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**Civilian Radioactive Waste Management System
Management & Operating Contractor**

**LICENSING SYSTEM NETWORK
FUNCTIONAL REQUIREMENTS**

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DRAFT A

April 1998

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EXECUTIVE SUMMARY

The *Licensing Support System Phase 2 Functional Requirements* (CRWMS M&O 1995) was issued for review in June 1995. Since that time, 10 *Code of Federal Regulations* (CFR) 2 Subpart J has been revised and is in review. The revised rule introduces a concept of distributed data stored by each participant and accessed through the Internet—called the Licensing Support Network (LSN)—instead of the previously envisioned centralized data repository called the Licensing Support System (LSS).

LSN will maintain the primary functions of LSS as a mechanism for the following:

- Discovery of documents before the license application is filed
- Electronic transmission of filings by the parties during the proceeding
- Electronic transmission of orders and decisions related to the proceeding
- Access to the electronic version of the docket

The purpose of this document is to define LSN requirements by updating the draft LSS Phase 2 requirements document, using the rule as it is currently revised and the LSS Advisory Review Panel agreements as a basis. The revised 10 CFR 2 Subpart J describes several key system requirements at a high level. When combined with the previously developed requirements document, a set of requirements may be generated that will allow the LSN components to be developed and implemented. From the LSN requirements, requirements for the Full-Text Search and Retrieval System and the Online License Application can be developed. The Full-Text Search and Retrieval system is a component of the Records Management System.

The concept of operations and the relationship among the LSN, the official program records residing in the Record Information System, the Technical Database Management System, the Technical Library System, the Full-Text Search and Retrieval System, and the Online License Application are described in Section 2.

The revised rule requires that all potential parties make their documentary material available in electronic form to all other participants beginning in the prelicense application period.

The prelicense application period begins on the date the President submits the Yucca Mountain site recommendation to the U.S. Congress. The U.S. Department of Energy and the Nuclear Regulatory Commission may be required to provide access to their documentary material before the time expressed in the revised rule. Some of the LSS Advisory Review Panel members have requested that access to the documentary material be provided as soon as the material is available. The NRC and DOE may be requested have their documentary material made available through the Internet as early as April of 1999. When the U.S. Department of Energy submits the License Application, a copy of the Online License Application without the Internet hypertext tags will be delivered to NRC. In addition, the DOE will send copies of images, text, and headers of records supporting the License Application.

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ACRONYMS AND ABBREVIATIONS

ARP	Advisory Review Board
ATDT	Automated Technical Data Tracking
CFR	<i>Code of Federal Regulations</i>
DOE	U.S. Department of Energy
DTN	data tracking number
EIS	Environmental Impact Study
GENISES	Geographic Nodal Information Study and Evaluation System
GI	Geographic Information
HTML	Hypertext Markup Language
JPEG	Joint Photographic Experts Group
LSS	Licensing Support System
LSN	Licensing Support Network
LSSARP	Licensing Support System Advisory Review Panel
LWR	thermal light-water-cooled reactor
NRC	Nuclear Regulatory Commission
PLAPO	Prelicense Application Presiding Officer
QA	Quality Assurance
RDMS2	Records Data Management System 2
RIB	Reference Information Base
RIS	Records Information System
RMS	Records Management System
SEP	Site and Engineering Properties
TDMS	Technical Database Management System
TechLib	Technical Library System
TIC	Technical Information Center
TIFF	Tagged Image File Format
ToC	Table of Contents
WBS	Work Breakdown Structure

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1. INTRODUCTION

The Civilian Radioactive Waste Management Program in Las Vegas, Nevada, is based on a strategy of emplacing high-level radioactive waste in a permanent underground geologic disposal facility. The license to construct this potential repository at Yucca Mountain in Nevada must be issued by the Nuclear Regulatory Commission (NRC) in a process described in 10 *Code of Federal Regulations* (CFR) Part 2 and related regulations.

NRC has proposed amending its Rules of Practice for the licensing proceeding on high-level radioactive waste at a geologic repository. The proposed amendments are intended to allow application of technological developments that have occurred since the 1986 technology on which the original Licensing Support System (LSS) was to be based. The amendments would achieve the original goals of facilitating NRC's compliance with the schedule for decision on construction authorization for the repository [contained in Section 114(d) of the Nuclear Waste Policy Act] and provide for a thorough technical review of the license application and equitable access to information for the parties to the hearing.

The *Licensing Support System Phase 2 Functional Requirements* (CRWMS M&O 1995) was issued for review in June 1995. Since that time, 10 CFR 2 Subpart J has been revised and is currently in review. The revised rule introduces a concept of distributed data stored by each participant and accessed through the Internet—called the Licensing Support Network (LSN)—instead of the previously envisioned centralized data repository called LSS.

LSN will maintain the primary functions of LSS as a mechanism for the following:

- Discovery of documents before the license application is filed
- Electronic transmission of filings by the parties during the proceeding
- Electronic transmission of orders and decisions related to the proceeding
- Access to the electronic version of the docket

1.1 PURPOSE OF DOCUMENT

The purpose of this document is to define LSN requirements by updating the draft LSS Phase 2 requirements document using the rule as it is currently revised and LSS Advisory Review Panel (ARP) agreements as a basis. The revised 10 CFR 2 Subpart J describes several key system requirements at a high level. When combined with the previously developed requirements document, a set of requirements may be generated that will allow the LSN components to be developed and implemented. From the LSN requirements, requirements for the Full-Text Search and Retrieval System and the Online License Application can be developed. The Full-Text Search and Retrieval system is a component of the Records Management System (RMS).

1.2 DOCUMENT ORGANIZATION

This document is divided into two main parts: the Full-Text Search and Retrieval System of the official program records and the Online License Application that will be delivered to the NRC.

The concept of operations and the relationship of the official program records residing in the Record Information System, the Technical Database Management System, the Technical Library System, the Full-Text Search and Retrieval System, and the Online License Application are described in Section 2.

1.3 REQUIREMENTS STATEMENT FORMAT

References made to previous LSS requirements will be identified with the following format:

LSS2-*nnn* Short Title. LSS shall ...(Requirements statement). [LSS1-*nnn*]

Comment: Text of the comment.

Each requirement is identified by a unique alphanumeric sequence: **LSS2-*nnn***, where **LSS2-** indicates a Phase 2 LSS requirement, and “**n**” is a digit from 0 to 9.

The bracketed identifier at the end of the statement, [LSS1-*nnn*] references the parent requirement in the LSS Phase 1 requirements. See Appendix A, Phase 1 LSS Requirements.

Previously identified requirements that are to remain with LSN will use the same numbering system as defined in the Phase 2 LSS Requirements document. Previously identified requirements that do not apply to LSN are deleted. New requirements are identified with a unique alphanumeric sequence: **LSN-*nnn***.

2. CONCEPT OF OPERATIONS

This section describes the functionality that LSN will provide, who the users will be, when and where the system will be available, and how the system will be used. This section explains the anticipated use of LSN as a basis for understanding the requirements defined in Sections 3 and 4.

2.1 LSN CONFIGURATION

Figure 2-1 shows LSN and the relationship between the NRC Electronic Docket and the U.S. Department of Energy (DOE) Table of Contents (ToC) during the prelicense application period. The DOE Online License Application is available on the Internet from the NRC Electronic Docket via the ToC. In addition, users may select the Technical Database Management System (TDMS) or RMS directly from the ToC. Both the TDMS and RMS contain documentary material that supports the Online License Application.

The revised rule requires that all potential parties make their documentary material available in electronic form to all other participants beginning in the prelicense application period. Documentary material is defined as the material upon which a party intends to rely in support of its position in the license proceeding; any material that is relevant to, but does not support, that material or that party's position; and all reports and studies, prepared by or on behalf of the potential party, interested governmental participant, or party, including all related "circulated drafts," relevant to the issues set forth in the Topical Guidelines in Regulatory Guide 3.69, regardless whether they will be relied upon and/or cited by a party. A responsible official for each potential party will be required to certify to the Prelicense Application Presiding Officer (PLAPO) that the party has complied with the requirement to provide electronic access to their documentary material.

The prelicense application period begins on the date the President submits the Yucca Mountain site recommendation to the U.S. Congress. DOE and NRC may be required to provide access to their documentary material before the time expressed in the revised rule under review. LSSARP has requested that access be provided as soon as the material is available. The panel is considering April 1999 for having documentary material available through the Internet. When DOE submits the License Application, a copy of the Online License Application will be delivered to the NRC without the hypertext markup language (HTML) tags. In addition, the DOE will send copies of images, text, and headers of records supporting the License Application to the NRC. The following sections discuss the various components of LSN.

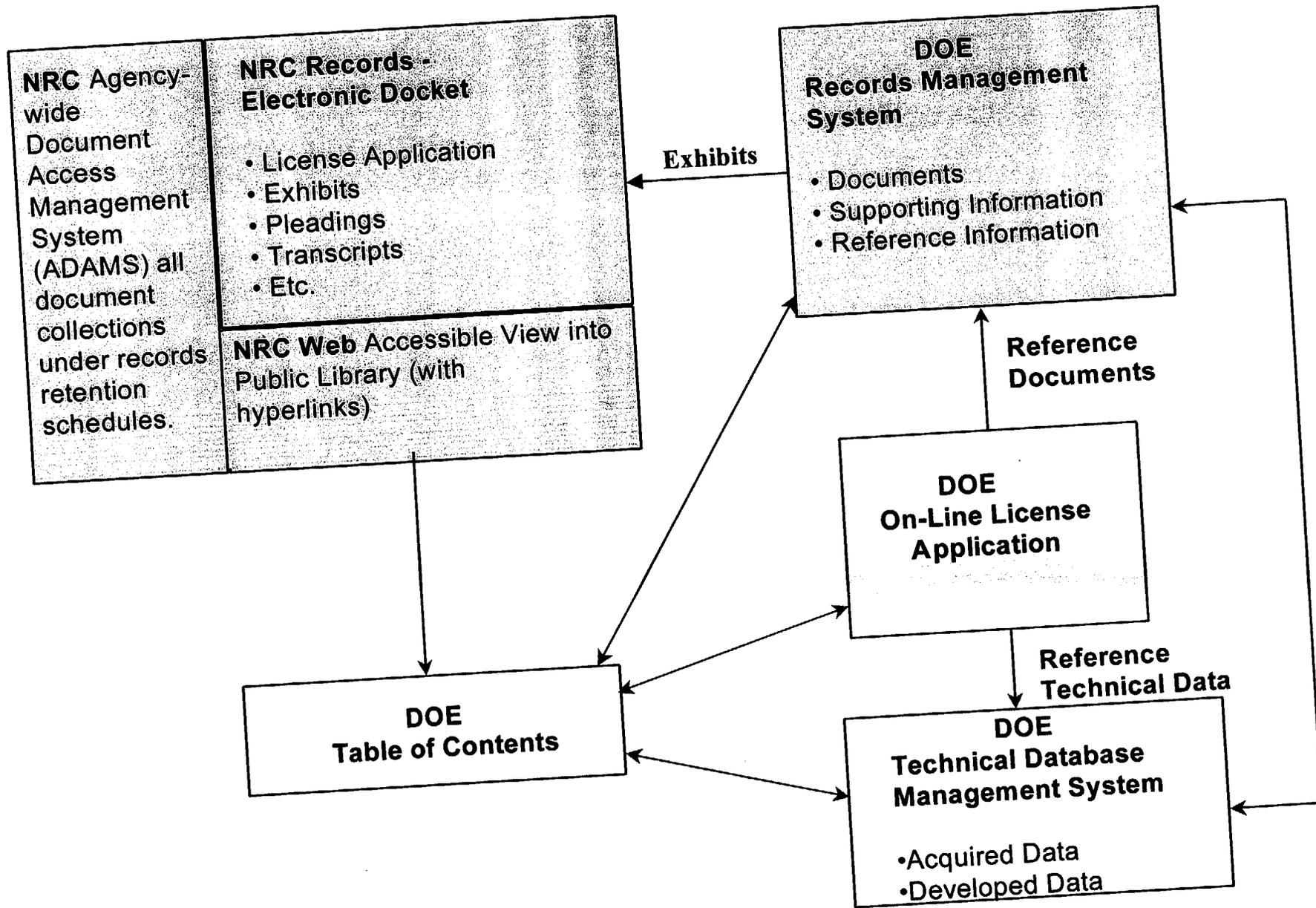


Figure 2-1. Licensing Network System.

2.1.1 Table of Contents

The ToC is a database with three elements.

- **Functional Descriptions**–The Project is comprised of six functions. These descriptions will be high level, presented in institutional language.
- **Major Products**–These documents will be contained within, and served by, the Online License Application. They will include the Topical Reports, License Application, Viability Assessment, and others.
- **Various indices that contain Project data and information**–This will contain the Records Information System (RISWeb), Technical Information Center (TICWeb), Automated Technical Data Tracking (ATDT), Site and Engineering Properties, and other similar repositories.

2.1.2 Records Management System

Figure 2-2 describes RMS, which consists of RIS, Records Data Management System 2 (RDMS2), the Technical Library System (TechLib), and the Full-Text Search and Retrieval System.

2.1.2.1 Records Information System

RIS consists of the bibliographic information entered for each official program record. The type of bibliographic information indexed for each record is discussed in Section 3.4.2.1. If the record cannot be captured as an image, it is indexed and stored as a one-of-a-kind record in a storage vault. Copyrighted records are indexed but not imaged, and then sent to the TechLib system for processing. If the record can be imaged, it is indexed and then sent to RDMS2 for processing.

RIS is connectable from the ToC directly or from the Online License Application. Any references in RIS that are identified in the Online License Application will be linked using HTML tags. RIS also allows for the connection to the record images. No record text is available for searching or viewing using RIS.

2.1.2.2 Records Data Management System 2

RDMS2 converts paper records to images and creates the searchable text. The images are considered the DOE official Program record and are stored on Compact Disk-Recordables off site in a Nuclear Quality Assurance Guideline-acceptable vault. A copy of the images is stored on magnetic disk for retrieval by the Full-Text Search and Retrieval System. The text is created using an optical character reader. Pages of text that have less than 95 percent character accuracy are rekeyed. The text of each record is spell-checked and noise character strings are removed before the text is loaded into the Full-Text Search and Retrieval System. The text is ready to be searched for specific record pages

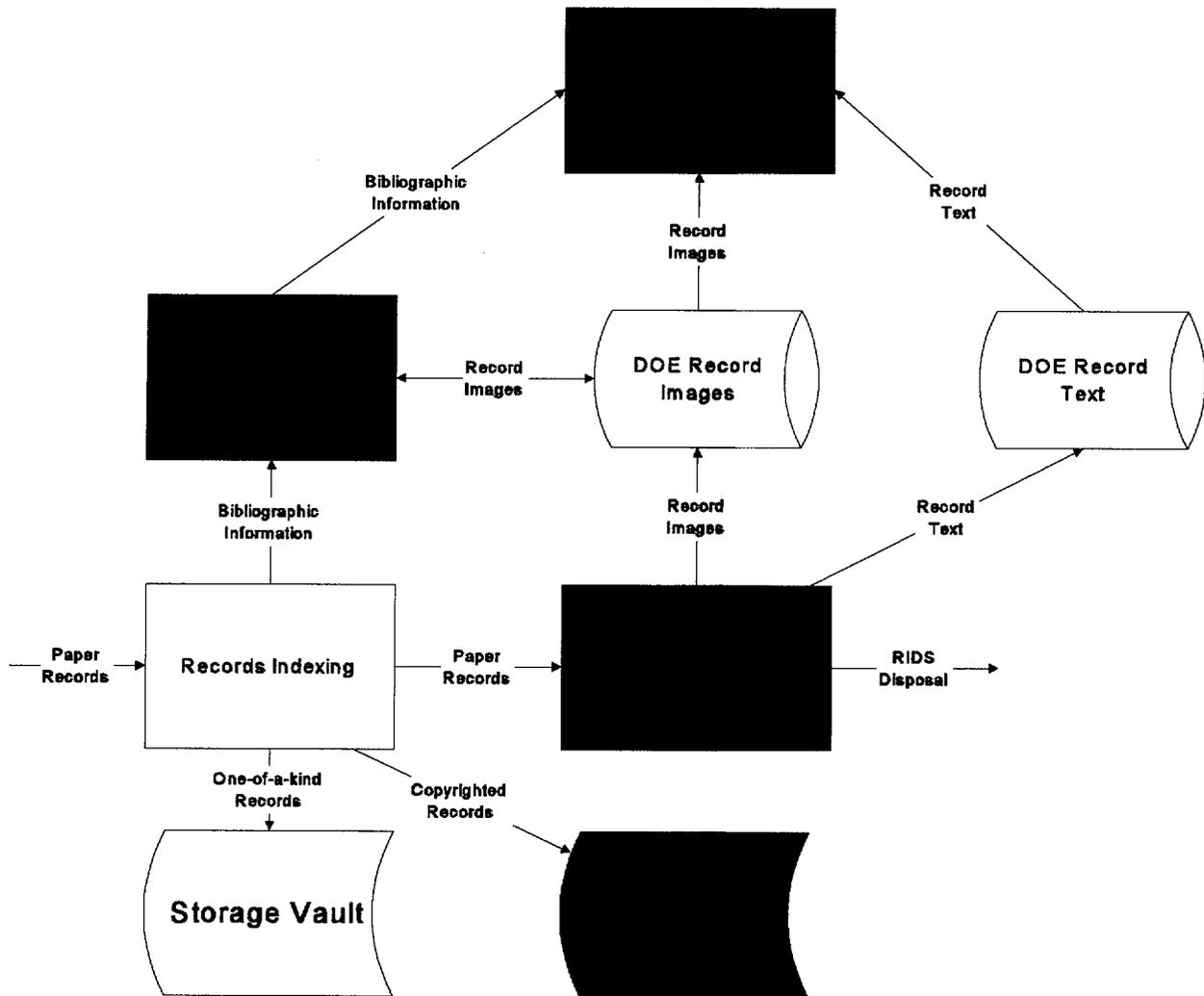


Figure 2-2. Records Management System

and/or records. The hard copy of permanent records are retained and will be sent to National Archives and Records Administration (NARA) at the completion of the Program.

2.1.2.3 Technical Library System

TechLib contains bibliographic information of copyrighted references, non-copyrighted references which are not readily available, and readily available references such as journals, tapes, compact disks, etc., that are stored at the Technical Information Center. The RIS also contains bibliographic headers for each record, which correspond to headers in TechLib. New books, subscriptions, and catalogs are entered into the TechLib database and prepared for the shelves.

2.1.2.4 Full-Text Search and Retrieval System

The Full-Text Search and Retrieval System will allow the user to search the full text of the program records and the bibliographic headers of each program record. The two search indices will aid the user in obtaining a specific record or set of records. The Full-Text Search and Retrieval System may include a thesaurus and other search tools that will be developed as required to assist the user in obtaining the highest possible precision and recall for any particular search.

The Full-Text Search and Retrieval system will allow for the search of selected activities and items and their related documents as defined by configuration management. Fields are defined in Appendix B, Full-Text Search and Retrieval Field Descriptions.

2.1.3 Technical Data Management System

Figure 2-3 shows the components that make up TDMS, technical databases, datasets, and managed databases. The following sections describe each component.

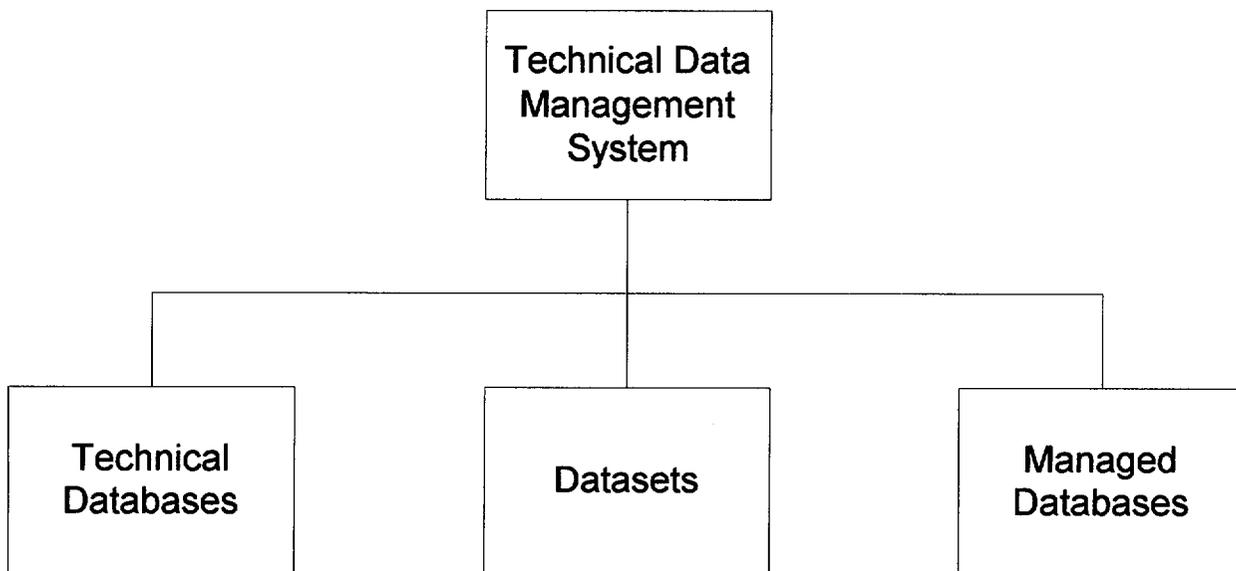


Figure 2-3. Technical Data Management System

2.1.3.1 Technical Databases

The technical databases were developed to provide site and regional geoscience characteristics data to facilitate repository system design analyses, performance assessment evaluations, and the environmental impact assessment. As shown in Figure 2-4, three system components develop and maintain four relational databases: ATDT creates the metadata (reference information) database; the Geographic Nodal Information Study and Evaluation System (GENISES) creates and retrieves data from the SEP database and a Geographic Information (GI) database, and the Reference Information Base (RIB) compiles the latest available data in an interpreted and summarized site and regional characteristics database.

Automated Technical Data Tracking System. ATDT provides an indexing capability to identify and track all technical data acquired and developed for use by participants and oversight groups to support the site viability evaluation and the repository licensing application. The ATDT System provides traceability from the highest level data developments and interpretations back to the original source data using a unique tracking number. Data that have been superseded, or are superseding other data, are specifically identified. ATDT interfaces with and/or provides links to GENISES, RIB, and RIS.

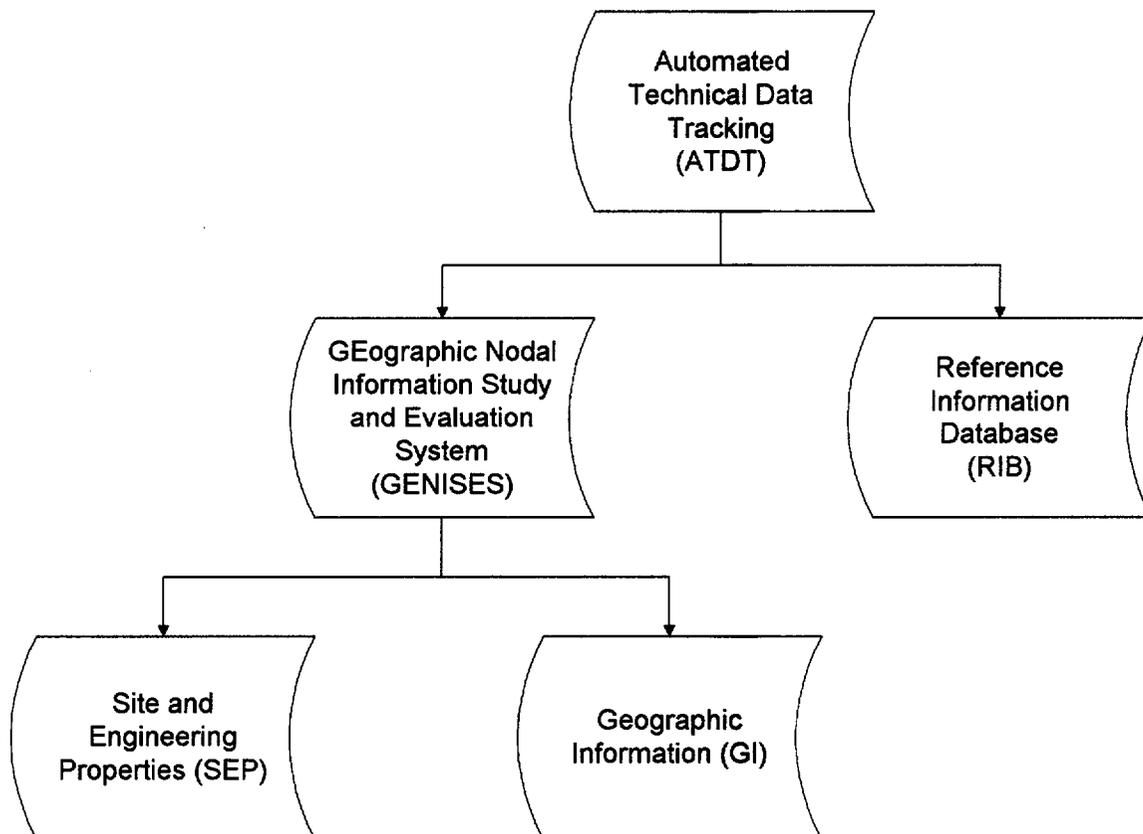


Figure 2-4. Technical Databases

ATDT parameters include the following:

- Technical Data Information Form Number
- Data Tracking Number (DTN)
- Source Data Tracking Numbers
- Site Characterization Plan Activity Number
- Qualified Data
- Not Qualified Data
- Parameter Name
- Governing Plan
- Principal Investigator Name
- Range of Submitted Start Dates
- Title/Description of Data

A unique DTN is assigned to the technical data when the Technical Data Information Form is completed.

Reference Information Base. RIB is a controlled document that summarizes interpreted technical data for use in site characterization, environmental evaluation, performance assessment, and design. Site and regional geoscience characteristics data as well as engineering properties are summarized and reviewed by subject matter experts and incorporated into RIB.

RIB maintains data and information representing scientific consensus on the current state of knowledge for a wide range of technical information. The information represents summaries and abstractions such as average or mean test values, maximum and minimum values, standard deviations, statistical confidence, and general statements about observations made during site characterization. Information in RIB is based on the data available in the SEP and GI databases.

Geographic Nodal Information Study and Evaluation System. GENISES provides a centralized technical data storage capability used for site and regional analyses and evaluations. GENISES provides the capability to input, store, and retrieve technical data into the following databases:

- SEP, which contains the tabular and graphic data
- GI, which contains spatial data

Site and Engineering Properties Database. The site and regional geoscience characteristics as well as repository engineering data is compiled, maintained, and managed in the SEP database using GENISES for organizing and retrieving technical data. Technical data coordinators submit technical data to the GENISES administrator to be entered in the SEP database.

Geographic Information Database. The GI database is compiled, maintained, and managed using the ARC/INFO Geographic Information System software tools for spatial analyses, map production, and electronic access to the database. The spatial data is organized in accordance with themes or categories and maintained in a baseline database under the control of the GI administrator.

Each spatial data set incorporated in the baseline has metadata attached to each file in accordance with Executive Order 12906, dated January 1, 1995, "Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure." The electronic and hard copies of each map are maintained for reference.

2.1.3.2 Datasets

Datasets are high-level products that are contracted for completion by M&O to DOE providing necessary information for licensing. As shown in Figure 2-5, there are five datasets: Working Draft License Application, Design Input, Environmental Impact Statement (EIS), License Application, and Performance Assessment. The datasets perform the following functions:

- Working Draft License Application supports the evaluation of site characteristic and repository design as they pertain to site suitability.
- Design Input facilitates design products.
- Environmental Impact Statement conducts the EIS assessment associated with development of EIS.
- License Application develops the arguments associated with site characteristic and design analyses in compliance with 10 CFR 60.
- Performance Assessment facilitates the analytical evaluations and modeling activities associated with the Total System Performance Assessment of the site and repository system design.



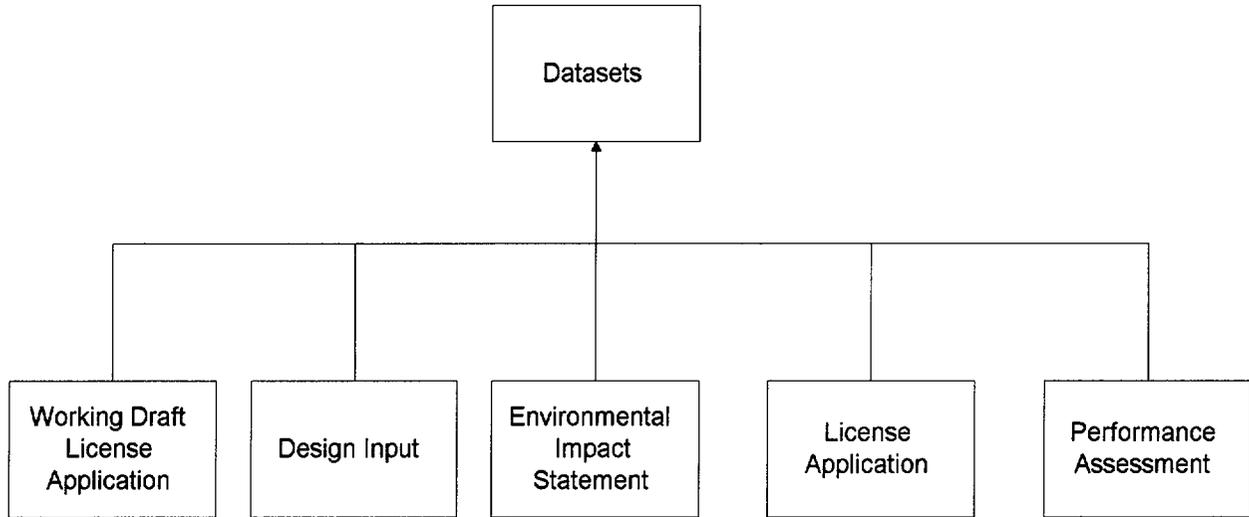


Figure 2-5. High-level Products Providing Information for Licensing

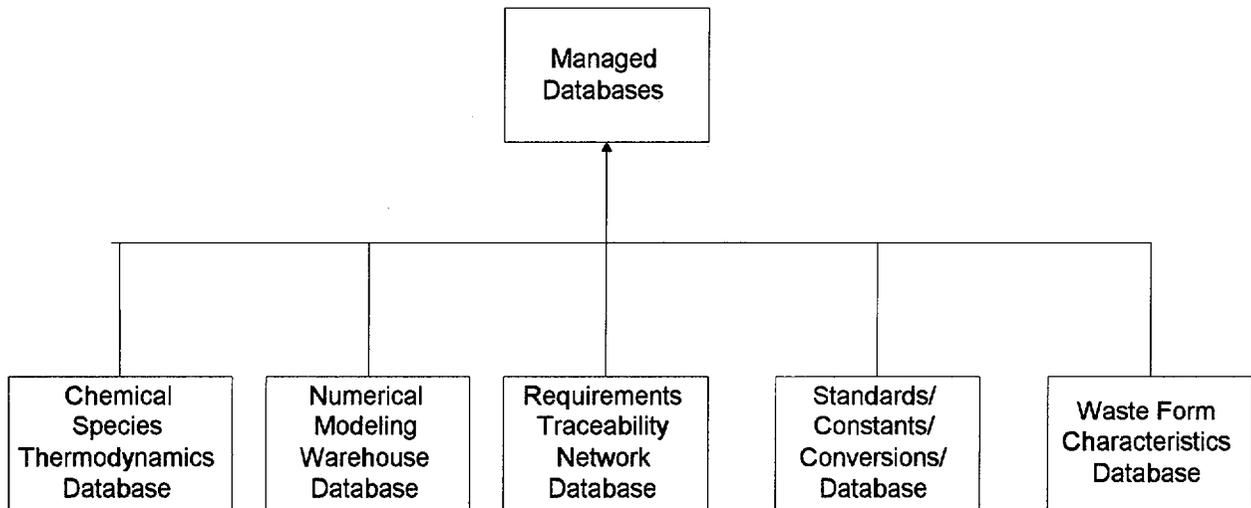


Figure 2-6. Radioactive Waste Material Characteristics and Geologic and Engineering Chemical Species Databases

2.1.3.3 Managed Databases

Managed databases consist of radioactive waste material characteristics and geologic and engineering chemical species databases acquired to provide analysis capabilities to facilitate repository system design analyses and performance assessment evaluations. Figure 2-6 shows that the managed databases consist of Chemical Species Thermodynamics, Numerical Modeling Warehouse, Requirements Traceability Network, Standards/Constants/Conversions, and Waste Form Characteristics.

- **Chemical Species Thermodynamics**—Thermodynamic properties of various solids, gases, liquids, and aqueous species, including such data as heat-capacity coefficients, temperature limits, phase transition data, Debye-Huckel parameters, aqueous-dissociation, and other reference-reaction stoichiometry
- **Numerical Modeling Warehouse**—Input data and output results of the various site and evaluation models, including process- and intermediate-level analytical models
- **Requirements Traceability Network**—Requirements identification and implementation trace database showing imposed requirements on DOE and OCRWM, and showing where those requirements are implemented, using the Site Characterization Plan Activity number in program documents
- **Standards/Constants/Conversions**—Standardized constants, conversions, and identifiers
- **Waste Form Characteristics**—Three databases that contain radiologic and configuration characteristics associated with nuclear utility, DOE spent nuclear fuel and mixed waste products, and DOE waste:

- *Characteristics Database*

This database contains fuel assemblies data providing physical descriptions of the thermal light-water-cooled reactor (LWR) assemblies and radiological descriptions of the associated spent-fuel disassembly hardware; high-level waste data on the quantities and characteristics of interim and immobilized forms of commercial and defense high-level waste; LWR quantities data on discharge nuclear fuel assemblies from LWRs, including previously discharged assemblies and projections by the environmental impact assessment of assemblies to be discharged up to the year 2040; radiological data containing information on the radiological characteristics of spent nuclear fuel from commercial LWRs, including radioactive totals, elemental compositions, and individual isotopes for different burnups, initial enrichments, and decay times; and serial number data that provide a link between an individual assembly's serial number, burnup/enrichment/discharge information in the LWR quantities, and radiological properties from the LWR radiological areas.

- *Unified Database*

This database contains reactor data for nuclear facilities, fuel inventories by reactor, Nuclear Waste Fund fees by reactor, storage requirements, Acceptance Priority Ranking, and annual capacity reports.

- *Spent Fuel Database*

This database contains an integrated, single data source for DOE spent nuclear fuel.

2.1.4 Online License Application

The Online License Application will consist of the identified License Application documents available through the ToC that will allow the user to read through the License Application and, by selecting the appropriate HTML tags, move to related sections within the document or to documentary material and/or data stored within RMS or TDMS. A copy of the Online License Application will be sent to NRC, without HTML tags, as the official License Application and will reside within the NRC Electronic Docket.

2.1.5 Licensing System Network Users

LSN Internet users fall into three categories:

- Participants
- Presiding Officers and NRC Secretary
- Public

2.1.5.1 Participants

The participants to the Licensing Proceedings will include DOE, NRC, the State of Nevada, LSSARP members, and others such as the affected units of local government and industry. All participants will be provided equivalent access to LSN.

2.1.5.2 Presiding Officers and NRC Secretary

The PLAPO and the Presiding Officer are responsible for overseeing the licensing proceedings before and after docketing of the License Application, respectively. The Secretary of NRC is responsible for establishing and maintaining the official docket of the Licensing Proceedings in electronic form. The Presiding Officers and Secretary will have access to LSN via the Internet.

2.1.5.3 The Public

The public will access LSN via the Internet to:

- Search fields in headers and/or full-text of the documentary materials holdings
- Search fields in headers and/or full-text of the NRC electronic docket
- Display or print the headers, page image(s), and page text(s) of the documentary materials or official record materials identified by searches
- Request paper copies of the headers, page image(s), and page text(s) of documentary materials or official record materials

- Display functional descriptions and major products such as Topical Reports, License Application, and Viability Assessment through the ToC

The public will not have access to the NRC Electronic Docket messaging facilities.

2.2 LSN IN OPERATION

LSN is to be Year 2000 compliant. The following are general LSN operational requirements. Specific system and operational requirements are provided in Sections 3 and 4.

- **LSN will provide:**
 - Retrieval, display, and print of the headers, page images, and text of the documentary materials (for document discovery), using field-oriented and full-text searches
 - Retrieval, display, and print, of the headers, page images, and text of the official record materials, using field-oriented and full-text searches
 - Requested printed copies of headers, page images, and text of the documentary materials, and the official record materials
 - Ability to trace a premise through the Online License Application
 - Ability to retrieve and view documentary material from the Online License Application except privileged and copyrighted material
 - Ability to download referenced technical data.
- **Procedures and documentary material**—The responsible official for each potential party will be required to certify to the PLAPO that the procedures to comply with 10CFR§2.1003 have been implemented and that its documentary material has been identified and made electronically available.
- **Docketing of the License Application**—After the NRC Secretary has determined that the License Application can be properly accessed and that all of the supporting DOE documentary material is available electronically within NRC, NRC will docket DOE's License Application.
- **Searching the Online License Application**—Each interested party, government official, and the public will be able to search the Online License Application and view referenced documentation and data.
- **Searching the Documentary Materials**—Each user will be able to perform field-oriented and full-text searches against the documentary materials holdings within the LSN.

- **Availability of Documentary Materials**—All documentary material is to be made available to all potential parties in electronic form beginning in the pre-license application phase. The pre-application phase will begin on the date that the President submits the site recommendation to Congress. The PLAPO may authorize access to images and the full-text of the documentary materials holdings of the LSN for public accounts prior to docketing.

The search results will first be displayed as a summary list, such as a one-line subset of header fields per item identified using the query criteria. The components of any item in the summary list will then be displayable or printable by selecting the associated summary line and the component to be displayed or printed, that is, the header, page images, or page texts.

- **Access to Privileged Documentary Materials**—For privileged documentary materials, only bibliographic headers will be available. The LSN header will be accessible to all users.
- **The Official Docket**—The official docket for the Licensing Proceedings, that is, the legal record, will be maintained in electronic form within NRC. The NRC Secretary will ensure that the electronic docket contains all the official record materials of the licensing proceedings. The electronic docket will contain a list of all exhibits, showing where in the transcript each was received into evidence or rejected.

The official record materials will include electronic filings, services, and proofs of service “approved” by the Secretary and all other official record materials provided by the Secretary and loaded by capture personnel, such as transcripts, depositions, etc. Interested parties and governmental participants will be required to use a password security code for the electronic transmission of these documents.

- **Searching the Official Docket**—Once the electronic docket has been established, each user will be able to perform full-text searches against it.

The functionality for displaying and printing the results of queries against the official docket will be the same as for displaying and printing the results of queries against the documentary materials. The same will be true of print requests.

- **Advisory Review Panel**—The ARP will provide advice to NRC on fundamental issues of the computer system necessary to use the LSN effectively and the operation and maintenance of the electronic docket.
- **On-Line LSN Access from the Hearing Room**—During the licensing hearing itself (projected to last 90 days and starting approximately 24 months after docketing of the License Application), online access to the LSN is to be provided in the NRC hearing room to the Presiding Officer, all participants, and to witnesses while testifying.

3. LICENSING NETWORK SYSTEM REQUIREMENTS

3.1 FUNCTIONAL REQUIREMENTS

3.1.1 Record Material Collection and Storage Requirements

The following are the Licensing Network System Functional requirements that are directly associated with the collection and storage of official record material.

LSS2-003 Contain an Electronic Header. The LSN shall contain an electronic header. [LSS1-012, LSS1-021]

LSS2-003-2 Authority Table Checking. The LSN shall use authority table lists of valid fields to validate data entered by the user into the header fields and as a mechanism to allow the user to select valid values for entering data into the header fields. [LSS1-21]

LSS2-005 Prepare Text for Search. The LSN shall provide the capability to automatically prepare text and header data for full-text search. [LSS 1-0 11]

Comment: This does not refer to the correction of text errors. This is the process that the software uses to prepare corrected text for the search engine. For most full text search applications, which rely on inverted indices for full text search, this requirement refers to building and updating the full text index. It is stated generically to not presume the method of search.

LSS2-006 Check for Duplicate Documents. The LSN shall identify apparent duplicate documents in the system, and records staff will verify before deleting any duplicate records. [LSS 1-023]

Comment: The method of duplicate checking might compare header fields (or a subset thereof), full text, or a combination. Records staff will compare records visually by looking at hard copy, electronic images, and microfilm images. The goal of duplicate checking is to reduce the possibility of duplicate documents in the system and to minimize the cost of processing documents. This requirement does not imply the automatic deletion of apparent duplicates.

LSS2-007 Mark Document as Superseded. The LSN shall provide the capability to mark a document as superseded by another document and identify the successor document. [LSS1-009]

Comment: A document may be superseded by a corrected version of the document. This function allows a document in the LSN to be marked in the document header as having been superseded. This "marking" is to be used by the "Identify Document as Superseded" function during retrieval.

- LSS2-009** Store Document (Link Text. Image. Header). The LSN shall provide the capability to store documentary material, linking the document components (header, text and/or image) for subsequent retrieval. [LSS1-012, LSS1-013, LSS1-014]
- LSS2-009-1** Store Document Header. The LSN shall provide the capability to store a header for subsequent retrieval. [LSS1-012]
- LSS2-009-2** Store Document Text. The LSN shall provide the capability to store document text for subsequent retrieval. [LSS1-013]
- LSS2-009-3** Store Document Image. The LSN shall provide the capability to store document images for subsequent retrieval. [LSS1-06, LSS1-014]
- LSS2-009-4** Link Document Components. The LSN shall provide the capability to logically link the header, text, and image of a document, where available, for subsequent retrieval, whether these document components are stored at the same time or at different times. [LSS1-006, LSS1-012, LSS1-013, LSS1-014]

Comment: The system must allow the storage of a complete header/text/image document all at once, as well as the initial storage of a header, with later storage of the text and/or image. The linkage allows subsequent retrieval of one or more document components (header, text, image) from a list of documents satisfying a query.

- LSS2-010** Define Information Package (Record Package). The LSN shall provide the capability to define an information package (record package) that includes a listing of all documents in the package. [LSS-004]

3.1.2 Search and Retrieval Requirements

The following are the Licensing Network System Functional requirements that are directly associated with the search and retrieval of official record material.

- LSS2-011** Query for Document. The LSN shall provide the capability to query the system for a list of all documents that meet the query criteria and sort the displayed list on the basis of selected displayed fields or relevancy to the query. [LSS-012, LSS1-008]
- LSS2-011-1** Query Header. The LSN shall provide the capability to query the system by specifying the content of one or more header fields to obtain a list of all documents that satisfy the query. [LSS1-012, LSS1-008]
- LSS2-011-2** Query Text. The LSN shall provide the capability to query the system by specifying one or more character strings in the full text of the document to obtain a list of all documents that satisfy the query. [LSS1-013]

LSS2-011-3 Text Query Parameters. The LSN shall provide the capability to specify single and multiple character wild cards, to utilize proximity searching, and root searching as part of a full-text query and to combine multiple query statements using boolean expressions (e.g., AND, OR, NOT). [LSS1-013]

Comment: The intent of this requirement is to allow users to combine any of the previously executed searches that were performed during the same search and retrieval connection using boolean logic.

LSS2-011-4 Query Header and Text. The LSN shall provide the capability to query the system by specifying a combination of header field values and the text query parameters from the full text of the document to obtain a list of all documents that satisfy the query. [LSS-012, LSS1-013]

LSS2-011-6 Provide Query Status. The LSN shall provide the user an indication of the query status during a query and allow the user to terminate queries in process without terminating the session or losing previous result sets. [LSS1-012, LSS1-013]

Comment: It is always possible to construct a query so broad that it results in an unmanageable results list. Users should be able to determine that an ongoing query is too broad and terminate the query in process. An indication that the session is still connected and that the query is working is adequate.

LSS2-011-7 Query Assistance. The LSN shall provide interactive capabilities to assist the user in retrieving documents when the field values that uniquely define the documents are not known to the user. [LSS1-020]

Comment: Examples might include synonym processing, thesaurus, natural language queries, or other search aids. Because a variety of approaches are used in the commercial market, no one approach is specified.

LSS2-012 Display Document. The LSN shall provide the capability to display a document. [LSS1-012, LSS1-013, LSS1-014, LSS1-016]

LSS2-012-1 Display Header. The LSN shall provide the capability to display the header of a document. [LSS1-012]

LSS2-012-2 Display Text. The LSN shall provide the capability to display a page of the text of a document. [LSS1-013]

LSS2-012-3 Locate Search Terms in Document. The LSN shall provide the capability to locate the terms in the document text that satisfy a full-text query and to move from one term to the next or previous term without displaying intermediate text. [LSS1-013]

Comment: This function is performed as the user is viewing the document. It is typically implemented by highlighting the search terms in the document and providing a "go to next term" function that places a cursor at the line or word of the search term.

LSS2-012-4 Display image. The LSN shall provide the capability to display the images of a document, page by page, including full page views of the images of 8-1/2 by 11 inch pages up to E size pages. [LSS1-014, LSS1-016]

Comment: The image formats supported by the LSN are defined in Section 3.4.2.4 of this document.

LSS2-012-5 Image Viewing . The LSN shall provide image viewing capabilities for image enlargement, reduction, scrolling, and rotation. [LSS1-014, LSS1-016]

LSS2-012-6 Display Image and Text. The LSN shall provide the capability to concurrently display an image page of a document and its associated text. [LSS1-013, LSS1-029]

LSS2-012-7 Viewing Options. The LSN shall allow the user to view the following combinations: 1) header, 2) image, 3) text, 4) header and text, 5) header and image, and 6) text and image. [LSS1-012, LSS1-013]

Comment: The user must be able to look at text and headers without looking at images.

LSS2-013 Print Document. The LSN shall provide the capability to print a document at a local printer. [LSS1-012, LSS1-013, LSS1-014]

Comment: It is assumed that the local printer is capable of printing the requested document type.

LSS2-013-1 Print Header. The LSN shall provide the capability to print a document header at a local printer. [LSS1-012]

LSS2-013-2 Print Text. The LSN shall provide a user selectable capability to print from one page to all of the text of a document, and any selected ranges of pages, at a local printer. [LSS1-013]

LSS2-013-3 Print Standard Image. The LSN shall provide a user selectable capability to print from one to all images, and any selected ranges of images, of 8-1/2 by 11-inch (or smaller) pages of a document, at a local printer, on 8-1/2 by 11-inch paper. This includes the capability of printing an oversized page image, up to E-sized, on a single 8-1/2 by 11-inch sheet of paper. [LSS1-014]

Comment: It is assumed that the local printer is capable of printing the requested document type.

LSS2-013-4 Print Oversized Image. The LSN shall provide the capability to print an oversized page image, up to E-sized, on a single sheet of paper at 100 percent of the size of the original image. [LSS1-014]

LSS2-013-5 Print Results List. The LSN shall provide the capability to print some or all of the summary lines of the current results list. [LSS1-012, LSS1-013, LSS1-014]

LSS2-014 Request Paper Copy. The LSN shall provide the capability to submit an electronic request for a paper copy of the header, images, or text of a document or of an entire results set, including oversized and color images. [LSS1-017]

LSS2-015 Process Paper Copy Requests. The LSN shall provide the capability to receive and read an electronic request for a paper copy of a document and print the requested copy. [LSS1-017]

Comment: This is not anticipated to be a highly automated function. The requested body must be able to receive requests, and print out the requested document. The rest of this function may be procedurally implemented.

3.2 OFFICIAL RECORD MATERIAL

The following requirements pertain to the Official Record File, which is discussed in 10 CFR 2.1013(a)(2). The Official Record File is kept within the NRC Electronic Docket. The official record material will be indexed, stored, and viewed like documentary material but with special header flags to indicate that it is either candidate or approved official record material.

LSS2-026 Designate Official Record Material. The LSN shall provide the capability to designate material as Official Record Material. [LSS1-004]

Comment: As interpreted, this requirement does not mean that the official record material must be located in a physical file but must be logically identified as being in the official record. This requirement assumes that information designated as official record material can be represented in the same text and image formats as documentary material. The identification of material as official record material is a system function.

LSS2-027 Retrieve Official Record Material. The LSN shall provide the capability to retrieve, view, and print official record material in the same manner as documentary material. [LSS1-004]

3.3 SYSTEM ADMINISTRATION REQUIREMENTS

LSS2-031 Backup Data. The LSN shall provide the capability to create incremental and full backup copies of all data on the system. [LSS1-018]

Incremental backups mean partial database backups based on a time span, usually daily. Full backups mean backups of the entire database.

LSS2-033 Monitor System Status. The LSN shall provide authorized users the capability to monitor the status of system hardware, software, and communication components and to interrupt, restrict, or disable system capabilities in order to optimize use of system resources. [LSS1-018]

LSS2-033-1 Monitor Session Activity. The LSN shall provide a capability for an authorized user to monitor user session activity levels and identify and cancel queries or other system activities. [LSS1-018]

LSS2-034 Database Administration Tools. The LSN shall provide authorized users the capability to assess the availability, integrity, and performance of the databases associated with RMS, including those pertaining to the storage of document headers, text, and image data, and adjust database performance parameters or restrict or disable database features in order to optimize system performance. [LSS1-018]

3.4 RIS DATA REQUIREMENTS

To provide the functions described in Sections 3.1, 3.2, and 3.3, RIS must support certain key data elements. These elements are described in Section 3.4.1. Specific data element formats are defined in Section 3.4.2.

3.4.1 Key Data Elements

3.4.1.1 Documentary Material

LSS2-051 Documentary Material. RMS shall be capable of processing and storing documentary material of the types described in Table 3-1. [LSS1-007, LSS1-012, LSS1-013, LSS1-014, LSS1-028]

3.4.1.2 Authority Tables

LSS2-053 Authority Tables. RIS shall have an editable table or tables of valid field values for the LSN Header and any other header information in the system beyond that specified in this document. [LSS1-019]

Table 3-1. Documentary Material Data Elements

Requirement Identifier	Data Name (Document)	Description	Requirement Reference
LSS2-051-1	Type A	Documents represented as text, image, header	LSS1-012 LSS1-013 LSS1-014
LSS2-051-2	Type B	Documents for which text is not provided. These documents will be converted to text unless they are graphic-oriented.	LSS1-012 LSS1-014
LSS2-051-3	Type C	Graphic-oriented documents stored only as image and header. These are documents unsuitable for conversion to text due to their graphic nature or the lack of data having significant retrieval value (such as columns of numbers).*	LSS1-012 LSS1-014
LSS2-051-4	Type D	Nonimage/text material represented only as header, with item location described.	LSS1-007 LSS1-012
LSS2-051-5	Type E	Header for privileged, confidential, or safeguards information. Points to physical location of these documents. In the case of privileged information, the data is located in a protective order file, which is not part of the Full-Text Search and Retrieval System.	LSS1-012 LSS1-028

*As defined in 10 CFR 2, graphic oriented material includes: "raw data, computer runs, computer programs and codes, field notes, laboratory notes, maps, diagrams and photographs which have been printed, scripted, hand written or otherwise displayed in any hard copy form. They may include: Calibration procedures, logs, guidelines, data and discrepancies; Gauge, meter and computer settings; Probe locations; Logging intervals and rates; Data logs in whatever form captured; Text data sheets; equations and sampling rates; Sensor data and procedures; Data Descriptions; Field and laboratory notebooks; Analog computer, meter or other device print-outs; Digital computer print-outs; Photographs; Graphs, plots, strip charts, sketches; Descriptive material related to the information above."

CFR *Code of Federal Regulations*
LSS *Licensing Support System*

3.4.2 Data Formats

3.4.2.1 Header Fields for Documentary Material

LSS2-054 Documentary Header Fields. The LSN header shall, at a minimum, include the fields and formats defined in Table 3-2. [LSS1-012, LSS1-027]

Comment: The LSN header was defined by a working group under the LSSARP and is designed to allow users to identify and track evidentiary materials in the documentary database that may be used multiple times as exhibits in depositions and are introduced as hearing exhibits. Users must be able to view the images of documents, which have been referenced as exhibits, while in a deposition or hearing transcript text file.

3.4.2.2 Header Fields for Official Record Material

LSS2-055 Official Record Material Header Fields. The Official Record Material shall, at a minimum, be described using applicable LSN documentary material header fields (Table 3-2) plus the following descriptors: Record material type - Status (candidate or approved official record material) [LSS1-004]

3.4.2.3 Text Format

LSS2-056 Text Format. The text representation of material in the LSN shall be page delimited ASCII text. [LSS1-013]

3.4.2.4 Image Formats

LSS2-057 Image format. The electronic image of documentary material in the LSN shall use Adobe Tagged Image File Format (TIFF) CITT Group 4 format for bitonal images and Joint Photographic Experts Group (JPEG) format for color and grey scale images. These formats are part of the Adobe TIFF I Version 6.0 representation. [LSS1-006, LSS-014]

Comment: Adobe TIFF is an industry standard developed and put into the public domain by Adobe.

Table 3-2. Minimum Header Fields for Full-Text Search and Retrieval Documentary Material

Full-Text Search and Retrieval System Field	Mandatory or Required by Participant	Multivalued (max # of entries)	Max Field Length	Authority Table	Required Format
Accession Number	M	Y (50)	25	N	Alphanumeric, no required format
Title	M	N	1000	N	N
Author Name	M	Y (200)	50	Y	Last name, first initial, middle Initial
Author Organization	M	Y (200)	65	Y	N
Document Date	M	N	8	N	YYYYMMDD
Document Number	R	Y (5)	30	N	N
Version	R	Y (5)	50	N	N
Access Control Information	R	Y (10)	3	Y	N
Related Records Number	R	Y (500)	25	Y	Alphanumeric
Related Record Code	R	Y (500)	7	Y	N
Special Class	R	Y (10)	50	Y	N
Package Identifier	R	Y (500)	50	N	N
Document Type (Includes package types)	M	Y (3)	40	Y	N
Identifiers	N	Y (100)	80	N	N
Comments	N	N	1000	N	N
Media	R	Y (5)	7	Y	N
QA Record	M	N	1	Y	N
Traceability Number	R	Y (10)	50	N	N
Traceability Code	R	Y (10)	5	Y	N
Keywords	N	N	5000	N	Y - Separate terms and phrases by punctuation

Table 3-2. Minimum Header Fields for Full-Text Search and Retrieval Documentary Material (continued)

Full-Text Search and Retrieval System Field	Mandatory or Required by Participant	Multivalued (max # of entries)	Max Field Length	Authority Table	Required Format
Number of Images	N	N	6	N	N
Physical Location Reference Information	R	N	1000	N	N

Symbols: **Y** = Yes, **N** = No, **R** = Required, **M** = Mandatory, **TBD** = To Be Determined.

For date fields: **Y** = year, **M** = month, **D** = day

Data provided by participant: This field will be provided by the participant (Mandatory = must be provided for each unit [record], Required = must be provided if applicable, Optional = provided at discretion of participant).

Multivalued: Multiple entries allowed in a field.

Controlled Authority List: List of accepted entries to be used by all participants, such as document types or specific forms of an organization name.

Text searchable: The ability to perform phrase or single-word searches of the field entries.

Comments/Issues: Any additional comments or outstanding issues.

Note: Detailed definitions of header fields are provided in Appendix C.

LSS2-058 Image types. RMS shall capture, import, process, and display bilevel (bitonal), gray-level, and color images of documentary material. The gray-level representation shall allow up to 256 shades of grey. [LSS-014]

LSS2-059 Image resolution. The electronic image representation of documentary material in the LSN shall be stored at the following minimum resolutions:

Bilevel (bitonal) images	300 DPI (1-bit representation)
Grey-level images	150 DPI (8-bit representation)
Color	150 DPI (24-bit representation)

[LSS1-006, LSS1-014]

Can fewer bits be used for grayscale and color scanning if it can be shown that the lower bit representation is indiscernible from the original image by an unaided eye?

LSS2-060 Image compression. Compression of electronic images shall use Comité Consultatif International Téléphonique et Télégraphique Group 4 compression for bilevel images, and JPEG for gray-scale images. The JPEG compression ratio shall be selected such that an image can be printed at the original size without any degradation detectable by the unaided eye. [LSS1-014]

Is it acceptable to use any compression from Adobe TIFF Version 6.1?

3.5 LSN PERFORMANCE AND CAPACITY REQUIREMENTS

LSS2-062 Storage and Retrieval Capacity. LSN shall provide an expandable capacity for storing retrieval document volumes identified in Appendix B. The storage media shall be capable of supporting access times specified in Table 3-3. [LSS1-003, LSS1-012, LSS1-013, LSS1-014, LSS1-015]

Comment: The design must demonstrate that storage and access components sufficient to accommodate this capacity can be incrementally added without system redesign. Ability to satisfy this requirement should be demonstrated through some combination of engineering analysis, demonstrated expansion capability, and/or comparison with existing systems of like design.

LSS2-063 Backup Storage Capacity. LSN shall provide the capability of storing and maintaining backups consistent with requirements. [LSS1-018]

LSS2-064 Concurrent Users. The LSN shall support up to 150 concurrent users. [LSS1-012, LSS1-013, LSS1-014, LSS1-015]

Comment: "Concurrent users" means users who are exercising normal system functions at the same time. Testing normally would be done by having testers implement testing scenarios defining normal system use.

LSS2-065 Timing Strings. The LSN shall meet the average response times shown in Table 3-3. The performance shall be achieved with 15 concurrent LSN users active on the system. [LSS1-018]

Comment: Performance measurements shall measure the time from the "execute command" key stroke (following any required data entry) to the time that the requested data or system response first appears on the screen. It is also assumed that the Internet connection is not interrupted and that the number of users on the internet will not affect the query response.

LSS2-065-1 Performance Monitoring. The LSN shall provide performance monitoring software needed to verify compliance with response times shown in Table 3-3. [LSS-018]

Is this still a valid requirement?

Table 3-3. Response Time Requirements

Requirement Identifier	Function/Event	Conditions	Response Time (15/50 concurrent users)
LSS2-065-2	Retrieval of query results list.	UNLV test query INJD-T3-Q1 or TEJA-T#-Q2. ^a Database contains headers for at least 5 million pages of documents. A total of 10 documents found.	90 seconds/140 seconds.
LSS2-065-3	Retrieval of header data for document identified in query results list.	Database contains headers for at least 5 million pages of documents.	10 seconds/15 seconds.
LSS2-065-4	Retrieval of text data for document identified in query results list.	Database contains at least 5 million pages of documents.	First page: 10 seconds/15 seconds. Each subsequent page: 3 seconds at the Main Facility, 6 seconds at the Supported Sites.
LSS2-065-5	Retrieval of image data for documents identified in query results list.	Database contains at least 5 million pages of documents.	First page: 30 seconds/45 seconds. Each subsequent page: 6 seconds at site, 9 seconds at other sites.
LSS2-065-7	New document access.	Measured from the time a new document (header, text, and image) has been captured until it is available for Full-Text Search and Retrieval at all sites.	24 hours.
LSS2-065-8	New transcripts.	Measured from the time that daily transcripts are imported into LSN until they are available for viewing at all sites.	1 hour.
LSS2-065-10	Backup data.	Time to back up system data of any type. Incremental or full backup.	2 Gb/hour.
LSS2-065-11	Restore data.	Time to restore system data of any type.	1.5 Gb/hour.

^aThese queries were selected as representative of typical user queries that are not overly simple or complex. INFD-T3-Q1: Find documents where text includes phrases like "repository" and "seals," "shaft" and "seal," "borehole" and "seal" and order by document id. TEJA-T3-Q2: Find documents where text includes phrases like "faults" and "Basin and Range Province," "faults" and "Nevada," "faults" and "Yucca Mountain" and order by document id.

Gb gigabyte
LSN Licensing Support Network
UNLV University of Nevada, Las Vegas

3.6 RELIABILITY, AVAILABILITY, AND MAINTAINABILITY REQUIREMENTS

LSN users will access the system from the Eastern to the Pacific time zones during normal working hours, with some after-hours usage.

To avoid delays in the licensing process, the LSN must be reliable and available for users who access it for document discovery. Because reliability and availability require planned preventative maintenance and quick response for unplanned maintenance, the LSN must also be maintained. The following requirements address these goals:

LSS2-069 Availability. The functions of the LSN shall meet minimum specified requirements using the following definitions:

- *Availability*—Refers to availability to all sites.
- *Normal Hours*—The time span is 8 a.m. to 8 p.m. Eastern time and 5 a.m. to 5 p.m. Pacific time. (The Internet has to be up.)
- *Extended hours*—Normal hours plus three hours before and three hours after normal hours. Extended Enterprise Hours include 5 a.m. to 11 p.m. Eastern time, and 2 a.m. to 8 p.m. Pacific time. Extended Site Hours include 5 a.m. to 8 p.m. at a given site, seven days a week.
- *Sustained operations*—Continuous operations for days specified. For example, sustained operations five days a week would imply continual operation five days a week, 52 weeks a year. For acceptance test purposes, sustained operations would imply continual operations throughout the specified test period.

Comment: This document does not address the actual operational hours of the LSN. It pertains only to the capability of the system, as designed and implemented, to support these minimum availability requirements.

- *Planned maintenance/backup time*—A time period during which nightly backups and planned maintenance can be performed.

LSS2-069-3 Search/Retrieval Availability. The Document Full-Text Search and Retrieval functions shall be capable of sustained operation at 90 percent availability during Extended Site Hours. [LSS1-018]

Comment: The communications connectivity between the LSN and interested parties is through the Internet. All communications equipment and lines necessary to meet the functional and performance requirements of this specification are considered part of the LSN. Communication lines used by dial-in users are not considered part of the LSN.

4. ONLINE LICENSE APPLICATION

4.1 FUNCTIONAL REQUIREMENTS

- LSN-001** Display Online License Application. The Online License Application shall be displayed through an Internet browser during the prelicense period.
- LSN-002** License Application The Online License Application shall be accessible to NRC with all of the HTML tags removed.
- LSN-003** Link Supporting Documentary Material to the Online License Application. Documentary material shall be directly available from the Online License Application.
- LSN-004** Query Text. The Online License Application shall have the capability to be queried by allowing a user to specify one or more character strings in the text of the document in order to advance to that part of the document.
- LSN-005** Locate Search Terms. The Online License Application shall have the capability to locate terms in a document that satisfy a text query and to move from one term to the next or previous term without displaying intermediate text.
- LSN-006** Print Document. The Online License Application shall have the capability to print part or all of the document to a local printer.

4.2 SYSTEM ADMINISTRATION REQUIREMENTS

- LSN-007** Backup Data. The system shall have the capability to back up the Online License Application.

4.3 RELIABILITY, AVAILABILITY, AND MAINTAINABILITY REQUIREMENTS

During prelicensing, the Online License Application users will access the system from the Eastern to the Pacific time zones during normal working hours, with some after-hours usage.

To avoid delays in the licensing process, the Online License Application must be reliable and available for users who access it for document discovery. Reliability and availability require planned preventative maintenance and quick response for unplanned maintenance. The following requirements address these goals:

- LSN-008** Availability. The functions of the Online License Application shall meet the specified requirements using the following definitions:

- *Availability*—Refers to availability to all sites.

- *Normal Hours*—The time span is 8 a.m. to 8 p.m. Eastern time and 5 a.m. to 5 p.m. Pacific time seven days a week.
- *Extended hours*—Normal hours plus three hours before and three hours after normal hours. Extended Enterprise Hours include 5 a.m. to 11 p.m. Eastern time and 2 a.m. to 8 p.m. Pacific time. Extended Site Hours include 5 a.m. to 8 p.m. at a given site, seven days a week.
- *Sustained operations*—Continuous operations for days specified. For example, sustained operations five days a week would imply continual operation five days a week, 52 weeks a year. For acceptance test purposes, sustained operations would imply continual operations throughout the specified test period.

Comment: This document does not address the actual operational hours of the Online License Application. It pertains only to the capability of the system, as designed and implemented, to support these minimum availability requirements.

- *Planned maintenance/backup time*—A time period during which nightly backups and planned maintenance can be performed.

LSN-010 Search/Retrieval Availability. The Document search functions shall be capable of sustained operation at 90 percent availability during Extended Site Hours.

Comment: The communications connectivity between the Online License Application and interested parties is through the Internet. All communications equipment and lines necessary to meet the functional and performance requirements of this specification are considered part of the Online License Application. Communication lines used by dial-in users are not considered part of the Online License Application.

5. REFERENCES

CRWMS (Civilian Radioactive Waste Management System) M&O (Management and Operating Contractor) 1995. *Licensing Support System (LSS) Phase 2 Functional Requirements*. A00000000-01717-1705-00001 REV 00. Las Vegas, Nevada: Author.

10 CFR (*Code of Federal Regulations*) 2, Subpart J. Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders.

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APPENDIX A
PHASE 1 LSS REQUIREMENTS

APPENDIX A
PHASE 1 LSS REQUIREMENTS

- LSS1-001** LSS components shall be integrated using modular design techniques and well-documented interfaces, which allow new components to be integrated into the system without seriously impacting other components.
- LSS1-002** LSS shall adhere to established government and/or industry hardware and software standards to the extent feasible.
- LSS1-003** LSS shall provide an electronic information exchange function to facilitate communications between authorized users. This function shall allow users to transmit and receive electronic documents (e.g., motions, filings, orders, decisions, etc.). Each user shall have a corresponding electronic message center to receive and store electronic correspondences.
- LSS1-004** LSS shall be capable of accepting electronically formatted documentary materials. Within the LSS there must be a concept of a records package, and the records package grouping must be logically accessible.
- LSS1-005** LSS shall provide the capability to recognize characters from the digital image of a document and convert these characters into a standard text representation of the document. This optical character recognition function shall achieve character recognition accuracies using the best commercial products available at the time of the LSS system design.
- LSS1-006** LSS shall have the capability to create a digital image of each page of a document.
- LSS1-007** Documentary material not suitable for imaging and conversion to a standard text file shall be identified with a header that includes a reference to the storage location of the material. This reference shall be descriptive enough for users to identify the location of the material and access the material.
- LSS1-009** LSS shall provide a function to allow all users to detect that subsequent revisions to a document exist.
- LSS1-010** LSS shall be accessible from the following locations as a minimum:
- DOE Headquarters, Washington, DC
 - DOE Project Office, Las Vegas, Nevada
 - NRC Headquarters, White Flint, Maryland
 - NRC Region 1 Office, King of Prussia, Pennsylvania
 - NRC Region 2 Office, Atlanta, Georgia
 - NRC Region 3 Office, Glenn Ellyn, Illinois
 - NRC Region 4 Office, Arlington, Texas

- Las Vegas, Nevada
- Reno, Nevada
- Carson City, Nevada
- Nye County, Nevada
- Lincoln County, Nevada
- Esmeralda County, Nevada
- Clark County, Nevada
- White Pine County, Nevada
- Eureka County, Nevada
- Mineral County, Nevada
- Churchill County, Nevada
- Lander County, Nevada
- Inyo County, California
- National Congress of American Indians, Oneida, Wisconsin

LSS1-011 LSS shall provide one of two Full-Text Search and Retrieval modes for public access depending upon whether a notice of hearing on the high-level waste license application has been issued:

- *Prior to Notice*—Full-text search of each field in the bibliographic headers and retrieval of the header and associated image.
- *After Notice is Issued*—same as above plus full-text search of the standard text files.

Given LSSARP concurrence, the latter search mode can be provided before the hearing notice.

LSS1-012 LSS shall be capable of electronically storing and retrieving the bibliographic headers in the system.

LSS1-013 LSS shall be capable of electronically storing and retrieving document text.

LSS1-014 LSS shall be capable of electronically storing and retrieving the digital image associated with each page in a document.

LSS1 -015 Potential parties, interested governmental parties, and parties who access LSS from locations other than those listed in requirement [LSS-010] and those specified by the Administrator shall be provided full-text search capability through dial-up access at the requestor's expense.

LSS1-016 Potential parties, interested governmental parties, and parties who access LSS from locations other than those listed in requirement [LSS1-010] and those specified by the Administrator shall be provided access to images at the requestor's expense.

- LSS1-017** Potential parties, interested governmental parties, and parties who access LSS from locations in addition to those listed in requirement [LSS1-010] shall be capable of electronically requesting a paper copy of a document at the time of search.
- LSS1 -019** The system shall provide the necessary tools to ensure security. The electronic information exchange function shall provide password protection for all documents transmitted electronically.
- LSS1-020** LSS shall provide tools to assist the user in retrieving documents when the unique identifiers for the documents are not known to the users. Examples might include synonym processing, thesaurus, natural language queries, or other search aids.
- LSS1-023** LSN shall have a function that assists in identifying duplicate documents.
- LSS1-024** The electronic information exchange function shall provide for an electronic acknowledgment that mail has been delivered to the recipient's electronic message center. The acknowledgment shall include, as a minimum, the name and address of the recipient and the date the electronic mail was delivered.
- LSS1-025** System Definition. The totality of hardware, software, communications, data processes and procedures dedicated to providing document intake, storage, searching, retrieving, and delivery to the users of the headers, text, and images as detailed in the mission statements in 10 CFR 2, Subpart J.
- LSS1-026** The system shall be able to load transcripts from proceedings and transcripts from depositions.
- LSS1-027** LSS will include the capability to catalog records packages and link the bibliographic headers for the records package and the bibliographic headers for the components of the package.
- LSS1-028** LSS must accommodate a protective order file, access to which is authorized only by the Presiding Officer.
- LSS1-029** LSS must be able to provide a mechanism that will allow retrieval and display of pages of text with the associated images.

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APPENDIX B
LICENSING SUPPORT NETWORK FIELD DESCRIPTIONS

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LICENSING SUPPORT NETWORK FIELD DESCRIPTIONS

Abstract

A brief narrative description of the subject content of the document or a full description of the contents of a document that cannot be imaged and converted to searchable text. The abstract is generally written by the author.

Access Control Information

A code indicating that access to a document is restricted. Access is restricted if the document is privileged, proprietary, or copyrighted.

Addressee Name

The names of all the persons to whom a document is addressed. Each entry in this field is linked to a corresponding entry in the Addressee Organization field.

Addressee Organization

The affiliation of each receiver or the organization to whom the correspondence is addressed if there is no personal receiver. Each entry in this field is linked to a corresponding entry in the Addressee Name field.

Author Name

The name of each person listed on the document as responsible for all or part of its creation. Only personal authors are entered in this field. Corporations as authors are captured in the Author Organization field. Each entry in this field is linked to a corresponding entry in the Author Organization field.

Author Organization

The name of the organization (i.e., company, corporation or group) with which the author is affiliated at the time the document was created, or the name of the organization responsible for creating or originating the document when there is no personal author. If an author works for one organization and is representing another, both affiliations should be captured. Each entry in this field is linked to a corresponding entry in the Author Name field.

Comments

Any information, not covered in other fields, that the submitter or indexer believes would be of help to identify or retrieve the document or further explain any field entry for the document. This field

can be used for entries such as the language of the document (if it is not English) or the page numbers that are missing in an incomplete document.

Document Date

The date on which the document was completed, issued, effective, or published. If the date is unknown, information in the document will be used to estimate a date.

Document Number

The identifying number(s) assigned to a document, which distinguishes it from other documents (e.g., DOE Order No., Public Law number, report number). Document numbers appear (typed or handwritten) on the document itself and are considered to be control numbers. The Document Number is generally assigned by the issuing agency. Examples are report numbers, or public law numbers such as SAND86-1023, PL95-16, or H101-364.

Document Type

The general format or physical presentation of the document. Examples include correspondence, report or procedure.

Identifiers

Words or phrases that the submitter or indexer believes represent the subject content of the document and will assist users in retrieval. These may be acronyms, informal terms, or cross-references to alternate nomenclature. The terms in this field may be included in a controlled vocabulary/LSN Thesaurus.

Keywords

Words or phrases that the submitter provides with the document to represent the subject content of the document and to assist the user in retrieval. Keywords are not necessarily contained in the LSN Thesaurus.

Media

The physical material upon which a document is stored.

Number of Images

The number of images of a document that was imaged from a hard copy.

Package Identifier

An identifier assigned to all components of a group of documents submitted as a single entity. This field enables a package containing many documents that may or may not have relationships among them to be reassembled quickly and easily.

Participant Accession Number

A unique identification number assigned by the participant organization to each document submitted for entry into LSN. This number assists the organization in locating documents it has submitted. This field should contain an alpha code identifying the participant organization, such as DOE, NRC, NEV, and any other alphanumeric scheme the submitting organization might use in accessioning their own documents. The number used may be the accession number used in the submitting organization's records system.

Physical Location Reference Information

Information on the storage location of an item submitted to LSN as header only, because its form does not permit imaging.

QA Record

An indicator of whether the document is a quality assurance record. Quality assurance records are those whose contents have been determined to furnish evidence of the quality and completeness of data, items, and activities related to the safety of the repository program.

Related Record Code

The code that represents the type of relationship between the document being entered and a document to which it is related. Each code in the authority list will have a reciprocal code. For example, if a document (A) is attached to another document (B), the reciprocal code for (B) would show (B) has attachments (A). Examples of related record codes include: REV (revises or is a later version of), COR (corrects), and SUPR (supersedes). Each entry in this field is linked to a corresponding entry in the Related Record Number field.

Related Record Number

This field contains the LSN accession number(s) of a document that has a particular relationship to the document being entered. There are several types of relationships, such as parent/child (a document and its attachments), original/subsequent (a document and a later version, comments, corrections, or errata), whole/part (a book and its sections, a journal and its articles), and an information package and the cataloging units it contains. The type of relationship is captured in the Related Record Code field. Each entry in this field will be linked to a corresponding entry in the Related Record Code field.

Special Class

This field identifies documents with special characteristics that are not captured in other fields such as a document in a foreign language.

Title

An identifying sentence or phrase that appears on the document, that is, the actual title. If the actual title is not present for a document, a title must be created.

Traceability Code

A code that indicates the type of traceability number. Examples of this code include: DTN, DI (Document Identifier), and WBS (Work Breakdown Structure). Each entry in this field is linked to a corresponding entry in the Traceability Number field.

Traceability Number

An identifier that has been assigned to a document to link it to a specific activity. These identifiers will enable easy retrieval of all documents associated with any given activity by providing a special linkage not available through other fields. Examples of traceability numbers include WBS numbers, Data Tracking Number, and configuration item identifiers. Each entry in this field is linked to a corresponding entry in the Traceability Code field.

Version

The version, revision number, or status of a document that has or will have multiple iterations. It will correspond to information contained on the document, such as Revision 2, Version 1, Final, or Draft.