[7590-01-P]

NUCLEAR REGULATORY COMMISSION

10 CFR PART 2

RIN 3150-AG44

Licensing Proceedings for the Receipt of High-Level Radioactive Waste at a Geologic Repository: Licensing Support Network, Design Standards for Participating Websites

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is proposing to amend its Rules of Practice applicable to the use of the Licensing Support Network (LSN) for the licensing proceeding on the disposal of high-level waste (HLW) at a geologic repository. The proposed amendments would establish the basic data structure and transfer standards ("design standards") that LSN participant websites must use to make documentary material available. The proposed amendments would also clarify the authority of the LSN Administrator to establish guidance for LSN participants on how best to meet the design standards and to review participant designs for compliance with the standards. Finally, the proposed amendments would clarify the timing of participant compliance certifications.

DATES: Submit comments (insert date forty-five days after publication in the Federal Register**)**. Comments received after this date will be considered if it is practical to do so, but

the Commission is able to ensure consideration only for comments received on or before this date.

ADDRESSES: Comments may be sent to: Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. Attention: Rulemakings and Adjudications Staff.

Deliver comments to: 11555 Rockville Pike, Rockville, Maryland, between 7:30 am and 4:15 pm on Federal workdays.

You may also provide comments via the NRC's interactive rulemaking website at http://ruleforum.llnl.gov. This site provides the capability to upload comments as files (any format), if your web browser supports that function. For information about the interactive rulemaking website, contact Ms. Carol Gallagher, (301) 415-5905 (e-mail: CAG@nrc.gov).

Certain documents related to this rulemaking, including comments received, may be examined at the NRC Public Document Room, 2120 L Street, N.W., Washington DC 20003-1527.

Documents created or received at the NRC after November 1, 1999, are also available electronically at the NRC's Public Electronic Reading Room on the Internet at **http://www.nrc.gov/NRC/ADAMS/index.html.** From this site, the public can gain entry into the NRC's Agencywide Document Access and Management System (ADAMS), which provides text and image files of NRC's public documents. For more information, contact the NRC Public Document Room (PDR) Reference staff at 1-800-397-4209, 202-634-3273 or by email to pdr@nrc.gov.

FOR FURTHER INFORMATION CONTACT: Francis X. Cameron, U.S. Nuclear Regulatory Commission, Washington DC 20555, telephone (301) 415-1642, e-mail FXC@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Background

The Commission's regulations in 10 CFR Part 2, Subpart J, provide for the use of an electronic information management system, the Licensing Support Network (LSN), in the HLW repository licensing proceeding. Originally promulgated on April 14, 1989, (54 FR 14944), the information management system currently required by Subpart J is to have the following functions:

(1) To provide full text search and retrieval access to the relevant documents of all parties and potential parties to the HLW repository licensing proceeding beginning in the time period before the Department of Energy (DOE) license application for the repository is submitted;

(2) To provide for electronic submission of filings by the parties, as well as the orders and decisions of the Atomic Safety and Licensing Board Panel, during the proceeding; and

(3) To provide access to an electronic version of the HLW repository licensing proceeding docket.

The creation of the LSN (originally called the "Licensing Support System", but hereinafter the "LSN") was stimulated by the requirements of Section 114(d)(2) of the Nuclear Waste Policy Act of 1982 (NWPA). This provision requires the Commission to issue a final decision approving or disapproving issuance of the construction authorization for a geologic repository for HLW within three years of the "submission" of the DOE license application. The Commission anticipated that the HLW proceeding would involve substantial amounts of documents created by well-informed parties on numerous and complex issues. The Commission believed that the LSN could facilitate the timely NRC technical review, and the timely petitioner "discovery-type" review, of DOE's license application by providing for electronic

access to relevant documents before the license application is submitted, and to supplant the need for the traditional discovery process used in NRC proceedings of the physical production of these documents after the license application is submitted. In addition, the Commission believed that early provision of these documents in an easily searchable form would allow for a thorough and comprehensive technical review of the license application by all parties and potential parties to the HLW licensing proceeding, resulting in better focused contentions in the proceeding. The LSN would also facilitate agency responses to Freedom of Information Act (FOIA) requests by providing the public with electronic access to relevant documents.

The current requirements contained in the LSN rule require DOE and NRC to make their documentary material available in electronic form beginning thirty days after DOE's submission of its site recommendation to the President of the United States. All other participants must make their documents available in electronic form no later than thirty days after the date that the repository site selection decision becomes final after review by Congress. Originally, the LSN was conceived of as a large centralized information management system administered by what was then called the Licensing Support System Administrator. In order to take advantage of the advances in technology that occurred since the promulgation of the original rule, the Commission revised the rule to use the Internet to link geographically dispersed sites rather than relying on a complex and expensive centralized system (62 FR 60789; December 23, 1998). Although the Supplementary Information that accompanied these most recent amendments noted that the availability of the Internet to link geographically dispersed sites appears to have the potential to satisfy the requirements and objectives of Subpart J, no specific design for the LSN was set forth in that final rule nor were any specific performance requirements established except to specify that the overall design must be "effective and efficient". At that time it was concluded that further evaluation by the LSN Administrator, and

consultation with the Commission's LSN Advisory Review Panel (LSNARP) of potential system users, was necessary before the nature and scope of these design requirements would become clear. Under § 2.1011(c)(1) of the current rule, the LSN Administrator is also responsible for bringing these types of LSN implementation issues to the Commission for Commission consideration.

The Commission now believes that certain minimum design standards for data structure and data transfer ("design standards") for individual participant websites are necessary to ensure that the LSN meets its objectives and functions. Without such standards, there is a potential that the parties and potential parties to the HLW licensing proceeding may be unable to identify needed documents efficiently and effectively because the system is slow, cumbersome, or simply unavailable, given the large number of documents and the many users trying to access the system. In addition, the lack of required standards may lead to skepticism about document and data integrity. The system should ensure that it provides the tools needed for participants' document discovery and for the technical staff to perform a thorough technical review of the license application. Any deficiencies in the information management system for the HLW licensing proceeding could easily result in time-consuming disputes that place the three-year repository application review schedule at risk. The Commission believes the cost of system failure is too high not to try to ensure effective operation of the system through establishing some minimal design standards.

In addition to the proposed design standards, the Commission is also proposing to supplement the existing responsibilities of the LSN Administrator by making it clear that the Administrator has the authority to review participant website designs to verify compliance with the basic design standards, including the authority to allow variances from those standards. In addition, it will make clear that the LSN Administrator has the authority to issue guidance to the

LSN participants on how they might best meet the design standards. The LSN Administrator will develop this guidance in consultation with the LSNARP. The Commission anticipates that the LSN Administrator's guidance will be, in most cases, routinely followed by the LSN participants. However, there will be flexibility for a participant to deviate from the guidance to take into account individual needs and differences as long as the fundamental design requirements are met.

II. LSN Design Standards

The successful implementation of a system to connect diverse collections of documents stored by the participants on a wide range of hardware and software platforms will depend on the use of data structure and transfer standards and protocols. Adherence to these standards will ensure usability and exchangeability to the users, and verifiability of data integrity to the LSN Administrator. These standards must–

(1) Be broad enough to encompass a wide range of automation products;

(2) Be focused enough to accomplish successful document access;

(3) Impose the least amount of burden on the participants; and

(4) Be dynamic enough to address new technologies that may be used by as yet unidentified participants.

These design standards are generally accepted data structure and transfer protocols currently in use in the Internet environment, and as such, reflect a "lowest common denominator" for participant websites while allowing the participants the flexibility to select the specific technologies (hardware and software) for their websites. The Commission also intends to implement a design for the "LSN site" , discussed later, that will ensure that the totality of the

individual websites operate in an “effective and efficient” manner. This “LSN site” design complements the capabilities of, and relies on compatibility with, the design standards for individual participant websites. The Commission is proposing the following design standards:

1. The participants must make textual (or, where non-text, image) versions of their documents available on a web-accessible server. Web indexing software (also known as a robot, a spider, a crawler) must be able to canvass data files and server log files on the participant server.

This proposed clarification establishes a baseline of data and documents placed on participant systems, and, a means to revisit those servers routinely to identify any changes to documents. This proposed revision is consistent with the Administrator’s responsibility under 10 CFR 2. 1011(c)(4) to resolve problems regarding the integrity of LSN documentary material.

This proposed revision does not affect the ability of parties or potential parties to correct or revise documents already made available on their web sites. Changes to documents previously entered are permitted if:

(1) A corrected or updated document is noted as superseding a previously provided document;

(2) The previous version is not removed; and,

(3) Other parties or potential parties are notified of the change.

2. The participants must make bibliographic header data available in an accessible, SQL (Structured Query Language)-compliant (ANSI IX3.135-1992/ISO 9075-1992) database management system (DBMS). Alternatively, the structured data may be made available in a standard database readable (e.g., comma delimited) file.

The proposed criteria provide acceptable electronic formats for parties to provide bibliographical information on a document or the full text of a document on their individual web pages in a form that can be searched by the LSN web site. This proposed clarification identifies two ways by which parties or potential parties can make a bibliographic header available for use by the LSN. SQL-compliant identifies a broad range of widely used database products with proven data exchange capability. SQL is a standard interactive and programming language for accessing and updating a database. The option for providing readable files establishes a low system cost threshold for participants in that it does not require investment in a DBMS, yet still provides for data formatting so that import routines can be easily developed. A “comma delimited” file is a way to identify where a particular relational database file begins and ends.

3. Textual material must be formatted to comply with the US.ISO_8859-1 character set and be in one of the following acceptable formats: plain text, native word processing (Word, WordPerfect), PDF (Portable Document Format) Normal, or HTML.

This proposed clarification simplifies data exchange by standardizing on the standard Latin alphabet. It also identifies a broad range of widely used text file formats (which

the LSN participants can designate) for text documents that are viewable with current browser/viewer software and can be recognized by state-of-technology indexing software.

4. Image files must be formatted as TIFF (Tag Image File Format) CCITT G4 for bi-tonal images or PNG (Portable Network Graphics) per [http://www.w3.org/TR/REC-png-multi.html] format for grey-scale or color images, or PDF (Portable Document Format - Image) for compound documents. TIFF images will be stored at 300 dpi (dots per inch), grey scale images at 150 dpi with eight bits of tonal depth, and color images at 150 dpi with 24 bits of color depth. Participants should store images on their servers as single image-per-page to facilitate retrieval of no more than a single page. Alternatively, images may be stored in a page-per-document format if software is incorporated in the web server that allows single-page representation and delivery. A “Tag Image File Format” or “TIFF” is a common format for exchanging raster (bitmapped) images between application programs.

This proposed clarification establishes three standard formats, usable by the LSN, that parties or potential parties can use to make non-textual documentary materials viewable with current browser/viewer software. These standards all use predictable algorithms for compression and uncompression of files to help ensure compatibility and usability. Additionally, all these standard formats have attributes that can be used to verify that an image file has not been revised since initially being placed on a participant’s server.

5. The parties or potential parties must programmatically link the bibliographic header record with the text or image file it represents to provide for file delivery and display from participant machines using the LSN system.

This proposed clarification establishes basic information management controls to clearly and systematically link the bibliographic record entry with the document it describes. The bibliographic header must contain fielded data identifying its associated text or image file name and directory location.

6. To facilitate data exchange, participants must follow hardware and software standards, including, but not limited to:

Network access must be HTTP/1.1 [http://www.faqs.org/rfcs/rfc2068.html] over TCP (Transmission Control Protocol, [http://www.faqs.org/rfcs/rfc793.html]) over IP (Internet Protocol [http://www.faqs.org/rfcs/rfc791.html]).

Associating server names with IP addresses must follow the DNS (Domain Name System), [http://www.faqs.org/rfcs/rfc1034.html] and [http://www.faqs.org/rfcs/rfc1035.html].

Web page construction must be HTML version 4.0 [http://www.w3.org/TR/REC-html40/].

Electronic mail (e-mail) exchange between 3-mail servers must be SMTP (Simple Mail Transport Protocol, [http://www.faqs.org/rfcs/rfc821.html].

Format of an electronic mail message must be per [http://www.faqs.org/rfcs/rfc822.html] optionally extended by MIME (Multimedia Internet Mail Extensions) per [http://www.faqs.org/rfcs/rfc2045.html] to accommodate multimedia e-mail.

This proposed clarification identifies standard data exchange protocols commonly used in the Internet environment to help ensure data exchange and usability.

III. The LSN Site Design

As noted, the Commission also intends to implement a design for the "LSN site" that will ensure that the totality of the individual websites operate in an "efficient and effective" manner. The proposed design standards for individual participant websites are fully consistent and supportive of the design for the "LSN site". In order to evaluate the alternative designs for the "LSN site", the Technical Working Group of the LSN Advisory Review Panel identified and characterized five design alternatives for review by the full Advisory Panel. These alternatives were then reviewed by the full LSN Advisory Review Panel. The LSN Administrator then evaluated the recommendations of the Advisory Review Panel in preparing a Capital Planning and Investment Control (CPIC) Business Case Analysis for review by the NRC Information Technology Business Council. Two of the alternatives identified by the Technical Working Group, Alternatives 2 and 4, were not included in this analysis because no members of the LSN Advisory Review Panel supported these alternatives. The Business Case and the recommendations of the Information Technology Business Council were then reviewed by the NRC Executive Council.

In the Business Case Analysis, the LSN Administrator recommended the selection of the alternative originally identified as "Alternative 3" (Design Option 2 in the Regulatory

Analysis) in the report of the LSN Advisory Review Panel Technical Working Group. The Administrator's recommendation was supported by the Information Technology Business Council and the Executive Council. A summary comparison of the alternative designs is included in the Regulatory Analysis for this proposed rule. The entire Business Case Analysis (with budgetary data redacted) is available from the LSN Administrator. Contact Dan Graser, U.S. Nuclear Regulatory Commission, Washington D.C. 20555, telephone (301) 415-7401, email **DJG2@NRC.Gov.**

The recommended design is an LSN home page/web site based on portal software technology. Web portals include hardware and software capable of: indexing all bibliographic data and text documents on a web server; establishing a baseline; and then routinely revisiting those servers to compare new findings against the previous baseline. The single LSN web page standardizes search and retrieval across all collections by providing a common user search interface, rather than requiring users to learn the search and retrieval commands from each different site.

Each participant web site acts as a file server to deliver the text documents responsive to a query found through a search at the LSN web site. The LSN identifies the contents of each server and stores this information in its own database, which is then used to respond to searches. Users are presented lists of candidate documents that are responsive to their search. When the user wants to view a document, the LSN directs the participant server to deliver the file back to the user.

In addition to the search and retrieval, the LSN keeps track of how data was stored in the participant servers. Software assigns a unique identifying number to each file found on a server. The LSN software uses its baseline information about documents to identify when the participants have updated data on their servers. It also gathers information about the performance of the participants' servers including availability, number of text or image files delivered, and their response times.

Finally, the LSN will be used to post announcements about the overall LSN program and items of interest (hours of availability, scheduled outages, etc.) for the participant sites.

The Commission believes that the recommended design represents the least cost to both NRC and the individual parties to the HLW licensing proceeding, while at the same time providing high value to the users. Because it is based on a proven technical solution that has been successfully implemented, the recommended design will provide a document discovery system that will facilitate the NRC's ability to comply with the schedule for decision on the repository construction authorization; will provide an electronic environment that facilitates a thorough technical review of relevant documentary material; will ensure equitable access to the information for the parties to the HLW licensing proceeding; will ensure that document integrity has been maintained for the duration of the licensing proceeding; will most consistently provide the information tools needed to organize and access large participant collections; will feature adequately scaled and adaptable hardware and software; and will include comprehensive security, backup, and recovery capabilities.

IV. The Role of the LSN Administrator

The role of the LSN Administrator under the current rule is to coordinate access to, and the functioning of, the LSN, as well as to coordinate the resolution of problems regarding the availability and integrity of documentary material and data. As a necessary supplement to the specification of the design standards set forth in this proposed rule, the Commission believes that the LSN Administrator should have additional responsibilities. The proposed rule would give the LSN Administrator the responsibility to review all participant website designs to ensure that they meet the design standards and to allow variances from the design standards to accommodate changes in technology or problems identified during initial operability testing of the individual websites or the "LSN site". The Administrator would also have the authority to develop and issue guidance for LSN participants on how best to incorporate the LSN standards in their system. Any disputes related to the Administrator's evaluation of participant compliance with the design standards would be referred to the Pre-License Application Presiding Officer under the authority of § 2.1010 of the current rule.

Sections 2.1011(c)(3) and (c)(4) of the current rule give the Administrator the responsibility to "coordinate the resolution of problems" in regard to "LSN availability" and the "integrity of documentary material", respectively. In order to be more explicit regarding the Administrator's responsibilities, the Commission is proposing to amend these sections to authorize the Administrator to identify problems, notify the participant(s) of the nature of these problems, and recommend a course of action to the participant(s) to resolve the problem concerning LSN availability, § 2.1011(c)(3), or the integrity of documentary material, § 2.1011(c)(4). The LSN Administrator would also report all such problems and recommended resolutions to the Pre-License Application Presiding Officer provided for in § 2.1010 of the rule.

All disputes over the LSN Administrator's recommendations as to documentary material or data availability and integrity will be referred to the Pre-License Application Presiding Officer.

V. The Timing of Participant Compliance Determinations

Section 2.1009 of the current rule requires each potential party, interested governmental participant, or party to certify to the Pre-License Application Presiding Officer that the documentary material specified in § 2.1003 has been identified and made electronically available. In addition, DOE must update this certification at the time of submission of the license application to ensure that all documentary material generated by DOE between the initial certification and the submission of the license application have been made available in the LSN. Section 2.1012(a) authorizes the Director of the NRC's Office of Nuclear Material Safety and Safeguards not to docket the DOE license application if the application is not accompanied by an updated DOE certification of compliance with the LSN rule. However, the current rule does not specify when the initial certification must be made. The Commission is proposing a revision to § 2.1009 to clarify that the initial participant certification of compliance ("initial certification") must be made at the time that each participant's documentary material must be made available under § 2.1003 of the rule (DOE and NRC beginning thirty days after DOE's submission of its site recommendation to the President; other participants no later than thirty days after the date that the repository site selection decision becomes final after review by Congress).

Although the Commission fully expects DOE to make the initial certification at the time that DOE is required to comply with the requirement to make its documentary material available, the Commission is proposing to adopt a new § 2.1009(c) which would address the unlikely

possibility that DOE may not be able to make a timely initial certification. The basic requirements of the LSN rule have been in place for over ten years and the Commission would anticipate full and timely DOE compliance with these requirements. However, the Commission also recognizes that circumstances may raise the possibility that DOE would be unable to provide the initial certification at the time set for compliance. Under proposed § 2.1009(c), if DOE cannot make the initial certification at the time first required, DOE then would have the obligation to make the initial certification as soon as possible. In addition, DOE would be required to provide the Pre-License Application Presiding Officer with a submission that, with as much specificity as is reasonably possible, details the circumstances regarding its noncompliance, including (1) the type and volume of the documentary material it has not made available so as to preclude it from making a certification; (2) an explanation as to why this documentary material has not been made electronically available; and (3) an estimate of a date certain by which this documentary material will be made available. Further, in addition to the section 2.1009(b) requirement of a twelve-month certification update, this DOE submission must be updated at ninety-day intervals until such time as DOE is able to certify that all the documentary material in question is available.

DOE would remain under an obligation under § 2.1003 to provide access to all the documentary material that is available at the time specified in§ 2.1003 and that is not identified in its submission explaining its noncertification, rather than delaying all document availability until the time that it can certify compliance. Any disputes regarding the DOE noncertification submission and any updates, including the validity of the information provided in the submission and any updates, would fall within the existing authority of the Pre-License Application Presiding Officer under § 2.1010.

The Commission notes that curtailing the amount of time that the LSN is available before the submission of the license application would reduce the potential benefit that the LSN was to provide in terms of facilitating an effective and efficient NRC review of the DOE license application and providing complete document disclosure at the outset of the proceeding. If DOE is unable to make a timely initial certification, this benefit would be substantially diminished. Thus, the Commission anticipates that this would be an initiating event for the Commission to report to the Secretary of Energy and the Congress, pursuant to Section 114(e)(2) of the Nuclear Waste Policy Act, that it could not meet the three-year review required under section 114(d) of the Act.

VI. Section-by-Section Changes

The Commission is proposing two major revisions to § 2.1011, Management of Electronic Information. The first would add a new paragraph (b)(2) to specify the basic design standards for individual LSN participant websites. The second major revision would clarify the authority of the LSN Administrator in regard to these design standards.

In § 2.1011:

Paragraph (b)(2) would include the following design standards for LSN participant websites:

Paragraph (b)(2)(i) would require that the participants make textual (or, where non-text, image) versions of their documents available on a web accessible server which is able to be canvassed by web indexing software (i.e., a “robot”, “spider”, “crawler”) and the participant system would be required to make both data files and log files accessible to this software.

Paragraph (b)(2)(ii) would require that the participants make structured data available in the context of (or, under the control of) an accessible SQL-compliant database management system (DBMS). Alternatively, the structured data may be made available in a standard database readable (e.g., comma delimited) file.

Paragraph (b)(2)(iii) would require that textual material be formatted to comply with the US.ISO_8859-1 character set and be in one of the following acceptable formats: native word processing (Word, WordPerfect), PDF Normal, or HTML.

Paragraph (b)(2)(iv) would require that image files be formatted as TIFF CCITT G4 for bi-tonal images or PNG (Portable Network Graphics) per [http://www.w3.org/TR/REC-png-multi.html]) format for grey-scale or color images, or PDF (Portable Document Format - Image) for compound documents. TIFF images will be stored at 300 dpi (dots per inch), grey scale images at 150 dpi with eight bits of tonal depth, and color images at 150 dpi with 24 bits of color depth. Images found on participant machines will be stored as single image-per- page to facilitate retrieval of no more than a single page, or alternatively, images may be stored in a page-per-document format if software is incorporated in the web server that allows single-page representation and delivery.

Paragraph (b)(2)(v) would require that the parties programmatically link the bibliographic header record with the text or image file it represents. The header record must contain fielded data identifying its associated object (text or image) file name and directory location.

To facilitate data exchange, paragraph (b)(2)(vi) would require that participants adhere to hardware and software standards, including the following:

(A) Network access must be HTTP/1.1 [http://www.faqs.org/rfcs/rfc2068.html] over TCP (Transmission Control Protocol, [http://www.faqs.org/rfcs/rfc793.html]) over IP (Internet Protocol, [http://www.faqs.org/rfcs/rfc791.html]).

(B) Associating server names with IP addresses must follow the DNS (Domain Name System), [http://www.faqs.org/rfcs/rfc1034.html] and [http://www.faqs.org/rfcs/rfc1035.html].

(C) Web page construction must be HTML version 4.0 [http://www.w3.org/TR/REC-html40/].

(D) Electronic mail (e-mail) exchange between e-mail servers must be SMTP (Simple Mail Transport Protocol, [http://www.faqs.org/rfcs/rfc821.html]).

(E) Format of an electronic mail message must be per [http://www.faqs.org/rfcs/rfc822.html] optionally extended by MIME (Multimedia Internet Mail Extensions) per [http://www.faqs.org/rfcs/rfc2045.html]) to accommodate multimedia e-mail.

Section 2.1011(c) would be amended as follows to clarify the responsibilities and authority of the LSN Administrator:

Paragraph (c)(6) would require that the LSN Administrator evaluate LSN participant compliance with the basic design standards in § 2.1011(b)(2), and provide for individual variances from the design standards to accommodate changes in technology, problems identified during initial operability testing of the individual websites or the “LSN site”, or the infeasibility of an individual LSN participant’s strict adherence to guidelines because of unique technical problems that would not affect the effectiveness or efficiency of the LSN.

Paragraph (c)(7) would require that the LSN Administrator issue guidance for LSN participants on how best to comply with the design standards in § 2.1011(b)(2).

In § 2.1011, paragraphs (c)(3) and (c)(4) would also be amended in order to be more explicit regarding the Administrator’s responsibilities in regard to LSN availability and the

integrity of documentary material. The Commission is proposing to amend these sections to authorize the Administrator to identify problems, notify the participant(s) of the nature of these problems, and recommend a course of action to the participant(s) to resolve the problem in regard to LSN availability, § 2.1011(c)(3), or the integrity of documentary material, § 2.1011(c)(4). In accordance with § 2.1010 of the rule, a dispute over the Administrator's evaluation of individual LSN participant website compliance with the basic design standards in proposed § 2.1011(b)(2) or the Administrator's recommendations as to documentary material or data availability and integrity would be referred to the Pre-License Application Presiding Officer. In the case of such referral, the Commission anticipates that the Pre-License Application Presiding Officer may wish to call upon the LSN Administrator to investigate and report on particular problems and to recommend proposed solutions.

Section 2.1009 would be amended to clarify that the initial participant certification of compliance ("initial certification") must be made at the time that each participant's documentary material must be made available under § 2.1003 of the rule.

Plain Language

The Presidential memorandum dated June 1, 1998, entitled, "Plain Language in Government Writing," directed that the government's writing be in plain language. This memorandum was published June 10, 1998 (63 FR 31883). In complying with this directive, editorial changes have been made in these proposed revisions to improve the organization and readability of the existing language of the paragraphs being revised. These types of changes are not discussed further in this document. The NRC requests comments on the proposed rule specifically with respect to the clarity and reflectiveness of the language used. Comments should be sent to the address listed under the ADDRESSES caption of the preamble.

Voluntary Consensus Standards

The National Technology Transfer and Advancement Act of 1995, Pub. L. 104-113, requires that Federal agencies use technical standards that are developed or adopted by voluntary consensus standards bodies unless using such a standard is inconsistent with applicable law or otherwise impractical. This proposed rule would establish basic design standards that Licensing Support Network participant websites must use to participate in the HLW licensing process. The standards in the proposed rule are based on World Wide Web Consortium (W3) standards, and/or the International Standards Organization (ISO) standards and are not government-unique standards.

Environmental Impact: Categorical Exclusion

The NRC has determined that this proposed regulation is the type of action described in categorical exclusion 10 CFR 51.22(c)(1). Therefore, neither an environmental impact statement nor an environmental assessment has been prepared.

Paperwork Reduction Act Statement

The proposed rule does not contain information collection requirements and therefore is not subject to the requirements of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.).

Public Protection Notification

If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

Regulatory Analysis

The following regulatory analysis identifies several alternatives ("regulatory options") to the Commission's proposal to establish required design standards for the design of individual participant websites. It also provides information on the LSN Administrator's evaluation of alternatives for the "LSN site" ("design options").

Regulatory Options. Option 1 would retain the status quo of the existing rule consisting of requirements for participants to provide their documentary material in electronic form. Provision of this material would be on individual participant websites. No requirements would be established to assure that the information on the participant websites was readily available to other participants in a timely manner. Option 2 would provide for the development of suggested design standards by the LSN Administrator in consultation with the LSN Advisory Review Panel. Individual participants would be free to adopt or reject these suggested standards. Option 3 is reflected in the proposed rule. This Option establishes basic design standards for individual websites but also provides for flexibility in the implementation of the standards.

In regard to Option 1, the Commission believes that the role of the LSN for providing a document discovery system to minimize delay in the HLW licensing proceeding, as well as for facilitating the effective review and use of relevant licensing information by all parties, is too important to not provide contextual guidance to the parties and potential parties in the design of individual websites. Individual participant judgments on the cost-benefit of providing data without a contextual framework of what is necessary to provide for effective data availability may compromise effective design. Without such guidance, the funds that have been spent on the design and development of the LSN would be compromised by poor implementation, particularly by parties who have large document collections. Option 2 would attempt to provide suggested standards through the LSN Administrator and the LSN Advisory Review Panel. Unfortunately, there is no assurance of consensus on the standards, or that any consensus

standards would be followed even if they were developed. As with Option 1, the Commission believes that the role of the LSN in the HLW licensing proceeding is too important to not establish minimal standards to ensure effective operation. Therefore, the Commission has adopted Option 3 which is reflected in the proposed rule.

LSN Site Design Options. In order to evaluate the alternative designs for the "LSN site", the Technical Working Group of the LSNARP identified and characterized five design alternatives for review by the full Advisory Panel. These alternatives were then reviewed by the full LSNARP. Two of the alternatives that were identified by the Technical Working Group, Alternatives 2 and 4, were not included in this analysis because no members of the LSN Advisory Review Panel supported these alternatives. Therefore, the Commission ultimately considered three options for the design of the LSN site: Design Option 1 (TWG Alternative 1); Design Option 2 (TWG Alternative 3); and Design Option 3 (TWG Alternative 5).

Design Option 1 is characterized by an LSN homepage/website that points end-users to the web accessible documentary collections of each of the participants. The LSN homepage/website adds no value to the inherent information management capabilities found at any of the participant sites. The "LSN site" simply serves as a pointer to other home pages. This option provides no search and retrieval or file delivery processes to any user. The participant web site provides the sole search and retrieval tools to access its text documents. Participants may use any software to provide text search and retrieval, and those packages may represent a wide range of capabilities from minimal to fully featured.

The recommended design, Design Option 2, is characterized by an LSN homepage/website developed using portal software technology. Web portals represent a fully featured hardware and software environment capable of "crawling" participant sites,

characterizing (to the byte level) all structured and unstructured data located at that site, establishing a snapshot at defined points-in-time as baselines, and then routinely “recrawling” those sites and comparing new findings against the previous baseline. Portal software adds significant value to the inherent information management capabilities found at any of the participant sites. Each participant web site acts as a file server to deliver to Internet users the text documents responsive to a query found through a search at the LSN website.

Under a portal architecture, the LSN would organize and identify the contents of participant collections in its own underlying database environment for structured data and would index unstructured data located at a “crawled” location. The portal software utilizes these underlying databases to respond to search queries with lists of candidate documents that are responsive to a user’s request. When the user seeks to retrieve the file, the portal software directs the request back to the original source (participant) collection server that directly delivers the file back to the user. Portal software provides a single user search interface rather than requiring users to learn the search and retrieval commands from each different site. Portal software contains underlying data dictionaries that “interpret” how data was stored in the participant servers and presents it to the user as “normalized.” Portal software also assigns a unique identifying number to each file regardless of file location.

Design Option 3 is identical to Design Option 2 except that (1) when the user seeks to retrieve the file, the portal software delivers the document to a user from the copy maintained on a very large storage unit that would be maintained by the LSN Administrator; and (2) the storage cache is provided with high-capacity bandwidth under the control of the Administrator. Participant servers’ versions of the document serve as backup copies should the LSN site become inoperative.

The Commission believes that Design Option 1 is of low benefit in terms of delivering efficient or effective access to users and shifts the cost burden to individual participants. This Option creates a significant risk that system implementation and operation issues may result in disputes whose resolution could have a negative impact on the agency's ability to meet its three-year schedule for making a decision on repository construction authorization. The Commission would also note that the LSNARP TWG did not believe that Design Option 1 provided the functionality to be effective.

Although Design Option 3 adds value over and above the design in Design Option 2, it also has the highest cost of all alternatives. Design Option 3, while it offers more assurance of performance and document delivery, has initial costs to NRC almost double those of Design Option 2, which fulfills the same number of functional requirements as Design Option 3. Design Option 3 also presents a potential conflict for the LSN Administrator, who would be in a position of being accountable for the availability, accuracy, integrity, and custodial chain of participant materials.

The Commission believes that the recommended design represents the least cost to both NRC and the individual parties to the HLW licensing proceeding, while at the same time providing high value to the users. It is based on a proven technical solution that has been successfully implemented; it will provide a document discovery system that will facilitate the NRC's ability to comply with the schedule for decision on the repository construction authorization; it provides an electronic environment that facilitates a thorough technical review of relevant documentary material; it ensures equitable access to the information for the parties to the HLW licensing proceeding and that document integrity has been maintained for the duration of the licensing proceeding. Design Option 2 most consistently provides the information tools needed to organize and access large participant collections. It features

adequately scaled and adaptable hardware and software and includes comprehensive security, backup, and recovery capabilities.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act (5 U.S.C. 605(b)), the Commission has evaluated the impact of the proposed rule on small entities. The NRC has established standards for determining who qualifies as small entities (10 CFR 2.810). The Commission certifies that this proposed rule, if adopted, would not have a significant economic effect on a substantial number of small entities. The proposed amendments would modify the NRC's rules of practice and procedure in regard to the HLW licensing proceeding. Participants will be required to make their documentary material available electronically on a website that complies with the basic design standards established in the proposed rule. Some of the participants affected by the proposed rule, for example, DOE, NRC, the State of Nevada, would not fall within the definition of "small entity" under the NRC's size standards. Other parties and potential parties may qualify as "small entities" under these size standards. However, the required standards reflect standard business practice for making material electronically available. In addition, the proposed requirements provide flexibility to participants in how these standards are implemented.

Backfit Analysis

The NRC has determined that a backfit analysis is not required for this proposed rule because these amendments would not include any provisions that require backfits as defined in 10 CFR Chapter I.

List of Subjects in 10 CFR Part 2

Administrative practice and procedure, Antitrust, Byproduct material, Classified information, Environmental protection, Nuclear materials, Nuclear power plants and reactors, Penalties, Sex discrimination, Source material, Special nuclear material, Waste treatment and disposal.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended; and 5 U.S.C. 553; the Nuclear Regulatory Commission is proposing the following amendments to 10 CFR Part 2.

PART 2 - RULES OF PRACTICE FOR DOMESTIC LICENSING PROCEEDINGS AND ISSUANCE OF ORDERS

1. The authority citation for Part 2 continues to read as follows:

AUTHORITY: Secs.161, 181, 68 Stat. 948, 953, as amended (42 U.S.C. 2201, 2231); sec. 191, as amended, Pub. L. 87-615, 76 Stat. 409 (42 U.S.C. 2241); sec. 201, 88 Stat.1242, as amended (42 U.S.C. 5841); 5 U.S.C. 552.

Section 2.101 also issued under secs. 53, 62, 63, 81, 103, 104, 105, 68 Stat. 930, 932, 933, 935, 936, 937, 938, as amended (42 U.S.C. 2073, 2092, 2093, 2111, 2133, 2134, 2135); sec. 114(f), Pub. L. 97-425, 96 Stat. 2213, as amended (42 U.S.C. 10134(f)); sec. 102, Pub. L. 91-190, 83 Stat. 853, as amended (42 U.S.C. 4332); sec. 301, 88 Stat. 1248 (42 U.S.C. 5871). Sections 2.102, 2.103, 2.104, 2.105, 2.721 also issued under secs. 102, 103, 104, 105, 183, 189, 68 Stat. 936, 937, 938, 954, 955, as amended (42 U.S.C. 2132, 2133, 2134, 2135, 2233, 2239). Section 2.105 also issued under Pub. L. 97-415, 96 Stat. 2073 (42 U.S.C. 2239). Sections 2.200-2.206 also issued under secs. 161 b, i, o, 182, 186, 234, 68 Stat. 948-951, 955, 83 Stat. 444, as amended (42 U.S.C. 2201 (b), (i), (o), 2236, 2282); sec. 206, 88 Stat 1246 (42 U.S.C. 5846). Sections 2.205(j) also issued under Pub. L. 101-410, 104 Stat. 890, as amended by section 31001(s), Pub. L. 104-134, 110 Stat. 1321-373 (28 U.S.C. 2461 note). Sections 2.600-2.606 also issued under sec. 102, Pub. L. 91-190, 83 Stat. 853, as amended (42 U.S.C. 4332). Sections 2.700a, 2.719 also issued under 5 U.S.C. 554. Sections 2.754, 2.760, 2.770,

2.780 also issued under 5 U.S.C. 557. Section 2.764 also issued under secs. 135, 141, Pub. L. 97-425, 96 Stat. 2232, 2241 (42 U.S.C. 10155, 10161). Section 2.790 also issued under sec. 103, 68 Stat. 936, as amended (42 U.S.C. 2133) and 5 U.S.C. 552. Sections 2.800 and 2.808 also issued under 5 U.S.C. 553. Section 2.809 also issued under 5 U.S.C. 553 and sec. 29, Pub. L. 85-256, 71 Stat. 579, as amended (42 U.S.C. 2039). Subpart K also issued under sec. 189, 68 Stat. 955 (42 U.S.C. 2239); sec. 134, Pub. L. 97-425, 96 Stat. 2230 (42 U.S.C. 10154). Subpart L also issued under sec. 189, 68 Stat. 955 (42 U.S.C. 2239). Appendix A also issued under sec. 6, Pub. L. 91-560, 84 Stat. 1473 (42 U.S.C. 2135).

2. In § 2.1009, paragraph (b) is revised and paragraph (c) is added to read as follows:

§ 2.1009 Procedures.

* * * * *

(b) The responsible official designated under paragraph (a)(1) of this section shall certify to the Pre-License Application Presiding Officer that the procedures specified in paragraph (a)(2) of this section have been implemented, and that to the best of his or her knowledge, the documentary material specified in § 2.1003 has been identified and made electronically available. The initial certification must be made at the time the participant is required to comply with § 2.1003. The responsible official shall update this certification at twelve month intervals if necessary. The responsible official for the DOE shall also update this certification at the time of submission of the license application.

(c) If DOE is unable to make an initial certification as specified in § 2.1003(a), DOE shall make an initial certification as soon as possible. In addition, at the time specified in § 2.1003(a) for making documentary material available, DOE shall provide the Pre-License Application Presiding Officer with a submission that describes with as much specificity as is reasonably possible the circumstances involved, including (1) the type and volume of the documentary material for which it is not able to make a certification, (2) an explanation as to why the documentary material has not been made electronically available, and (3) an estimate of a date certain by which that documentary material will be made available. Notwithstanding the provisions of paragraph (b) of this section, this submission shall be updated at ninety-day intervals until such time as DOE is able to certify that the documentary material in question is available.

3. In § 2.1011, paragraphs (b), (c)(3), and (c)(4) are revised and paragraphs (c)(6) and (c)(7) are added to read as follows:

§ 2.1011 Management of electronic information.

* * * * *

(b)(1) The NRC, DOE, parties, and potential parties participating in accordance with the provision of this subpart shall be responsible for obtaining the computer system necessary to comply with the requirements for electronic document production and service.

(2) The NRC, DOE, parties, and potential parties participating in accordance with the provision of this subpart shall comply with the following standards in the design of the computer systems necessary to comply with the requirements for electronic document production and service:

(i) The participants shall make textual (or, where non-text, image) versions of their documents available on a web accessible server which is able to be canvassed by web indexing software (i.e., a “robot”, “spider”, “crawler”) and the participant system must make both data files and log files accessible to this software.

(ii) The participants shall make structured data available in the context of (or, under the control of) an accessible SQL-compliant (ANSI X3.135-1992/ISO 9075-1992) database management system (DBMS). Alternatively, the structured data may be made available in a standard database readable (e.g., comma delimited) file.

(iii) Textual material must be formatted to comply with the US.ISO_8859-1 character set and be in one of the following acceptable formats: plain text, native word processing (Word, WordPerfect), PDF Normal, or HTML.

(iv) Image files must be formatted as TIFF CCITT G4 for bi-tonal images or PNG (Portable Network Graphics) per [http://www.w3.org/TR/REC-png- multi.html]) format for grey-scale or color images, or PDF (Portable Document Format - Image) for compound documents. TIFF images will be stored at 300 dpi (dots per inch), grey scale images at 150 dpi with eight bits of tonal depth, and color images at 150 dpi with 24 bits of color depth. Images found on participant machines will be stored as single image-per- page to facilitate retrieval of no more than a single page, or alternatively, images may be stored in a page-per-document format if software is incorporated in the web server that allows single-page representation and delivery.

(v) The participants shall programmatically link the bibliographic header record with the text or image file it represents. The header record must contain fielded data identifying its associated object (text or image) file name and directory location.

(vi) To facilitate data exchange, participants shall adhere to hardware and software standards, including, but not limited to:

(A) Network access must be HTTP/1.1 [http://www.faqs.org/rfcs/rfc2068.html] over TCP (Transmission Control Protocol, [http://www.faqs.org/rfcs/rfc793.html]) over IP (Internet Protocol, [http://www.faqs.org/rfcs/rfc791.html]).

(B) Associating server names with IP addresses must follow the DNS (Domain Name System), [http://www.faqs.org/rfcs/rfc1034.html] and [http://www.faqs.org/rfcs/rfc1035.html].

(C) Web page construction must be HTML version 4.0 [http://www.w3.org/TR/REC-html40/].

(D) Electronic mail (e-mail) exchange between e-mail servers must be SMTP (Simple Mail Transport Protocol, [http://www.faqs.org/rfcs/rfc821.html]).

(E) Format of an electronic mail message must be per [http://www.faqs.org/rfcs/rfc822.html] optionally extended by MIME (Multimedia Internet Mail Extensions) per [http://www.faqs.org/rfcs/rfc2045.html]) to accommodate multimedia e-mail.

(c) * * *

(3) Identify any problems experienced by participants regarding LSN availability, including the availability of individual participant's data, and provide a recommendation to resolve any such problems to the participant(s) and the Pre-license Application Presiding Officer relative to the resolution of any disputes regarding LSN availability;

(4) Identify any problems regarding the integrity of documentary material certified in accordance with § 2.1009(b) by the participants to be in the LSN, and provide a recommendation to resolve any such problems to the participant(s) and the Pre-license Application Presiding Officer relative to the resolution of any disputes regarding the integrity of documentary material;

* * * * *

(6) Evaluate LSN participant compliance with the basic design standards in § 2.1011(b)(2), and provide for individual variances from the design standards to accommodate changes in technology or problems identified during initial operability testing of the individual websites or the “LSN site”.

(7) Issue guidance for LSN participants on how best to comply with the design standards in § 2.1011(b)(2).

Dated at Rockville, Maryland, this 15 day of August, 2000.

For the Nuclear Regulatory Commission.

/RA/

_____
Annette Vietti-Cook,
Secretary of the Commission.