE O 481.1C, *Work for Others (Non-Department of Energy Funded Work)*, dated 01- 24-05.

Attachment 2

DEFINITIONS

Abstract. Concise statement (200 words or less) of the purpose, scope, and major findings of work reported in a scientific and technical information (STI) product.

Access Limitation. Intellectual property or distribution limitation category of an STI product

Announcement. Transmission to the Office of Scientific and Technical Information (OSTI) of an announcement record/metadata (DOE F 241.1, DOE F 241.3, or DOE F 241.4) or announcement record/metadata and entire STI product. OSTI will control access based upon the needs of the STI product.

Announcement Record. Record containing metadata used to describe an STI product for announcement and availability. The record is based on required data elements as well as optional data elements and transmitted to OSTI via the DOE F 241.1 (webform, harvesting, or batch submission), DOE F 241.3, or or DOE F 241.4 ~~and transmitted to OSTI for general announcement.~~

Copyright Statement. Statement that retains the nonexclusive right for the government to copy STI that was funded by a government agency although the copyright may be owned by a non government entity. (See Attachment 4.)

Deliverables. End product or outcome of a funded project or program and identified in a contract or work proposal.

Decentralized Electronic Environment. ~~The electronic transition initiative championed by OSTI so that sites no longer are required to submit paper STI products to OSTI, instead~~ sites have the option to host STI products in one of the acceptable electronic formats on their site=s server therefore providing an opportunity for OSTI to either link to the product or to harvest it. ~~Uploading STI products to OSTI using E-Link (<http://www.osti.gov/mlink>) is also an option providing the product is submitted in one of the acceptable electronic formats.~~

Departmental (or DOE) Elements. First tier organizations at Headquarters and in the field. First tier at Headquarters is the Secretary, Deputy Secretary, Under Secretary, and secretarial officers (assistant secretaries and staff office directors). First tier elements in the field are managers of the eight operations offices, managers of the three field offices, and the administrators of the power marketing administrations. Headquarters and field elements are described as follows: (1) Headquarters elements are DOE organizations located in the Washington Metropolitan Area; and (2) field elements is a general term for all DOE sites (excluding individual duty stations) located outside of the Washington, D.C., Metropolitan Area.

Digital Object Identifier (DOI). A DOI is a unique identifier assigned to a digitized item that is used to identify information about the item and where it can be found on the Internet. DOI's are permanent and do not change.

Digital Video Disc (DVD). DVDs which look similar to CDs are an optical disc storage media format that is used for playback of films with high video and sound quality as well as data storage.

Disclaimer. A repudiation or denial of responsibility or connection.

Distribution Statement. Statement needed on an STI product that explains any distribution or access limitation. (See Attachment 76.)

DOE F 241.1. A webform used by DOE Headquarters Programs and DOE site/facility management contractors to transmit metadata about an STI Product to OSTI for announcement, as appropriate. The 241.1 metadata can also be provided to OSTI via harvesting or batch file submission.

DOE F 241.2. A webform used by assistance recipients and DOE non-site/facility management contractors to transmit Research and Development information to OSTI to be announcement on R&D Project Summaries and Federal R&D Project Summaries, as appropriate.

DOE F 241.3. A webform used by financial assistance recipients and DOE non-site/facility management contractors to transmit metadata about an STI Product to OSTI for announcement, as appropriate.

DOE F 241.4. A webform used to transmit metadata about a Software Product to ESTSC for announcement, as appropriate.

Document Type Definition (DTD) – The document type definition defines the document structure with a list of legal elements of a document. For purposes of this Guide, the document structure is XML.

DVD (refer to digital video disc)

Export Controlled Information (sub-set of OUO). Refer to OUO

Extensible Markup Language (XML). XML (version 1.0 or above) is a true subset of Standard Generalized Markup Language (SGML), designed to make it easy to interchange structured documents over the Internet. XML files always clearly mark where the start and end of each of the logical parts (called elements) of an interchanged document occurs. XML somewhat restricts the use of SGML constructs and defines how Internet Uniform Resource Locators can be used to identify component parts of XML data streams created specifically for use on the World Wide Web. XML is an abbreviated version of SGML, omitting the more complex and less used parts of SGML in return for the benefits of being easier to write applications and more suited to delivery and interoperability over the Web. XML files may still be parsed and validated in the same way as any other SGML file.

NOTE: Included graphic files should be either in Graphic Interchange Format (GIF) or Joint Photographic Experts Group (JPEG) format as they are the standard graphic file types for World Wide Web (WWW) accessible documents.

File Format(s). The electronic format of an electronic STI product. Acceptable electronic formats have been identified for the STI products posted on site=s Web pages and transmitted to OSTI.

Foreign Trip Reports. Foreign trip report information, which is maintained in a secure database accessible to DOE and authorized users. It is sponsored by the Office of Nonproliferation and National Security (NN).

Harvesting. Harvesting is a tool for providing metadata about an STI Product to OSTI for announcement on STI Products, as appropriate.

HyperText Markup Language (HTML). HTML is a non proprietary format for publishing documents on the Web. Based upon SGML, HTML can be created and processed in a wide range of tools from simple plain text editors to sophisticated authoring tools. HTML uses tags to structure text into headings, paragraphs, lists, hypertext links, etc. HTML documents that conform to the HTML 3.2 or 4.0 document type definition (DTD) are by definition fully compliant SGML documents for the STI electronic environment. NOTE: Included graphic files should be either in GIF or JPEG format as they are the standard graphic file types for WWW accessible documents.

Laboratory Directed Research and Development (LDRD). Research and development work of a creative and innovative nature that is selected by the laboratory director, or his or her designee, for the purpose of maintaining the scientific and technological vitality of the laboratory and responding to scientific and technological opportunities in conformance with the requirements of the LDRD Program. The LDRD Program includes all discretionary research and development activities not provided for in a DOE program.

Life Cycle Information Management. Life cycle information management indicates that information resources need to be managed as long as they are useful. The activities involved include planning, coordinating, budgeting, organizing, protecting, delivering, storing, and disposition.

Limited Rights Data. Formerly Proprietary/Trade Secrets. Information that embodies trade secrets developed at private expense outside of a Cooperative Research and Development Agreement and commercial or financial information that is privileged or confidential under the Freedom of Information Act, 5 U.S.C. (B)(4) and that is marked as proprietary information. Information that contains trade secrets or commercial or financial information which is privileged or confidential, and may only include such information that (a) has been held in confidence by its owner; (b) is of a type customarily held in confidence by its owner; (c) has not been transmitted to other entities except on the basis that it be held in confidence; and (d) is not otherwise available to the receiving party from another source without restriction on its further dissemination.

~~M&I Contractors.~~ Management and integration contractors.

M&O Contractors. Management and operating contractors. An organization that enters into an agreement under which the Government contracts for the operation, maintenance, or support, on its behalf, of a Government-owned or -controlled research, development, special production, or testing establishment wholly or principally devoted to one or more major programs of the contracting Federal agency.

Major Site/Facilities Management Contractors. Term used to describe M&O and M&I contractors.

Metadata. Data that describes the attributes of a document or other type of STI product and is used for announcement and retrieval.

Microsoft Word. A proprietary word processing creation application. OSTI will only accept electronic STI documents in Microsoft Word 5.0 or above from financial assistance recipients and non-major site/facility management contractors.

~~Non-M&O/M&I Awards.~~ Non-M&O/M&I awards that are usually let by DOE contracting officers in the form of grants, contracts, cooperative agreements, etc.

Non-Major Site/Facilities Management Contractors. Term used to describe a non-M&O and M&I contractors.

Office of Scientific and Technical Information (OSTI). The DOE office within the Office of Science that is the central point of coordination for the Department's Scientific and Technical Information Program. While scientific and technical information is primarily generated and managed at DOE field and contractor sites, the OSTI facility is the central point of coordination for customer access to DOE's scientific and technical information resource and the ultimate repository for DOE STI.

Official Use Only. Information designated as Official Use Only is unclassified information that may be exempt from public release under the Freedom of Information Act.

OpenNet. A Web based database of all Departmental documents that have been declassified and determined to be publicly releasable (<http://www.doestie.gov/html/osti/opennet/opennet1.html>). OpenNet supports the DOE openness initiative. It is sponsored by the Headquarters Office of Declassification, NN 52. Metadata and the non-STI OpenNet documents should be submitted to the Department via webform DOE F 475.1 which directly feeds the OpenNet database. The metadata as well as the

~~OpenNet STI products should be submitted to OSTI via the DOE F 241.1 or batch file which will feed the OpenNet database, and contains not only STI products but other records as well.~~

~~It is sponsored by the Headquarters Office of Declassification, NN-52.~~

Originating Site. A term used in this Guide to denote the organization that prepares and makes available an STI product. In some cases, it is the same as the originating research organization (either DOE or DOE contractor). For non-M&O/~~M&I~~-generated STI products, the DOE awarding office may fulfill or delegate this role.

Patent Pending (subset of OOU)

~~**PostScript.** A page description language that allows documents to be transmitted electronically with all original formatting and graphics intact, it is an established industry standard. OSTI is currently accepting PostScript as an exchange format because, in addition to being an industry standard for document printing, it is a format that is easily converted to other media (e.g., paper, fax, PDF, image formats, etc.). PostScript files can be saved from standard word processing packages such as Microsoft Word or Corel=s Word Perfect.~~

~~**Postprint.** A document in post-publication status, particularly an author=s article or paper, after it has been published in a journal.~~

~~**Preprint.** A document in pre-publication status, particularly an article submitted to a journal for consideration for publication or other commercial publication.~~

Presentation Formats. Formats that capture the APresentation@ form of a document (i.e., the look of the document when printed). Presentation formats may or may not be full text searchable. OSTI prefers to receive full text searchable versions of documents.

Portable Document Format (PDF). PDF, open file format specification invented by Adobe Systems Incorporated. The PDF format maintains almost complete fidelity to the original document and is an efficient solution for providing electronic access to documents.

~~**Proprietary Data.** Information that embodies trade secrets developed at private expense outside of a Cooperative Research and Development Agreement and commercial or financial information that is privileged or confidential under the Freedom of Information Act, 5 U.S.C. (B)(4) and that is marked as proprietary information. Information that contains trade secrets or commercial or financial information which is privileged or confidential, and may only include such information that (a) has been held in confidence by its owner; (b) is of a type customarily held in confidence by its owner; (c) has not been transmitted to other entities except on the basis that it be held in confidence; and (d) is not otherwise available to the receiving party from another source without restriction on its further dissemination.~~

Portable Document Format (PDF) Non-Searchable. PDF non-searchable, also known as PDF Image, is a version of PDF that allows indexing.

Portable document Format (PDF) Searchable. PDF searchable, also known as PDF Normal is a version of PDF that allows indexing.

~~**Portable Document Format (PDF).** PDF, a proprietary format owned by Adobe Systems Incorporated, can best be described as an enhancement of the PostScript format. The PDF format maintains almost complete fidelity to the original document and is an efficient solution for providing electronic access to documents. Through the use of Adobe=s Acrobat PDF Writer driver, PDF files can be created by printing to a PDF file from multiple word processing and other desktop publishing applications. By using a viewing application freely available through the Internet such as Adobe Acrobat Reader, PDF files can be browsed on screen or they can be printed to local or remote printers. PDF files can be searched through the viewing application or through proprietary database engines that provide filters for the format. The most current version of PDF supports the addition of hyperlinks to multimedia objects and Internet uniform resource locators (URLs).~~

Protected Data (subset of OOU)

R&D Project Identification Number. A unique and permanent project identifier that is assigned to an R&D project by either the DOE operations office, DOE program office, DOE laboratory, or other DOE organization. The project ID should be included as a reference on the STI deliverable or accompanying transmittal document to relate the deliverable to the appropriate R&D funding source.

Reprint. A copy of a journal article or similar document obtained from the publisher in the form in which it was published and may be copyrighted by the publisher.

Scientific and Technical Information (STI). STI consists of information products, in any format or medium, derived from scientific and technical studies, work, or investigations that relate to research, development, demonstration, and other specialized areas such as environmental and health protection and waste management. Scientific and technical information products may be

unclassified unlimited, ~~unclassified controlled sensitive unclassified information or, export controlled, classified, or declassified.~~ DOE funded STI originates primarily from research and other activities performed by contractors for management, operation, or integration of DOE owned/leased facilities, direct DOE executed prime procurements, DOE operated research activities, and financial assistance recipients, in addition to DOE employees.

~~Sensitive Unclassified Information. Information for which disclosure, loss, misuse, alteration, or destruction could adversely affect national security or government interests. National security interests are those unclassified matters that relate to the national defense or foreign relations of the Federal Government. Governmental interests are those related, but not limited to, the wide range of government or government derived economic, human financial, industrial, agricultural, technological, and law enforcement information, as well as the privacy or confidentiality of personal or commercial proprietary information provided the Federal Government by its citizens.~~

~~Site. See definition for AOriginating Site.@~~

Scientific and Technical (S&T) Accomplishment Report. An S&T accomplishment report describes an outcome of R&D that has significantly affected commerce or standard of living or is recognized as a major scientific or technical advancement. It reports scientific or technical results, as opposed to a research highlight, which describes a noteworthy current R&D project or field of investigation that, if successful, could lead to an S&T accomplishment.

~~Site. (refer to Originating Site)~~

Standard. A generic, all encompassing term used to describe documents that provide a specified set of mandatory or discretionary rules, requirements, or conditions concerned with performance, design, operation, or measurements of quality to accomplish a specific task. Standards may include Federal laws, regulations, State laws, Federal agency directives, national and international technical standards, codes of conduct, or even organizational Ainternal use only@ documents. AStandard@ includes a specified set of discretionary rules or conditions concerned with the classification of components; delineation of procedures; definition of terms; specifications of materials, performance, design, or operations; or measurements of quality in describing materials, products, systems, services or practices.

~~Standard Generalized Markup Language (SGML). SGML is an international standard (ISO 8879) for defining document structures for the application of mark-up schemes. It provides a consistent and precise manner of applying mark-up for describing the component parts of a document, enabling the exchange of revisable documents between different computer systems. Use of SGML for electronic exchange is an agreed-upon long-term goal for DOE's STI. Two additional SGML-based formats are also acceptable for STI: the Extensible Markup Language (XML) and the Hypertext Markup Language (HTML). NOTE: Included graphic files should be either in GIF or JPEG format because they are the standard graphic file types for WWW accessible documents.~~

Sponsoring Organization. Also known as the funding office, the sponsoring organization is typically the DOE Headquarters program office, that funds or sponsors the research activities.

Technical Report. Technical reports describe the results and findings of research and development projects and other DOE funded activities. For direct procurement type awards, technical reports are formal documents usually identified as required reporting deliverables and may cover a specified time frame referred to as the reporting period. For ~~M&O/M&I~~ major site/facility contractors, in addition to formal reports, these may be any technical document that contains technical information useful to others, including the results of research determined not appropriate or rejected for open literature publication.

~~UCNI. (refer to Unclassified Controlled Nuclear Information)~~

~~TIFF4. An acceptable interim format for electronic exchange of STI is TIFF Group 4. TIFF Group 4 is currently being used by a number of DOE and DOE contractor activities. To ensure consistency, a standard for submissions to OSTI is TIFF CCITT Group 4.~~

~~Unclassified Controlled Information. Information for which disclosure, loss, misuse, alteration, or destruction could adversely affect national security or government interests. National security interests are those unclassified matters that relate to the national defense or foreign relations of the Federal Government. Governmental interests are those related, but not limited to, the wide range of government or government derived economic, human financial, industrial, agricultural, technological, and law enforcement information, as well as the privacy or confidentiality of personal or commercial proprietary information provided the Federal Government by its citizens.~~

~~Unclassified Controlled Nuclear Information (UCNI). Certain unclassified but controlled government information concerning nuclear materials, weapons, and components whose dissemination is controlled under section 148 of the Atomic Energy Act.~~

Word Processing Formats (e.g., ~~Corel Word Perfect and Microsoft Word~~). Word processing documents are those documents created through proprietary document creation applications. OSTI will accept electronic documents in ~~Word Perfect 5.0 and above~~ or Microsoft Word 5.0 or above. ~~Word Perfect and~~ Word was ~~ere~~ chosen because ~~they are is the two~~ most heavily used word processing applications ~~in the DOE complex~~.

Attachment 3

CONTROLLED STI PRODUCTS

GENERAL

Scientific and technical information (STI), just like non-STI, falls into one of three general access/control categories: 1)classified, 2) unclassified controlled, or 3)unclassified unlimited.

Special handling, control, and markings are required for classified and unclassified controlled documents to assist the holder in managing the document properly. A brief description and references to pertinent guidance (laws, orders, regulations, etc.) are given to assist in the proper handling of classified and unclassified controlled STI information/documents.

1. CLASSIFIED STI PRODUCTS

The Atomic Energy Act of 1954, as amended, and Executive Order 12958 serve as the basis for identifying classified information generated by the Department. Classified information is defined as certain information that the United States Government has determined requires protection against unauthorized disclosure for reasons of national security (i.e., Restricted Data, Formerly Restricted Data, and National Security Information).

Procedures for the proper identification of classified information and subsequent marking of classified information products can be found in DOE M 475.1-1A, Identifying Classified Information and DOE M 471.2-1C, Classified Matter Protection and Control Manual.

Caveats and special control markings should be applied as appropriate to classified STI documents. Some examples of types of special markings (caveats) for classified documents and the associated guidance references are:

- Dissemination and Reproduction Notices -- DOE M 471.2-1C, Classified Matter Protection and Control
- Foreign Government Information -- DOE M 471.2-1C, Classified Matter Protection and Control
- Director of Central Intelligence Information – Director of Central Intelligence Directive (DCID) 6/6, Security Controls on the Dissemination of Intelligence Information, June 6, 2003
- Naval Nuclear Propulsion Information – C 5511.32.B, Navy Sea Systems Command Instruction, December 22, 1993
- Weapon Data – DOE O 5610.2, Control of Weapon Data, September 2, 1986 and DOE M 452.4-1A, Protection of Use Control Vulnerabilities and Design, March 11, 2004

Classified STI products transmitted to OSTI are to be properly marked with the appropriate announcement and/or access limitations on the accompanying DOE F 241.1. The approved format for classified nuclear weapons information exchange can be accessed through the Nuclear Weapons Information Group (NWIG) Internet home page.

STI documents that have been declassified (in accordance with requirements prescribed in DOE M 475.1-1A, Identifying Classified Information) may not automatically be released to the public. Information contained in the declassified document may still be exempt from public release based on one or more of the Freedom of Information Act exemptions. Classified information products that have been declassified should also be reviewed by the originating site for unclassified but sensitive information.

To allow access to the widest audience possible, OSTI would like to receive a classification change notice whenever a classified STI product held by OSTI is declassified by the originating site or higher authority. It is requested that notices of declassification be accompanied by instructions/authority to publicly release or to further control access to the STI product, including the basis for further control. If OSTI has never received the original classified STI product, a copy of the declassified document is requested, along with the authorization for public release or control.

NOTE: DOE M 475.1-1, Identifying Classified Information, requires organizations to submit bibliographic information and availability information to OSTI for every document that is declassified and determined to be publicly releasable for inclusion in the Department's OpenNet data base.

2. UNCLASSIFIED CONTROLLED STI PRODUCTS

Access control to certain types of unclassified information is required by various laws, federal codes, executive orders, international agreements, etc. Some STI products contain unclassified controlled information and must be marked and managed appropriately. They can be broadly categorized as Official Use Only, Unclassified Controlled Nuclear Information, and unclassified Naval Nuclear Propulsion Information. Other types of information have restrictions on their handling such as certain copyrighted material. A description of some of the unclassified controlled information that may be contained in STI products is given below.

OFFICIAL USE ONLY

Information designated as Official Use Only is unclassified information that may be exempt from public release under the Freedom of Information Act. The Departmental program for identifying, marking, and protecting documents containing Official Use Only information is codified in:

- DOE O 471.3, Identifying and Protecting Official Use Only Information, 4/9/03;
- DOE M 471.3-1, Manual for Identifying and Protecting Official Use Only Information, 4/9/03;
- DOE G 471.3-1, Guide to Identifying Official Use Only Information, 4/9/03.

The identification of the type of OOU information with markings that convey additional advice on handling or access restrictions are encouraged. Some specific categories of Official Use Only (OOU) information that are more commonly found in STI documents are described below.

The specific wording of the caveat or control markings may vary, depending on the contract specification.

OFFICIAL USE ONLY - EXPORT CONTROLLED INFORMATION (ECI)

Export Controlled Information (ECI) is information containing technical data as defined in and controlled by U.S. export control statutes. Appropriate laws, regulations, and requirements for ECI include the following:

- The Nuclear Nonproliferation Act of 1978
- The Atomic Energy Act of 1954, as amended, and its implementation by Export and Import of Nuclear Material, Title 10, Code of Federal Regulations, Part 110, and Assistance to Foreign Atomic Energy Activities, Title 10, Code of Federal Regulations, Part 810
- The Export Administration Act of 1979 and its implementation by the Export Administration Regulations, Title 15, Code of Federal Regulations, Parts 730-799
- The Arms Export Control Act and its implementation by the International Traffic in Arms Regulations, Title 22, Code of Federal Regulations, Parts 120-128.

In accordance with Guidelines on Export Controls and Nonproliferation, issued by the Director of the Office of Nonproliferation and National Security, July 1999, ECI must be clearly identified to ensure appropriate handling of such information by potential recipients. Information designated as ECI is given controlled distribution to prevent unauthorized release to foreign countries, organizations, or individuals.

Such information to be released must be clearly marked in accordance with the following requirements.

- Markings to be affixed to technical information determined to be ECI may vary depending on the needs and preferences of site or program managers. The preferred format is the Export Controlled Information Restrictive Legend noted below.

EXPORT CONTROLLED INFORMATION

Contains technical data whose export is restricted by statute. Violations may result in administrative, civil, or criminal penalties. Limit dissemination to U.S. Department of Energy employees and contractors and other U.S. government agencies. The cognizant _____ program manager must approve other dissemination. This notice shall not be separated from the attached document.

Reviewer Signature Date

- Products containing ECI must be clearly marked "EXPORT CONTROLLED INFORMATION" at the top and bottom of each page containing ECI.

- Products containing ECI should be clearly marked with Distribution Statement D.

- OFFICIAL USE ONLY - PROTECTED DATA (CRADA, etc)

- Protected Cooperative Research and Development Agreement (CRADA) information is information produced in the performance of a CRADA that is marked as being Protected CRADA Information by a party to the agreement and that would have been proprietary information had it been obtained from a non-Federal entity. Protected CRADA information may be protected for a period up to 5 years from the date it was produced except as expressly provided for in the CRADA.

- In accordance with DOE M 483.1, products that contain information that is protectable under the terms of a CRADA must clearly display the Protected CRADA Information Restrictive Legend noted below to prevent disclosure of such information; the document should be clearly and prominently marked with Distribution Statement E.

- **PROTECTED CRADA INFORMATION**

- This product contains Protected CRADA Information which was produced on [date] under CRADA No. and is not to be further disclosed for a period of from the date it was produced except as expressly provided for in the CRADA.

- In accordance with DOE M 483.1, proprietary data or Protected CRADA data must not be included in any abstract prepared and submitted before the information is announced for availability; the abstract must be suitable for publication.

- OFFICIAL USE ONLY - PATENT PENDING

- Janine Ford is getting information from IP at NNSASC.

- Hugh's comments- [THIS SECTION DOESN'T SEEM TO ADDRESS THE TECH DATA/PATENT RIGHTS OF THE CONTRACTOR, I.E., NATRIONAL COMPETITIVENESS TECHNOLOGY TRANSFER ACT OR 1989, STEVENSON-WYDLER TECHNOLOGY INNOVATION ACT, AND OTHER LAWS THAT TRANSFERRED THE **PATENT RIGHTS TO THE CONTRACTOR**????] I THINK THE FAR & DEAR HAVE PERTINENT GUIDELINES.

- To comply with U.S. Patent Law (35 U.S.C. 205), Federal contractors must safeguard information that discloses any invention when patent rights for the invention will belong to the Federal Government. Federal agencies are authorized to withhold from disclosure to the public, information disclosing any invention in which the Federal Government may own a right, title, or interest, for a reasonable length of time so that a patent application can be filed.

- In accordance with U.S. Patent Law (35 U.S.C. 205), products containing potentially patentable information must clearly display the Patent Caution Restrictive Legend below; the document should be clearly and prominently marked with Distribution Statement B.

- **PATENT CAUTION**

- This product may contain patentable subject matter protected from unauthorized disclosure under U.S. Patent Law (35 U.S.C. 205). No further dissemination outside of the Government without the approval of the Assistant General Counsel for Intellectual Property, U.S. Department of Energy.

- OFFICIAL USE ONLY - LIMITED RIGHTS (PROPRIETARY, SBIR, STTR, etc.)

- Proprietary Data

- Proprietary data that arise from DOE financial assistance agreements are controlled in accordance with Title 48, Code of Federal Regulations, Part 952.227, Printing, and Title 5,

U.S.C. 552, Freedom of Information Act of 1974. Proprietary data that arise from DOE contracts involving "limited rights data" or "restricted computer software" are defined and controlled in accordance with FAR 52.227-14 and Title 5, U.S.C. 552, Freedom of Information Act of 1974.

In accordance with 48 CFR 952.227 and 5 U.S.C. 552, products containing proprietary data arising from DOE contracts or financial assistance agreements must clearly display the Proprietary Data Restrictive Legend noted below; the document should be clearly and prominently marked with Distribution Statement B. The restrictive marking, "PROPRIETARY DATA" must be placed at the top and bottom of each page containing proprietary information.

PROPRIETARY DATA

This technical data contains proprietary data furnished under contract no. _____ with the U.S. Department of Energy. Disclosure outside the Government is not authorized without prior approval of the originator, or in accordance with provisions of 48 CFR 952.227 and 5 U.S.C. 552.

Proprietary data must not be included in any abstract prepared and submitted before the information is announced for availability; the abstract must be suitable for publication.

Protected Battery Information

In accordance with Public Law 102-381, Title II, 106 Stat. 1405, products containing Protected Battery Information must be clearly marked with the Protected Battery Information Restrictive Legend below to prevent disclosure of such information; products so identified should be clearly and prominently marked with Distribution Statement E.

PROTECTED BATTERY INFORMATION

This product contains Protected Battery Information which was produced under Contract/CRADA No. _____ and is not to be further disclosed for a period of up to five years after the completion of the individual project, or not prior to _____ [date] _____.

Small Business Innovation Research and Small Business Technology Transfer

In accordance with implementing regulations, Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) may be protected for a period of 4 years from the completion of the project, unless written permission to disclose such data earlier is obtained from the contractor or grantee.

To protect STI products (i.e., to limit distribution), the SBIR or STTR products should be clearly marked as containing SBIR or STTR proprietary information; the document should be clearly and prominently marked with Distribution Statement B. The DOE F 241.3 should be marked accordingly.

OFFICIAL USE ONLY - APPLIED TECHNOLOGY

Applied Technology is an unclassified category of information established by DOE's Office of Nuclear Energy, Science and Technology (NE) to preserve the foreign trade value of certain NE-funded progress and topical reports containing engineering, development, design, construction, and operation information pertaining to particular programs [defined in guidance available from NE or the Office of Scientific and Technical Information (OSTI)], as designated by the cognizant NE program office. Such designation is indicated through contractual requirements or in the task orders under which such information is developed.

Products containing information designated as applied technology should clearly display the Applied Technology Restrictive Legend noted below and should be prominently marked with Distribution Statement D.

APPLIED TECHNOLOGY

Any further distribution by any holder of this product or data therein to third parties representing foreign interests, foreign governments, foreign companies, and foreign subsidiaries or foreign divisions of U.S. companies shall be approved by the [insert appropriate NE Program Office officials], U.S. Department of Energy. Further, foreign party release may require DOE approval pursuant to 10 CFR 810, and/or may be subject

to Section 127 of the Atomic Energy Act.

Use the following to fill in the appropriate NE program office officials in the blank in the statement above.

1.01 For information emanating from the Space and Defense Systems Power Program, the label should read, "Associate Director for Space and Defense Power Systems."

1.02 For information emanating from the Naval Nuclear Propulsion Program, the label should read, "Associate Director for Naval Reactors."

1.03 For information emanating from all other past and current programs, the label should read, "Associate Director for Technology."

In coordination with NE, OSTI performs several information management functions, including maintaining the official distribution lists, coordinating approval for document and software requests, and recording designation removal. Performing these functions requires that OSTI receive applied technology information from document and software originators.

The OSTI official standard distribution lists that have been approved by the NE program office are considered to be the sole distribution for applied technology documents with the exception of internal recipients (not subcontractors or outside program participants). To accomplish this, originating sites submit applied technology documents to OSTI using DOE F 241.1 or DOE F 241.3, marked appropriately, as well as a list of internal and external distribution addresses to complete the official distribution record maintained on each applied technology document.

OSTI also maintains information on the status of designation removal per NE guidance.

DOE laboratories, contractors, and subcontractors are to relay external domestic and foreign requests for applied technology information to OSTI for disposition.

Applied technology information is not to be presented, referenced, or form the basis of presentations in technical society meetings or journals, meetings with foreign interests (except under preapproved arrangements), referenced in nonapplied technology documents, or other printed or electronic means without prior NE Program Office approval. This restriction includes not referencing information contained within an applied technology document, and also not referencing the report title or number.

NE-authorized removal of the Applied Technology marking of STI documents does not mean the document can be automatically released to the public; it must be reviewed for Export Controlled Information and other Official Use Only information.

OFFICIAL USE ONLY - PROGRAM DETERMINED

This type of Official Use Only information is based on guidance approved by the cognizant Secretarial Officer and issued by the Secretarial Officer or the Director, Office of Security. [See DOE O 471.3, paragraph 5.a.]

CG-SS-4, Classification and UCNI Guide for Safeguards and Security Information, dated 9/12/00, and other classification guides provide one type of program-determined guidance for marking and protecting Official Use Only information.

Another example of program-determined OUO information is that directed in a post-9/11 memoranda by Spencer Abraham, Secretary of Energy, entitled "Safeguarding Information Pertaining to Weapons of Mass Destruction and Other Sensitive Information", dated 5/30/02. White House guidance was issued by Andrew H. Card, Jr., Assistant to the President and Chief of Staff, in a memo entitled "Action to Safeguard Information Regarding Weapons of Mass Destruction and Other Sensitive Documents Related to Homeland Security", dated 3/19/02.

Information to be protected includes agency infrastructure information that is determined to be useful to a terrorist and information that would be useful to a proliferator for manufacturing or using a nuclear, chemical, biological, or radiological weapon.

UNCLASSIFIED NAVAL NUCLEAR PROPULSION INFORMATION

Unclassified NNPI is handled in accordance with Navy Sea Systems Command Instruction C5511.32B, 12/22/93, and is protected by export control requirements and statute.

Naval Nuclear Propulsion Information, unclassified or classified, may not be released publicly or for dissemination to foreign governments, foreign nationals, or any individual or activity not engaged in work for the naval reactors program except with the specific approval of the Deputy Administrator of the Office of Naval Reactors. For detailed instructions, contact the National Nuclear Security Administration's Office of Deputy Administrator for Naval Reactors.

-

UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION (UCNI)

The unauthorized dissemination of Unclassified Controlled Nuclear Information (UCNI) is prohibited under Section 148 of the Atomic Energy Act of 1954, as amended. UCNI is identified and controlled as directed in DOE O 471.1A, Identification and Protection of Unclassified Controlled Nuclear Information, and in Title 10, Code of Federal Regulations, Part 1017, Identification and Protection of Unclassified Controlled Nuclear Information.

-

Products containing information designated as UCNI must clearly display the markings prescribed in DOE O 471.1A, Identification and Protection of Unclassified Controlled Nuclear Information; the document must be clearly and prominently marked with Distribution Statement D.

-

COPYRIGHTED MATERIAL WITH RESTRICTIONS

-

As described in Part II, Section 5.3.5, the originating site of the STI product needs to contact any copyright holders of earlier works that have been incorporated into the present material for permission to engage in any of the five practices below. If use of the earlier works would be exempted by the fair use provisions of the copyright law, no permission from the copyright holder would be required.

-

Material that is copyrighted may be subject to restrictions on

-
- reproduction (copying, either in paper or electronically);
- distribution, by sale or otherwise, in paper or electronically;
- the preparation of derivative works, including translations;
- public display of the material; and
- public performance of the material.

-

If the necessary permission is granted, OSTI needs to know whether the permission is for unlimited use, covers all possibilities, or whether it is limited. An example of limited use relevant to OSTI procedures would be a situation where the copyright holder will allow distribution and reproduction, but only for paper copies, not electronic distribution. Any restrictions on the five restrictions listed above should be described on DOE F 241.1, DOE F 241.3, or DOE F 241.4, as appropriate.

-

If the U.S. Government has been granted authority to reproduce, sell, distribute, or otherwise make the STI product available by virtue of contract language or otherwise, the following statement, or similar statement, should appear on the cover or title page:

-

The U.S. Government is authorized to reproduce, sell, distribute, or otherwise make _____ available this copyrighted work. Permission for further exercise by the recipient of any of the exclusive rights mentioned in 17 U.S.C. 106 must be obtained from the copyright owner.

-

A translation of a copyrighted work is itself a derivative work, and permission from the copyright owner of the original work should be secured before the work is translated and the translation is sent to OSTI.

-

Translations made from text published in a country signatory to the Geneva Copyright Convention should contain one of the following signed statements:

-

The U.S. Government has been authorized to reproduce, distribute, and sell this copyrighted work. Permission for further reproduction or distribution must be obtained from the copyright owner.

-

or

-

The original text is not copyrighted.

-

~~NOTICES AND RESTRICTIVE LEGENDS~~

~~Before a scientific and technical information (STI) product is released for announcement and availability, it is marked with any appropriate notices, restrictive legends, and distribution statements. Selection of the necessary markings is based on the Department of Energy (DOE) or contractor review of the STI, as described in Part II, Section 3 of the Guide. The various types of markings~~

follow:

1. NOTICES [pertaining to availability of information]

Applied Technology Correspondence Notice

The attachment contains applied technology information requiring conformance to U.S. Department of Energy program policy and the Applied Technology legend.

Copyright License

By acceptance of this article, the publisher and/or recipient acknowledges the U.S. Government's right to retain a nonexclusive, royalty free license in and to any copyright covering this paper.

Energy Science and Technology Software Center (ESTSC) Distribution

This computer software has been developed under sponsorship of the U.S. Department of Energy. Any further distribution or use by anyone other than the named licensee of this software package or any data contained therein, unless otherwise specifically provided for, is prohibited without the approval of the Energy Science and Technology Software Center. Requests for DOE developed computer software shall be directed to the Energy Science and Technology Software Center, P.O. Box 1020, Oak Ridge, TN 37831-1020.

Thesis (or Dissertation)

This document was prepared in partial fulfillment of the requirements for a Master of Science degree in Chemical Engineering from the University of Washington, Seattle, Washington. (fill in appropriate information)

UCNI Correspondence Notice

Not for Public Dissemination. The document transmitted herewith contains unclassified controlled nuclear information (UCNI). The bearer shall maintain physical control of the document or material while in use in a manner that prevents its unauthorized access. When not in use, any document or material marked as Acontains UCNI@ shall be stored in a locked drawer of a desk or repository or in a locked room. Further reproduction of the document or information to authorized individuals shall be permitted only to the extent necessary to carry out official duties. Any reproduced copies must bear all protection notices shown on the original.

2. DEFINITIONS AND RESTRICTIVE LEGENDS [limits the use of information]

Applied Technology

Applied technology is an unclassified category of information established by DOE's Office of Nuclear Energy, Science and Technology (NE) to preserve the foreign trade value of certain NE funded progress and topical reports containing engineering, development, design, construction, and operation information pertaining to particular programs [defined in guidance available from NE or the Office of Scientific and Technical Information (OSTI)], as designated by the cognizant NE program office. Such designation is indicated through contractual requirements or in the task orders under which such information is developed.

Documents/software identified as applied technology are given monitored, controlled distribution to domestic recipients, thereby retaining the foreign trade value of the information. By controlling access to applied technology, such information may be exchanged on a quid pro quo basis with other nations having formal agreements with the United States, consistent with the intent of 10 CFR Part 810 regulations.

Applied technology products, as defined by the Director, Office of Nuclear Energy, Science and Technology, do not include base technology information. Base technology information is defined as information reporting on a fundamental knowledge of nuclear technology but without any information related to engineering, design, construction, or operation of particular projects requiring major funding. Base technology is unlimited information and is not subject to distribution controls.

Products containing information designated as applied technology should clearly display the Applied Technology Restrictive Legend noted below and should be prominently marked with Distribution Statement D:

APPLIED TECHNOLOGY

Any further distribution by any holder of this product or data therein to third parties representing foreign interests, foreign governments, foreign companies, and foreign subsidiaries or foreign divisions of U.S. companies shall be approved by the [insert

appropriate NE Program Office officials], U.S. Department of Energy. Further, foreign party release may require DOE approval pursuant to 10 CFR 810, and/or may be subject to Section 127 of the Atomic Energy Act.

Use the following to fill in the appropriate NE program office officials in the blank in the statement above:

1.01 For information emanating from the Space and Defense Systems Power Program, the label should read, A Associate Director for Space and Defense Power Systems. @

1.02 For information emanating from the Naval Nuclear Propulsion Program, the label should read, A Associate Director for Naval Reactors. @

1.03 For information emanating from all other past and current programs, the label should read, A Associate Director for Technology. @

In coordination with NE, OSTI performs several information management functions, including maintaining the official distribution lists, coordinating approval for document and software requests, and recording designation removal. Performing these functions requires that OSTI receive applied technology information from document and software originators.

The OSTI official standard distribution lists that have been approved by the NE program office are considered to be the sole distribution for applied technology documents with the exception of internal recipients (not subcontractors or outside program participants). To accomplish this, originating sites submit applied technology documents to OSTI using DOE F 241.1 or DOE F 241.3, marked appropriately, as well as a list of internal and external distribution addresses to complete the official distribution record maintained on each applied technology document.

OSTI also maintains information on the status of designation removal per NE guidance.

DOE laboratories, contractors, and subcontractors are to relay external domestic and foreign requests for applied technology information to OSTI for disposition.

Applied technology information is not to be presented, referenced, or form the basis of presentations in technical society meetings or journals, meetings with foreign interests (except under pre-approved arrangements), referenced in non-applied technology documents, or other printed or electronic means without prior NE Program Office approval. This restriction includes not referencing information contained within an applied technology document, and also not referencing the report title or number.

Classified Scientific and Technical Information Products

The Atomic Energy Act of 1954, as amended, and Executive Order 12958 serve as the basis for identifying classified information generated by the Department. Classified information is defined as certain information that the United States Government has determined requires protection against unauthorized disclosure for reasons of national security (i.e., Restricted Data, Formerly Restricted Data, and National Security Information).

Procedures for the proper identification of classified information and subsequent marking of classified information products can be found in DOE M 475.1-1, *Identifying Classified*

Information. Requirements for marking classified documents can be found in DOE M 471.2-1C, *Classified Matter Protection and Control Manual*. An unclassified title and subtitle should be used if the subject matter can be indicated clearly. The classification level and category, including A unclassified, @ must be indicated on all titles and abstracts to classified products, in accordance with DOE M 475.1-1. Classified STI products generated within DOE should be clearly and prominently provided with an appropriate distribution limitation statement to ensure that recipients will subsequently handle the STI product appropriately (see also Attachment 7):

\$ For Secret/Restricted Data Sigma 1, 2, 11, 12, and 13 products, use distribution statement H.

\$ For Confidential/Restricted Data Sigma 1, 2, and 11 and all other non-Sigma Restricted Data products, use distribution statement G.

\$ For Non-weapon data Formerly Restricted Data and National Security Information products, use distribution statement F.

Classified STI products transmitted to OSTI are to be properly marked with the appropriate announcement and/or access limitations on the accompanying DOE F 241.1. The approved format for classified nuclear weapons information exchange with OSTI can be accessed through the Nuclear Weapons Information Group (NWIG) Internet home page.

Copyrighted Material

~~As described in Part II, Section 5.3.5, the originating site of the STI product needs to contact any copyright holders of earlier works that have been incorporated into the present material for permission to engage in any of the five practices below. If use of the earlier works would be exempted by the fair use provisions of the copyright law, no permission from the copyright holder would be required:~~

~~Material that is copyrighted may be subject to restrictions on~~

- ~~— reproduction (copying, either in paper or electronically);~~
- ~~— distribution, by sale or otherwise, in paper or electronically;~~
- ~~— the preparation of derivative works, including translations;~~
- ~~— public display of the material; and~~
- ~~— public performance of the material.~~

~~If the necessary permission is granted, OSTI needs to know whether the permission is for unlimited use, covers all possibilities, or whether it is limited. An example of limited use relevant to OSTI procedures would be a situation where the copyright holder will allow distribution and reproduction, but only for paper copies, not electronic distribution. Any restrictions on the five restrictions listed above should be described on DOE F 241.1, DOE F 241.3, or DOE F 241.4, as appropriate:~~

~~If the U.S. Government has been granted authority to reproduce, sell, distribute, or otherwise make the STI product available by virtue of contract language or otherwise, the following statement should appear on the cover or title page:~~

~~The U.S. Government is authorized to reproduce, sell, distribute, or otherwise make available this copyrighted work. Permission for further exercise by the recipient of any of the exclusive rights mentioned in 17 U.S.C. 106 must be obtained from the copyright owner.~~

~~A translation of a copyrighted work is itself a derivative work, and permission from the copyright owner of the original work should be secured before the work is translated and the translation is sent to OSTI:~~

~~Translations made from text published in a country signatory to the Geneva Copyright Convention should contain one of the following signed statements:~~

~~The U.S. Government has been authorized to reproduce, distribute, and sell this copyrighted work. Permission for further reproduction or distribution must be obtained from the copyright owner.~~

~~or~~

~~The original text is not copyrighted.~~

Declassified STI Products

~~Classified information products that have been declassified should also be reviewed by the originating site for unclassified but sensitive information. DOE M 475.1—1, *Identifying Classified Information*, requires organizations to submit bibliographic information and availability information to OSTI for every document that is declassified and determined to be publicly releasable:~~

~~To allow access to the widest audience possible, OSTI would like to receive a classification change notice whenever a classified STI product held by OSTI is declassified by the originating site or higher authority. It is requested that notices of declassification be accompanied by instructions/authority to publicly release or to further control access to the STI product, including the basis for further control. If OSTI has never received the original product, a copy of the declassified document is requested, along with the authorization for public release or control:~~

Export Controlled Information

~~Export Controlled Information (ECI) is information containing technical data as defined in and controlled by U.S. export control statutes. Appropriate laws, regulations, and requirements for ECI include the following:~~

- ~~— The Nuclear Nonproliferation Act of 1978~~

~~§ The Atomic Energy Act of 1954, as amended, and its implementation by Export and Import of Nuclear Material, Title 10, Code of Federal Regulations, Part 110, and Assistance to Foreign Atomic Energy Activities, Title 10, Code of Federal Regulations, Part 810~~

~~§ The Export Administration Act of 1979 and its implementation by the Export Administration Regulations, Title 15, Code of Federal Regulations, Parts 730–799~~

~~§ The Arms Export Control Act and its implementation by the International Traffic in Arms Regulations, Title 22, Code of Federal Regulations, Parts 120–128.~~

~~In accordance with Guidelines on Export Controls and Nonproliferation, issued by the Director of the Office of Nonproliferation and National Security, July 1999, ECI must be clearly identified to ensure appropriate handling of such information by potential recipients. Information designated as ECI is given controlled distribution to prevent unauthorized release to foreign countries, organizations, or individuals.~~

~~Such information to be released must be clearly marked in accordance with the following requirements:~~

~~§ Markings to be affixed to technical information determined to be ECI may vary depending on the needs and preferences of site or program managers. The preferred format is the Export Controlled Information Restrictive Legend noted below:~~

~~EXPORT CONTROLLED INFORMATION~~

~~Contains technical data whose export is restricted by statute. Violations may result in administrative, civil, or criminal penalties. Limit dissemination to U.S. Department of Energy and major U.S. DOE contractors. The cognizant program manager must approve other dissemination. This notice shall not be separated from the attached document.~~

~~_____
Reviewer Signature _____ Date~~

~~§ Products containing ECI must be clearly marked AEXPORT CONTROLLED INFORMATION@ at the top and bottom of each page containing ECI.~~

~~§ Products containing ECI should be clearly marked with Distribution Statement D.~~

~~Naval Nuclear Propulsion Information~~

~~Naval Nuclear Propulsion Information is controlled in accordance with (50 U.S.C. 2406). Naval Nuclear Propulsion Information, unclassified or classified, may be released publicly or for dissemination to foreign governments, foreign nationals, or any individual or activity not engaged in work for the naval reactors program only with the specific approval of the Deputy Administrator of the Office of Naval Reactors.~~

~~Official Use Only Information~~

~~For guidance concerning Official Use Only Information, consult your site or field office technical information office, Freedom of Information Act office, classification office, or legal counsel. For additional consultation, contact the OSTI Classification and Control Officer. Products identified as containing Official Use Only Information should be clearly marked with Distribution Statement C.~~

~~Patent Caution~~

~~To comply with U.S. Patent Law (35 U.S.C. 205), Federal contractors must safeguard information that discloses any invention when patent rights for the invention will belong to the Federal Government. Federal agencies are authorized to withhold from disclosure to the public, information disclosing any invention in which the Federal Government may own a right, title, or interest, for a reasonable length of time so that a patent application can be filed.~~

~~In accordance with U.S. Patent Law (35 U.S.C. 205), products containing potentially patentable information must clearly display the Patent Caution Restrictive Legend below; the document should be clearly and prominently marked with Distribution Statement B:~~

~~PATENT CAUTION~~

~~This product may contain patentable subject matter protected from unauthorized disclosure under U.S. Patent Law (35 U.S.C. 205). No further dissemination outside of the Government without the approval of the Assistant General Counsel for Intellectual~~

~~Property, U.S. Department of Energy.~~

~~Proprietary Data~~

~~Proprietary data that arise from DOE financial assistance agreements are controlled in accordance with Title 48, Code of Federal Regulations, Part 952.227, Printing, and Title 5, U.S.C. 552, Freedom of Information Act of 1974. Proprietary data that arise from DOE contracts involving Alimited rights data@ or Arestricted computer software@ are defined and controlled in accordance with FAR 52.227-14 and Title 5, U.S.C. 552, Freedom of Information Act of 1974.~~

~~In accordance with 48 CFR 952.227 and 5 U.S.C. 552, products containing proprietary data arising from DOE contracts or financial assistance agreements must clearly display the Proprietary Data Restrictive Legend noted below; the document should be clearly and prominently marked with Distribution Statement B. The restrictive marking, APROPRIETARY DATA@ must be placed at the top and bottom of each page containing proprietary information:~~

~~PROPRIETARY DATA~~

~~This technical data contains proprietary data furnished under contract no. ____ with the U.S. Department of Energy. Disclosure outside the Government is not authorized without prior approval of the originator, or in accordance with provisions of 48 CFR 952.227 and 5 U.S.C. 552.~~

~~Proprietary data must not be included in any abstract prepared and submitted before the information is announced for availability; the abstract must be suitable for publication.~~

~~Protected Battery Information~~

~~In accordance with Public Law 102-381, Title II, 106 Stat. 1405, products containing Protected Battery Information must be clearly marked with the Protected Battery Information Restrictive Legend below to prevent disclosure of such information; products so identified should be clearly and prominently marked with Distribution Statement E:~~

~~PROTECTED BATTERY INFORMATION~~

~~This product contains Protected Battery Information which was produced under Contract/CRADA No. _____ and is not to be further disclosed for a period of up to five years after the completion of the individual project, or not prior to ____[date]____.~~

~~Protected Cooperative Research and Development Agreement Information~~

~~Protected Cooperative Research and Development Agreement (CRADA) information is information produced in the performance of a CRADA that is marked as being Protected CRADA Information by a party to the agreement and that would have been proprietary information had it been obtained from a non-Federal entity. Protected CRADA information may be protected for a period up to 5 years from the date it was produced except as expressly provided for in the CRADA. _____~~

~~In accordance with DOE M 483.1, products that contain information that is protectable under the terms of a CRADA must clearly display the Protected CRADA Information Restrictive Legend noted below to prevent disclosure of such information; the document should be clearly and prominently marked with Distribution Statement E:~~

~~PROTECTED CRADA INFORMATION~~

~~This product contains Protected CRADA Information which was produced on ____[date]____ under CRADA No. _____ and is not to be further disclosed for a period of _____ from the date it was produced except as expressly provided for in the CRADA.~~

~~In accordance with DOE M 483.1, proprietary data or Protected CRADA data must not be included in any abstract prepared and submitted before the information is announced for availability; the abstract must be suitable for publication.~~

~~Small Business Innovation Research and Small Business Technology Transfer~~

~~In accordance with implementing regulations, Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) may be protected for a period of 4 years from the completion of the project, unless written permission to disclose such data earlier is obtained from the contractor or grantee:~~

~~To protect STI products (i.e., to limit distribution), the SBIR or STTR products should be clearly marked as containing SBIR or STTR proprietary information; the document should be clearly and prominently marked with Distribution Statement B. The DOE F~~

~~241.3 should be marked accordingly:~~

~~**Unclassified Controlled Nuclear Information**~~

~~Dissemination of Unclassified Controlled Nuclear Information (UCNI) is prohibited under Section 148 of the Atomic Energy Act of 1954, as amended. UCNI is identified and controlled as directed in DOE O 471.1A, *Identification and Protection of Unclassified Controlled Nuclear Information*, and in Title 10, Code of Federal Regulations, Part 1017, *Identification and Protection of Unclassified Controlled Nuclear Information*.~~

~~Products containing information designated as UCNI must clearly display the markings prescribed in DOE O 471.1A, *Identification and Protection of Unclassified Controlled Nuclear Information*; the document must be clearly and prominently marked with Distribution Statement D. The marking, *AUnclassified Controlled Nuclear Information@* or *AUCNI@* must be placed on the bottom of the front of the matter and (1) on the bottom of each interior page of the matter or (2) if more convenient, on the bottom of only those interior pages that contain UCNI.~~

~~DOE O 471.1A states that any information product Athat contains UCNI must be marked so that both a person in physical possession of the matter (e.g., markings on a viewgraph frame, a film reel and its container) and a person with access to the information in or on the matter (e.g., markings on the projected image of a slide, a warning on a film leader) are made aware that it contains UCNI. When space is limited, as on a 35-millimeter slide, the marking, *>UCNI=* will suffice. @ (from DOE O 471.1A).~~

~~A non-UCNI title and subtitle should be used for an UCNI information product whenever possible. The title should indicate whether the title does or does not contain UCNI.~~

TYPICAL COVER FOR TECHNICAL REPORTS

Preferred Location

DOE STI Product/Report Number

DOE/FE/12345--1

STI Product Title

FEASIBILITY STUDY FOR ADVANCED
TECHNOLOGY IN COAL CONVERSION AND
UTILIZATION

STI Product Type and
Reporting Period

Semiannual Report for the Period July-December 1999

Date of Issuance or Publication

February 2000

Author

John G. Jones

Originating Research Organization

FOSSIL SCIENCES, INC.
Waco, Texas 78203

Information Category

PATENT CAUTION
This product may contain patentable subject matter protected
from unauthorized disclosure under U.S. Patent Law (35
U.S.C. 205). No further dissemination outside of the
Government without the approval of the Assistant General

Distribution Statement

Counsel for Intellectual Property, U.S. Department of Energy.

Distribution B - Further dissemination authorized to U.S. Government agencies only; other requests shall be approved by the originating facility or higher DOE programmatic authority.

TYPICAL TITLE PAGE FOR TECHNICAL REPORTS

Preferred Location

DOE STI Product/Report Number

DOE/FE/12345-1

STI Product Title

FEASIBILITY STUDY FOR ADVANCED
TECHNOLOGY IN COAL CONVERSION AND
UTILIZATION
Phase 1

STI Product Type and Reporting Period

Semiannual Report for the Period July-December 1999

Date of Issuance or Publication

Date Issued/Published February 2000

Author

John G. Jones

Sponsoring Organization

PREPARED FOR THE UNITED STATES
DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY

Award/Contract/Financial Number

Work Performed Under Contract No. AC02-99FE12345

DISCLAIMERS

Disclaimers are to be used on all DOE STI products. The following are standard disclaimers to be used as appropriate. Please note that some contracts may include alternative disclaimers for use on STI Products. ~~The following are standard disclaimers to be used as appropriate.~~

FULL LEGAL DISCLAIMER

This ~~work report~~ was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the

results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

- ACCEPTABLE ALTERNATIVE:

- This work was prepared under an agreement with and funded by the U.S. Government. Neither the U. S. Government or its employees, nor any of its contractors, subcontractors or their employees, makes any express or implied: 1. warranty or assumes any legal liability for the accuracy, completeness, or for the use or results of such use of any information, product, or process disclosed; or 2. representation that such use or results of such use would not infringe privately owned rights; or 3. endorsement or recommendation of any specifically identified commercial product, process, or service. Any views and opinions of authors expressed in this work do not necessarily state or reflect those of the United States Government.

TRADEMARK DISCLAIMER

Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

AVAILABILITY STATEMENTS FOR UNCLASSIFIED, UNLIMITED STI PRODUCTS

National Technical Information Service (NTIS):

Available for sale to the public from C

U.S. Department of Commerce
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Telephone: 800-553-6847
Facsimile: 703-605-6900
E-mail: orders@ntis.fedworld.gov
Online ordering: <http://www.ntis.gov/ordering.htm>

OSTI:

Available electronically at <http://www.osti.doe.gov/bridge>.

Available for a processing fee to U.S. Department of Energy and its contractors, in paper from C

U.S. Department of Energy
Office of Scientific and Technical Information
P.O. Box 62
Oak Ridge, TN 37831-0062
Telephone: (865) 576 8401
Facsimile: (865) 576-5728
E-mail: reports@adonis.osti.gov

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Neither the United States Government, its agencies, or its employees make any express or implied warranty, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference to any specific commercial product, process, or services by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government, its agencies, or employees acting in its behalf.

Software Disclaimer (use at discretion of Site Legal Counsel):

This material was prepared as an account of work sponsored by an agency of the United States Government. Neither the United

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J	Classified: Sigma 14 and/or Sigma 15

**SUBJECT CATEGORIES
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Subject Categories	
01	Coal, Lignite, and Peat. Information supporting research on coal and coal products, including lignite and peat, should be included in this category. As energy sources, research in these areas includes reserves, geology and exploration; mining; preparation; processing; products and by-products; properties and composition; combustion; transport, handling and storage; waste management; environmental aspects; health and safety; legislation and regulations; and economic, industrial, and business aspects.
02	Petroleum. Information supporting research on petroleum is covered in this category. As an energy source, research in this area includes reserves, geology, and exploration; drilling and production; processing; products and by-products; properties and composition; combustion; transport, handling, and storage; waste management; environmental aspects; health and safety; legislation and regulations; and economic, industrial, and business aspects.
03	Natural Gas. Information supporting research on natural gas including liquefied natural gas is covered in this category. As an energy source, research in this area includes reserves, geology, and exploration; drilling, production, and processing; products and by-products (e.g., LPG); properties and composition; combustion; transport, handling, and storage; waste management; environmental aspects; health and safety; legislation and regulations; and economic, industrial, and business aspects.
04	Oil Shales and Tar Sands. Information supporting research on oil shales and tar sands should be included in this category. As an energy source, research in this area includes reserves, geology, and exploration; drilling, fracturing, and mining; oil production, recovery, and refining; products and by-products; properties and composition; combustion; transport, handling, and storage; waste management; environmental aspects; health and safety; legislation and regulations; and economic, industrial, and business aspects.
07	Isotopes and Radiation Sources. Information in the isotope and radiation source technology area includes physical isotope separation; radiation sources; isotopic power supplies; economic, industrial, and business aspects; health and safety; environmental aspects; and regulation and

	licensing.
08	Hydrogen. This renewable energy area includes hydrogen production; products and by-products; properties and composition; combustion; storage, transport, and handling; waste management; environmental aspects; health and safety; legislation and regulations; and economic, industrial, and business aspects.

Subject Categories (continued)	
09	Biomass Fuels. This renewable energy area covers energy crops and wastes used directly as fuels, e.g., wood, straw, municipal wastes; fuels derived from energy crops and wastes, e.g., methane, ethane, ethanol; and biogas from sanitary landfills. Aspects include resources; production; processing; products and by-products; properties and composition; combustion; storage, transport and handling; waste management; environmental aspects; health and safety; legislation and regulations; and economic, industrial, and business aspects.
10	Synthetic Fuels. This renewable energy area includes fuels produced by chemical synthesis, e.g., inorganic hydrogen compound fuels, town gas, etc. Aspects include production; properties and composition; combustion; products and by-products; storage, transport and handling; waste management; environmental aspects; health and safety; legislation and regulations; and economic, industrial, and business aspects.
11	Nuclear Fuel Cycle and Fuel Materials. This category includes information on the nuclear fuel cycle except for fuel element design, assembly, and performance and waste management. It includes reserves, exploration, and mining; feed processing; uranium enrichment; fuels production and properties; spent fuels reprocessing; transport, handling, and storage; environmental aspects; health and safety; legislation and regulations; and economic, industrial, and business aspects.
12	Management of Radioactive Wastes, and Nonradioactive Wastes from Nuclear Facilities. This category includes the treatment, transport, storage, disposal, safety, and legal aspects of radioactive wastes and spent fuels. It includes processing, disposal, interim or ultimate storage of radioactive wastes, including transmutation technology; processing and disposal of non-radioactive wastes generated by nuclear facilities; radioactive waste treatment plants, structures, and equipment; and tritium processing, containment, and recovery.
14	Solar Energy. This renewable energy area includes conversion of solar radiation to useful amounts of electric energy, use of solar energy for heating and cooling, or any other use of solar energy that might contribute to the total energy budget. All technical aspects of the design, research and development, manufacture, testing, and operation of solar cells and solar collectors are included along with photovoltaic power systems, solar thermal power systems, ocean energy systems and solar thermal use. Also includes materials with indicated utility in solar cells or solar converters. Aspects include resources and availability; environmental aspects; solar energy conversion; heat storage; health and safety; legislation and regulations; and economic, industrial, and business aspects.
15	Geothermal Energy. This renewable energy area includes aspects of geothermal resources and availability; geology and hydrology of geothermal systems; geothermal exploration and exploration technology; products and by-products; geothermal power plants; geothermal engineering; direct energy use; geothermal data and theory; waste management; environmental aspects; health and safety; legislation and regulations; and economic, industrial, and business aspects.
16	Tidal and Wave Power. This renewable energy area includes the aspects of tidal and wave power resources and availability; tidal power plants and power conversion systems; wave energy converters; environmental aspects; health and safety; legislation and regulations; and economic, industrial, and business aspects.
17	Wind Energy. This renewable energy area includes the aspects of wind resources and availability; wind energy engineering including applications, turbine design and operation, and power-conversion systems; environmental aspects; health and safety; legislation and regulations; and economic, industrial, and business aspects.
20	Fossil-Fueled Power Plants. This category is primarily for utility-size fossil-fueled power plants. Routine aspects of power plant hardware use are not included, but new designs, developments, and technologies are appropriate. This hardware includes fuses, motors, turbines, generators, and standard electrical components. Aspects include components and operation of power plants and power generation; waste management; environmental aspects; health and safety; legislation and regulations; and economic, industrial, and business aspects.
21	Specific Nuclear Reactors and Associated Plants. This area covers the design, development,

	construction, and operation of specific fission reactors. Types of reactors include power (both non-breeding and breeding), mobile, package, transportable, research, production, and propulsion reactors. Aspects of related safety, regulation, licensing, economics, and environmental impacts are included.
22	General Studies of Nuclear Reactors. This area covers general studies of reactor physics and engineering of reactors of unspecified type. Aspects of reactors and their accessories and components (fuel elements, control systems, etc.), environmental impacts, and safety are also included.
24	Power Transmission and Distribution. The area of power transmission and distribution includes the design, development, and new technologies of power systems and power transmission from any source. Hardware includes transformers, switchgear, converters, and cables. Aspects include power systems; power system networks, transmission, and distribution; power transmission lines and cables; environmental aspects; health and safety; legislation and regulations; and economic, industrial, and business aspects.
25	Energy Storage. Methods for storing energy in a readily recoverable form for later use are covered in this area. Such methods may be mechanical, chemical, electromagnetic, or thermal, and include magnetic energy storage, compressed and liquefied gas, capacitor banks, flywheels, thermal energy storage, and chemical energy storage, e.g. batteries. Aspects include environmental aspects; health and safety; legislation and regulations; and economic, industrial, and business aspects.
29	Energy Planning, Policy and Economy. This area is for information dealing with all aspects of energy planning, policy, and policy analysis. Planning and policy aspects covered include organizational aspects; regulations and legislation; conservation and consumption of energy resources; supply and demand; economic evaluations and cost comparisons; shortages, including blackouts and brownouts; long- and short-term planning; research, development, demonstration, and commercialization in new technology; total energy systems; district heating and cooling; combined cycles in energy management; energy transport, e.g., pipelines; and liquid hydrogen. Aspects also include energy analysis and modeling; economics and sociology; environment, health, and safety; nuclear energy; transport and storage; heat use; and policy aspects of fossil fuels, hydrogen and synthetic fuels, electric power, and unconventional sources and power generation.

Subject Categories (continued)

30	Direct Energy Conversion. This area includes methods and devices for converting heat or other forms of energy into electrical energy without intermediate conversion into mechanical work. Aspects include MHD generators; EHD generators; thermoelectric generators; thermionic generators; fuel cells; and miscellaneous converters.
32	Energy Conservation, Consumption, and Use. This area includes information on equipment and methods to reduce energy consumption, increase energy efficiency, or enable the substitution of more plentiful or environmentally favorable energy sources. The area includes energy conservation within buildings, in transportation, in industry and agriculture, and within municipalities and communities.
33	Advanced Propulsion Systems. This area has design and development of advanced propulsion systems for automobiles, buses, trucks, ships, aircraft, and trains. e.g., power plants, components, and devices that promise better fuel economy, less maintenance, and increased service life; more-efficient power cycles; better emission-control devices; and feasibility studies on the use of alternative fuels such as hydrogen or alcohol fuels. Aspects include internal combustion engines; external combustion engines; electric-powered systems; hybrid systems; flywheel propulsion; vehicle design factors; emission control; and alternative fuels.
36	Materials Science. The Materials Science subject area provides information on materials research associated with energy production, conversion, or use or with studying radiation effects on materials. Studies of metals, alloys, ceramics, cermets, refractories, composites, polymers, plastics and other materials included here.
37	Inorganic, Organic, Physical, and Analytical Chemistry. Chemical information useful to researchers in an energy-related area of analytical and separations chemistry; inorganic, organic, and physical chemistry; electrochemistry; photochemistry; and combustion, pyrolysis and high-temperature chemistry is provided in this subject area. Isotope effects on properties of elements and compounds and isotope exchange are also categorized here. Both basic and applied areas of energy-related chemistry are included.
38	Radiation Chemistry, Radiochemistry, and Nuclear Chemistry. Hot-atom chemistry (chemical reactions of atoms or ions of high kinetic energy (more than 1 eV) resulting from

	nuclear transformations), properties of radioactive materials, preparation of radioactively labeled compounds (including chemical separation and preparation of radioisotopes), and radiation chemistry (radiation-induced chemical reactions, G value determination, chemical radiation effects on solids, liquids, and gases) are included in this category.
42	Engineering. This subject area encompasses general engineering information directly related to energy, including facilities, equipment and techniques; heat transfer and fluid flow; materials testing; combustion systems; mining and underground engineering; marine engineering; power cycles; components, electron devices and circuits; and peaceful uses of nuclear explosions.
43	Particle Accelerators. Information to support the design, development, operation and components of particle accelerators used in energy research should be included in this category. Topics include beam dynamics, field calculations, and ion optics; auxiliaries and components; and storage rings.
Subject Categories (continued)	
45	Military Technology, Weaponry, and National Defense. This category includes information related to national defense. Aspects of conventional and nuclear weapons such as chemical explosions and explosives; nuclear explosions and explosives; nuclear explosion detection; nuclear and radiological warfare; strategic defense initiative; and chemical and biological warfare are covered.
46	Instrumentation Related to Nuclear Science and Technology. This category includes particle and radiation detectors and monitors (such as radiation dosimeters, nuclear spectroscopic instrumentation, high-energy physics instrumentation, and radiometric instruments) as well as other nuclear science-related instrumentation such as flowmeters, pressure gages, and heat sensors. Radiation effects on instruments and electronic systems are also categorized here.
47	Other Instrumentation. Instrumentation associated with energy research and energy source exploitation, including instruments used in well logging and in thermal, optical, geophysical, meteorological, and miscellaneous applications is covered in this area. [Instrumentation related to nuclear science and technology can be found in category 46.]
54	Environmental Sciences. The environmental sciences subject area is defined as information on the effects of any energy-related activity on the environment, on methods for mitigating or eliminating adverse effects, and on technical aspects of ensuring that energy-related activities are environmentally safe and socially acceptable. This area covers all aspects of global climate change. Monitoring and transport of chemicals, radioactive materials and thermal effluents within the atmospheric, terrestrial and aquatic environs are covered.
58	Geosciences. This area is limited to providing information to support research in geosciences where the context of the work is energy technology. Aspects of geology, geography, seismology and geochemistry are covered when energy related.
59	Basic Biological Sciences. This area includes studies of living organisms and components of living organisms; identification of functions, activities, and phenomena associated with these organisms; and studies to establish norms from which effects of energy production, conversion, or use can be determined. Topics include behavioral biology; biochemistry; cytology; genetics; metabolism; microbiology; morphology; pathology; and physiological systems.
60	Applied Life Sciences. The following topics are in the applied life sciences area: plant cultivation and breeding (crop and plant improvement by development of mutants, plant nutrition, metabolism, fertilizer use, irrigation studies, assessment of seed quality, stimulation of plant growth); pest and disease control related to human, animal, and plant parasitic diseases, to pathogens, and to disease transmission; procedures in vaccine production and reactions of organisms to such vaccines; pest ecology, pesticides, and insect control; food protection, preservation, and human nutrition evaluation (procedures for food and animal feed, extension of storage life, disinfection, food quality and monitoring); and animal husbandry (nutrition, metabolism, and breeding of domestic animals, veterinary science). The use of radiation in the above contexts is included.
Subject Categories (continued)	
61	Radiation Protection and Dosimetry. This subject area includes radiation protection standards dealing with the presence of radioactive materials or with the operation of reactors or other nuclear equipment or facilities; radiation protection procedures to provide radiation protection, decontamination, and prevention of contamination; and dosimetry and monitoring of patients and medical personnel (population dose estimates; collective dose and dose commitment (from background radiation, radiation accidents, medical or industrial use of radioisotopes and ionizing radiation, or contaminated food); absorbed doses in man, animals, plants, and other

	biological systems, as well as tissue-equivalent materials and phantoms). Also included in this category are legal aspects of protecting personnel, the public, and the environment against contamination.
62	Radiology and Nuclear Medicine. The use of external radiation and radioisotopes in diagnosis and therapy is categorized here. Radiations include x rays, bremsstrahlung, gamma rays, neutrons, and charged particles. The use of stable isotopes in diagnostic procedures as well as other medical techniques are included in this subject area.
63	Radiation, Thermal, and Other Environmental Pollutant Effects on Living Organisms and Biological Materials. This area includes studies of the effects of nuclear particles, accelerated electrons and ions, gamma rays or x rays on living organisms, including cells, microorganisms, or biochemicals; of ultraviolet light effects on microorganisms, cells, or biochemicals; effects of thermal effluents from energy production, use, or conservation, or other similar thermal discharges on living organisms; metabolism and toxicology of chemicals associated with an energy cycle; effects of noise produced in energy production, conversion, or use; effects from global climate changes; and health hazards from any energy-related activities.
70	Plasma Physics and Fusion Technology. This subject area includes aspects of plasma physics and fusion including plasma production, kinetics, processes and confinement. Fusion technology, specifically fusion devices and systems, is also covered within this area.
71	Classical and Quantum Mechanics, General Physics. Aspects of physics included here are classical mechanics of interest for energy science and technology, general aspects of quantum mechanics and scattering theory, basic cryogenic studies, vacuum production and techniques at cryogenic temperatures, beam production and transport of beams (electron, neutron, ion, atomic, and molecular) not for specific applications, non-isotopic sources (electron, neutron, ion) not developed for specific applications, and other physical sciences such as statistical physics, thermodynamics, electricity and magnetism, electrodynamics, optics, acoustics, etc.
72	Physics of Elementary Particles and Fields. The physics of elementary particles and fields includes the theory of fields and strings; Schwinger source theory; Bethe-Salpeter equations; relativistic wave equations; symmetry; conservation laws; currents and their properties; S-matrix theory; Regge formalism; relativistic scattering theory; unified theories and models; quantum electrodynamics (QED); quantum chromodynamics (QCD); models for strong interactions; studies of specific particle interactions, decays, and processes; and properties of specific particles and resonances.
Subject Categories (continued)	
73	Nuclear Physics and Radiation Physics. This subject category includes the properties of nuclei and nuclear energy levels, nuclear structure models and methods, nuclear radioactivity and electromagnetic transitions, and nuclear reactions and scattering. It also includes the physics of nuclear and elementary particles as they interact with and pass through bulk matter.
74	Atomic and Molecular Physics. In this category are found documents on the electronic structure and energy-level transitions of atoms and molecules; atomic and molecular spectra; interactions of atoms and molecules with photons; collision phenomena (for collisions of electrons, ions, atoms, and molecules with one another); and properties of atoms and molecules, including positronium, muonium, muonic and mesic atoms and molecules, and hyperonic atoms and molecules.
75	Condensed Matter Physics, Superconductivity, and Superfluidity. The following topics are categorized here: advances in the use of nuclear techniques or measurement methods in studies of the structure of solids and liquids; solid-state plasma; physics of surfaces, interfaces, and thin films; interactions of beams (photons, electrons, positrons, neutrons, ions, atoms, and molecules) with condensed matter, where the interest is in the effect itself at the microscopic level and not in the material in which it takes place; Auger emission; sputtering; and quantum physics aspects of condensed matter (superconductivity, superconducting devices, superfluidity, etc.)
98	Nuclear Disarmament, Safeguards, and Physical Protection. The arms control area includes information on negotiations and treaties to reduce weapon stockpiles, on limiting the spread of weapon technologies, and on verification of compliance with such agreements. Aspects include policy, negotiations, and legislation; proliferation; verification (including remote and on-site inspections); physical protection; nuclear safeguards; and nuclear materials management.
99	General and Miscellaneous//Mathematics, Computing, and Information Science. This section is intended to support research interests by energy organizations in the disciplines of mathematics, computing and information science, and general law. Research in these areas includes supercomputing, mathematical and computer modeling, computer programming, and information systems. Generally, this research supports some facet of energy technology.

**SUBJECT CATEGORIES
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C-24	Gas Centrifuge Method of Uranium Isotope Separation
C-27	Plutonium Isotope Separation
C-29	Uranium Atomic Vapor Laser Isotope Separation
C-44c	Nuclear Technology-Production Reactor Engineering and Technology
C-52	Gaseous Diffusion Process of Isotope Separation
C-57	Tritium Production
C-65	Plutonium Production
C-68	Safeguards and Security
C-72	Weapon Data
C-73	Nuclear Weapons Effects
C-74	Nuclear Weapon-Related Engineering, Instrumentation, and Materials
C-74a	Laser and Particle Beam Fusion
C-75	General, Miscellaneous, and Progress Reports
C-81	Directed Energy Weapon Technology
C-82	Special Features of Naval Reactors
C-860	Other Isotope Separation Technology
C-870	Space and Defense Reactor Power Systems
C-880	Arms Control

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