RULEMAKING ISSUE
AFFIRMATION

March 9, 2001 SECY-01-0039

FOR: The Commissioners

FROM: Karen D. Cyr
General Counsel

SUBJECT: FINAL RULE TO AMEND 10 CFR PART 2, SUBPART J, IN REGARD TO THE LICENSING SUPPORT NETWORK

PURPOSE:

To seek Commission review and approval of the final amendments to the Commission's 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 amendments would establish the basic data structure and transfer standards ("design standards") that LSN participant websites must use to make documentary material available. The 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 amendments would clarify the timing of participant compliance certifications.

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 licensing proceeding. Originally promulgated on April 14, 1989, (54 FR 14944), the information management system 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.

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Dan Graser, LSN Administrator
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The creation of the LSN (originally called the “Licensing Support System”) 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 documentary material created by well-informed parties on numerous and complex issues. The LSN is intended to 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 access to these documents in an easily searchable form would allow for a thorough and comprehensive 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 FOIA requests by providing the public with electronic access to relevant documents.

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 utilize the Internet to link geographically dispersed sites rather than relying on a complex and expensive centralized system, while not changing the underlying mission to provide participants with effective and efficient access to other participants’ discovery document collections (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”. In order to establish these specific design standards, the Commission, on August 22, 2000, proposed a revision to its regulations (65 FR 50937). The proposed amendments would:

- establish certain minimum design standards for data structure and data transfer (“design standards”) for individual participant websites that are necessary to ensure the LSN meets its objectives and functions;

- 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; and

- clarify the timing of the participant compliance certifications.

DISCUSSION:

The Commission received six comments on the proposed rule, as well as one supplemental comment from DOE clarifying some of its initial comments. The staff has summarized these comments, as well as any resulting revisions to the final rule, below.

LSN Design Requirements. There were a number of general comments on the proposed design standards. Nye County, Nevada, the host county and situs jurisdiction for the potential high-level nuclear waste repository at Yucca Mountain, agreed with the need for the NRC to establish certain minimum design standards for individual participant LSN websites to avoid confusion and promote confidence in the process and the integrity of documents and data. Furthermore, the County stated that the design standards "will help us in ensuring that our site will meet the required standards". The Nuclear Energy Institute (NEI) noted that the proposed amendments represented a valuable tool for use in the repository licensing process and endorsed NRC's selection of the design standards. DOE also was highly supportive of the proposed rule's use of new information management technologies to make information available to interested parties. The Department stated its intent to use and continue to use web-based technology to make its publications and supporting documents promptly available. Nye County stated that its support for the design
standards was conditioned on the Commission's intent to provide flexibility for a participant to deviate from any guidance developed by the LSN Administrator regarding the standards in order to take into account individual needs and differences, at least so long as the fundamental design requirements are met. In response to the County's concern, the Supplementary Information to the final rule re-affirms the Commission's willingness to provide this type of flexibility. The proposed rule gave the LSN Administrator the authority to allow variances from the standards to accommodate changes in technology or problems identified during initial operational testing of the individual participant LSN websites or the central LSN site. This authority has been carried forward into the final rule at Section 2.1011(c)(6).

The comments on the individual design standards of the proposed rule were primarily of a clarifying nature. The design standards are contained in Section 2.1011(b)(2) of the final rule. As stated in the Supplementary Information to the final rule, 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 Supplementary Information also discusses the Commission's intent to implement a design for the "central LSN site" to ensure that the totality of the individual websites operate in an "effective and efficient" manner. This "central LSN site" design complements the capabilities of, and relies on compatibility with, the design standards for individual participant LSN websites.

The Commission Paper on the proposed LSN rule noted that there were several issues of compatibility between the proposed LSN design standards and the capability of ADAMS to enable the NRC as an LSN participant to comply with these requirements. The Office of the Chief Information Officer believes that ADAMS is compatible with the design standards. However, there is one related issue for the Commission's attention

that concerns the format requirements for the electronic submission and use of filings in the hearing itself. As noted in the Supplementary Information to the attached draft final rule, the requirements in the final rule are solely directed at the participants' obligations to make documentary material available during the pre-license application phase and are not directly related to the procedures for use of the adjudicatory docket for the hearing on the DOE license application. Regarding the adjudicatory docket, the current regulations in Section 2.1013(b) require that, absent good cause, all exhibits tendered during the hearing must have been made available to the parties in electronic form before the commencement of that portion of the hearing in which the exhibit will be offered. In addition, Section 2.1013(c)(1) requires that all filings in the adjudicatory proceeding on the license application shall be transmitted electronically by the submitter according to established format requirements. The Supplementary Information notes that, although care has been taken in the development of this final rule to not unnecessarily foreclose any format options for filings in the adjudicatory proceeding, the specific requirements for the format of these filings will need to be addressed in a separate NRC rulemaking or order.

There is at least one potential incompatibility issue in regard to ADAMS and the adjudicatory docket that will need to be considered by the Commission when the time comes to specify the procedures for the adjudicatory docket. This issue involves the format for electronic images. Electronic images are the actual "picture" of the document, as opposed to the electronic full text of a document which provides search and retrieval capability. Electronic images can be in various formats, e.g., Portable Document Format (PDF), Portable Network Graphics (PNG), or Tag Image File Format (TIFF). TIFF images can be stored as a single image in a single file where each page of a document is a single image and a separate file ("single image") or as multiple images enveloped in a single file ("multiple-image"). Due to cost considerations, NRC practice is that only TIFFs in multiple-image format will be entered into ADAMS. However, a substantial part of the DOE HLW document collection is in single image format. The advantage of single image TIFFs is that it facilitates the provision of a single page of a document to a user. If a user only desires page 47 of a 200 page document, that single page can easily be provided via the Internet in electronic image if it is in single image format. However, if it is in multiple-image format, the entire 200 page document must be provided. Although this does not necessarily need to be onerous or expensive, if providing the document to the user who wants only a single page involves electronic transmission of the document, it can be expensive if the user is paying for time spent on the internet and for a print-out of each page. However, there is a countervailing cost associated with processing single images as unique documents in the ADAMS environment used for the docket that must be considered. With the single image approach, each page in a document is essentially treated as a separate document and therefore needs to have a separate profile or header. The cost of creating the separate header is approximately $16.00 a page. Multiple-image files have one profile for the entire document.

Another consideration on the use of single image versus multiple-image TIFFs is that software utility programs exist that can "crack open" the multiple-image envelope to get to the single page desired. Although the draft final LSN rule allows both single image and multiple- image TIFF format for purposes of the pre-license application discovery data base, a substantial portion of the DOE HLW database is in single image TIFF format. If DOE is required to convert these single images to a multiple-image format

because of any constraints that ADAMS places on the adjudicatory docket for the HLW proceeding, it would be very expensive for DOE. Conversely, it will be very expensive for NRC to accept and process multiple-image documents as single image. Much of DOE's collection is in single image because multiple-image TIFFs are a fairly recent development.

The staff of the Office of the Secretary, the Office of General Counsel, the Office of the Chief Information Officer, the Atomic Safety and Licensing Board Panel, and the LSN Administrator are formulating a plan to resolve this issue, as well as any other potential compatibility issues between ADAMS and the adjudicatory docket in the HLW proceeding.

The Role of the LSN Administrator. The comments on the provisions of the proposed rule on the responsibilities of the LSN Administrator were clarifying in nature. In addition, Nye County, Nevada indicated its support for the added responsibilities being given to the LSN Administrator, particularly the authority to grant variances from the design standards and to issue guidance to participants on how best to meet those standards.

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. In order to be more explicit regarding the Administrator's responsibilities, the final rule authorizes 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.

As a necessary supplement to the specification of the design standards set forth in this rule, the LSN Administrator should have additional responsibilities. Section 2.1011(c)(6) of the final 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 participant LSN websites or the "central LSN site". Section 2.1011(c)(7) of the final rule would give the Administrator 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.

The Timing of Participant Compliance. Under Section 2.1003(a) and 2.1001 of the current regulations, DOE and NRC are required to make their documentary material available 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. In addition, Section 2.1009 of the current regulations require 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. Although the Commission did not propose a change to the Section 2.1003(a) requirement on when documentary material must be made available, the Commission did propose a revision to Section 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 Section 2.1003 of the rule, e.g., for DOE and NRC, 30 days after the DOE site recommendation to the President. The proposed rule also addressed the contingency that DOE might be unable to make its initial certification at the time set for compliance in the current regulations. Under proposed Section 2.1009(c), if DOE could not make the required certification, DOE would be required to make the initial certification "as soon as possible." DOE would also be required to provide the Pre-license Application Presiding Officer with a submission that detailed the circumstances of its noncompliance. The Commission also stated that the failure of DOE to make a timely certification 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.

There were several comments on these aspects of the proposed rule. All of the comments recommended tying the date of participant compliance to the the DOE license application rather than to the DOE site recommendation to the President as is currently required. The State of Nevada noted that the LSN is not related to the DOE site recommendation. Therefore, the date of availability of documentary material, and the accompanying certification, should not be tied to it. Rather, it should be tied to the DOE license application. In addition, Nevada pointed out that there is a good possibility that significant new or revised information will be developed by DOE during the period between the submission of the site recommendation and the license application. Therefore, it would be more efficient to delay certification until a time that could include the initial capture of this information. This could reduce the need for DOE and others to capture documents that might be "obsolete, invalid, or irrelevant to the license application review and hearing." Therefore, Nevada recommended that certification be tied to some fixed period of time before the license application, for example, six months. According to Nevada, this would ease the burden of compliance for all known and potential parties, eliminate the possibility of expending resources on unnecessary review of documents that might be superseded by the time of license application, and provide the LSN Administrator and his staff additional time to ensure that the system is properly designed and implemented using the most up-to-date technology available. Similar to the Nevada comments, NEI noted that the purpose of the LSN is to facilitate review of the DOE license application, not the DOE Site Recommendation. NEI recommended that the timing of initial certification for DOE be specified as "no later than six months in advance of the DOE license application." NEI stated that "[o]ther participants would also not be encumbered

to comply before compliance would be needed. This would make the network less likely to be cluttered with irrelevant information if DOE were to need to make adjustments to its repository design for licensing as a result of comments received during or conditions placed upon it by the site recommendation process. It would also assure that participants do not confuse the site recommendation with a licensing action."

DOE submitted comments similar to those of Nevada and NEI on this issue. DOE recommended that the initial certification of compliance be linked to its submission of the license application. Furthermore, DOE noted that it is "committed to ensuring that interested members of the public have a full six months in advance of submission of the license application to review the Department's documentary material." DOE believes that, if certification were tied to the Site Recommendation, as it is in the proposed rule, it would be "virtually impossible" to predict how much time would be available for review of the documentary material before the license application is submitted. In contrast, tying the certification to the submission of the license application would ensure a defined period of time for review. In addition, DOE noted that it may wish to adjust or otherwise modify its license application in response to comments resulting from the Presidential or Congressional review of the site recommendation or to incorporate the results of additional scientific work that will likely take place during this period. DOE believes that its recommended approach will provide the necessary and appropriate flexibility for DOE to process the documentary material that will be required to be entered into the LSN, and to make it more likely that the material entered will be more fully developed and current. Accordingly, DOE recommended revising various provisions in the rule to require that the availability of documentary material, and the accompanying certification, should occur no later than six months before the submission of the license application.

In response to these comments, the staff recognizes that a balance needs to be drawn between the need to provide an adequate amount of time for participants to review the documentary material in advance of the license application and the need to be as efficient as practicable in providing this information. This latter need includes avoiding the expense and effort to DOE and other participants that may result from making documentary material available before there is some certainty that a license application will become a reality, as well as avoiding the unnecessary expense and time that may result from the provision and review of a significant number of documents that may later become irrelevant or obsolete. In terms of the consideration of an adequate amount of time for participants to review the documentary material, the Commission identified early participant access to the LSN documentary material as a desirable objective in the original 1989 LSS rulemaking. This access continues to be an important component of efforts to meet the mandated three-year timetable for conducting the agency's licensing review, including any adjudicatory proceeding, regarding the DOE application because of the system's capacity to provide early, equitable document availability and contention formulation for the participants. The NRC and other participants have already made substantial financial and staff resource commitments to have their document collections available, and the LSN website ready for the July 2001 LSN operational date which is based on DOE's announced schedule. NRC and, as far as we are aware, other participants, have managed their programs based on the requirements for document text availability that have been a regulatory requirement since 1989.

The time period provided for the review of documentary material in the Commission's current regulations is based on the DOE site recommendation to the President because that point in time was likely to allow approximately eight months of availability of documents for review before the time specified for submission of the DOE license application under the then extant DOE schedule for the repository. Eight months was viewed by the Commission as an appropriate amount of time for participant review of the material in the LSN before the license application was submitted. In addition, the Supplementary Information to the original rule noted that the Commission anticipated that "LSS participants will have access to the LSS well before the license application is submitted." 54 FR 14935, April 14, 1989. The term "well before" was not defined, but by implication, it was a time in advance of the six month certification required of DOE that all "backlog" documentary material had been loaded into the system. Therefore, eight months was also consistent with the Commission's intent in the original rule.

After evaluating the comments on the proposed rule, it would appear that tying availability and certification to submission of the license application is a relatively simple and straightforward approach to this issue. In our view, providing also for an eight-month period of DOE documentary material availability before the license application is submitted (which is the period that obtained under the DOE schedule that has been in effect for the past several years) continues to reflect an appropriate and adequate amount of pre-license application review time for participants to prepare for the licensing proceeding. It is recommended that the Commission establish the following framework on this issue in the final rule:
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- Amend Section 2.1003(a) to require DOE to make its documentary material available at least eight months before it submits the license application for the HLW repository. Based on the NWPA's repository approval process, this would not come until after the then-Administration had committed to the repository through a Presidential Site Recommendation under Section 114(a)(2)(A) of the Act;

- In the spirit of making NRC documentary material available as much in advance as practicable before the license application is submitted, under the draft final rule NRC will be required to make its documentary material available thirty days after the DOE certification. Although the current regulations require NRC compliance at the same time as DOE compliance, under the "eight months before submission of the license application" approach in the draft final rule, the NRC will have no certainty as to when the DOE certification will be made until it actually happens. Therefore, the NRC has thirty days from the DOE certification to make its material available.

- Each other potential party, interested governmental participant or party shall make their documentary material available ninety days after the DOE initial certification of compliance under Section 2.1009. These participants have comparatively less documentary material than NRC and DOE and therefore a submission date which results in less time to review these collections should not be a hardship to other participants. In addition, these participants have comparatively fewer resources to expend on compliance. Therefore, by delaying compliance until later in the repository approval process (under the NWPA's repository approval process, ninety days would come after any state or tribal petition under Section 115(b) of the Act to disapprove the repository had been submitted) , the staff believes there will be an increased potential for avoiding unnecessary compliance costs for these participants.

- Amend Section 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. For DOE, this is at least eight months in advance of submission of the DOE license application for a HLW repository. For NRC, initial certification must occur thirty days after the DOE certification; for others, ninety days after the DOE certification.

- Amend Section 2.1012(a) to specify that the Director of the NRC's Office of Nuclear Material Safety and Safeguards may not determine that the license application is acceptable for docketing unless and until a period of eight months has elapsed between the DOE initial certification under Section 2.1009 and the submission of the application. The Supplementary Information for the final rule notes that the pendency of a dispute contesting some aspect of the DOE initial certification would not be a reason to delay acceptance of the DOE license application.

Delaying docketing until the requisite eight-month review time has passed, and considering the three year period for NRC licensing review to commence at the time of docketing, will mitigate the need, as described in the Supplementary Information of the proposed rule, 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 because DOE was unable to comply with the LSN rule. This language has been removed from the Supplementary Information of the final rule. With regard to Section 114 (d) generally, the Supplementary Information of the final rule states that the Commission interprets the requirement in Section 114(d) of the Act that the Commission "shall issue a final decision approving or disapproving the issuance of a construction authorization not later than three years after the date of submission" of the license application, as referring to the docketing of the license application, rather than its physical submission, as the event that begins the three-year period. This interpretation was reflected in the promulgation of the original LSS rule in 1989 (see e.g., 10 CFR 2.1001 - "Pre-license application phase"), and is codified in Appendix D to 10 CFR Part 2. It is also consistent with the Commission's general practice since its establishment in 1975 to tie hearing schedules to the docketing of a license application rather than receipt for the obvious reason that a license application may be deficient in some respect requiring return to the applicant for revision. Finally, the staff has deleted from the final rule the provision in proposed Section 2.1009(c) which would have required DOE to report to the Pre-License Application Presiding Officer in the event that it could not make the initial certification when required. Under the framework in the proposed rule, there was a very real possibility that a delay in the initial certification by DOE could substantially affect the time provided for advance review of the documentary material. Reporting to the Presiding Officer on the status of the initial certification would have been necessary and appropriate under these circumstances. Under the framework in the final rule, eight months of advance review will be provided because of the time limits on submission of the application discussed above.

Coordination:

The attached rulemaking proposal was developed in cooperation with the LSN Administrator and the Atomic Safety and Licensing Board Panel (ASLBP). The ASLBP has concurred in the rulemaking package. The Office of the Chief Financial Officer and the Office of the Secretary have concurred in the rulemaking package. The rulemaking package was coordinated with the Office of Nuclear Materials Safety and Safeguards and the Office of the Chief Information Officer.

Recommendations:

The Office of the General Counsel recommends that the Commission:

1. Approve publication of the attached notice of final rulemaking

2. To satisfy the requirements of the Regulatory Flexibility Act, 5 U.S.C. 605(b), certify that this rule, if promulgated, will not have a significant impact on a substantial number of small entities. This certification is included in the attached Federal Register Notice.

Scheduling:

The LSN participants and the LSN Administrator are now in the process of designing their websites in order to meet the compliance requirements of the LSN rule. The final design standards are necessary to complete these designs. Expeditious Commission action on the attached proposal will facilitate the ability of the LSN participants to complete the design and implementation of their websites.

/RA/

Karen D. Cyr
General Counsel

Attachment: Draft Federal Register Notice

[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: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending 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 amendments will establish the basic data structure and transfer standards ("design standards") that participant LSN websites must use to make documentary material available. The amendments will also clarify the authority of the LSN Administrator (LSNA) 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 amendments will clarify the timing of participant compliance certifications.

EFFECTIVE DATE: [insert date thirty days after publication in the Federal Register**)**.

FOR FURTHER INFORMATION CONTACT: Francis X. Cameron, U.S. Nuclear Regulatory Commission, Washington DC 20555-0001, 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 in the HLW repository licensing proceeding. Originally issued on April 14, 1989 (54 FR 14925), the information management system currently required by Subpart J is to have the following functions:

(1) To provide a Licensing Support Network (LSN) that allows 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 during the proceeding; and

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

The creation of the LSN -- originally called the "Licensing Support System" (LSS) -- 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 a substantial number of documents created by well-informed parties regarding numerous, complex issues. The Commission believed that the LSS 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, as well as supplant the need for the traditional discovery process used in NRC proceedings involving 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, 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. It was also contemplated that the LSS would facilitate agency responses to Freedom of Information Act (FOIA) requests by providing the public with electronic access to relevant documents.

Originally, the LSS was conceived of as a large centralized information management system administered by what was then called the Licensing Support System Administrator. To take advantage of the advances in technology that occurred since the issuance of the original rule, the Commission revised the rule (62 FR 60789; December 23, 1997) to create the LSN that would use the Internet to link geographically dispersed sites rather than relying on a complex and expensive centralized system. The current provisions of 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.

Although the Supplementary Information on the 1997 rulemaking 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." To establish these specific design standards, on August 22, 2000 (65 FR 50937), the Commission issued a proposed revision to its rules applicable to the LSN.

The proposed amendments would:

- Establish certain minimum design standards for data structure and data transfer ("design standards") for individual participant websites that are necessary to ensure the LSN meets its objectives and functions;
- 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 would 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; and
- Clarify the timing of the participant compliance certifications.

II. Comments on the Proposed Rule

The Commission received six comments on the proposed rule, as well as one supplemental comment from DOE clarifying some of its initial comments. Copies of those letters are available for public inspection and copying at the NRC Public Document Room, 11555 Rockville Pike, Room O-1F12, Rockville, MD, on the NRC website at www.NRC.GOV. , and in ADAMS. The comments fall into the following categories:

1. Comments on the proposed LSN design standards;
2. Comments on the proposed revisions to the responsibilities and authority of the LSN Administrator;
3. Comments on the design of the LSN site and the Regulatory Analysis; and
4. Comments on the timing of participant compliance certifications.

The Commission also received several comments on the Level One and Level Two

Functional Requirements for the LSN. The Level One Functional Requirements identify all of the specific functions that the LSN must perform to achieve the requirements of the rule. The Level Two Functional Requirements provide more detailed information on how these functions will be performed. The functional requirements will eventually be issued by the LSN Administrator as guidance on the design standards. However, they were not part of the proposed rulemaking but were circulated to the LSN Advisory Review Panel (LSNARP) for preliminary review. The LSNARP is an NRC advisory committee composed of potential LSN users chartered under the Federal Advisory Committee Act, 5 U.S.C. App. 2, to provide advice to the LSN Administrator and the Commission on technical and policy issues concerning the LSN. LSNARP comments will be addressed directly by the LSN Administrator. Copies of the functional requirements can be obtained from Dan Graser, LSN Administrator, U.S. Nuclear Regulatory Commission, Washington D.C. 20555-0001 or by email at DJG2@nrc.gov.

1. Comments on the Proposed LSN Design Standards.

There were a number of general comments on the proposed design standards. Nye County, Nevada, the host county and situs jurisdiction for the potential high-level nuclear waste repository at Yucca Mountain, agreed with the need for the NRC to establish certain minimum design standards for individual participant LSN websites to avoid confusion and promote confidence in the process and the integrity of documents and data. Furthermore, the County stated that the design standards "will help us in ensuring that our site will meet the required standards." However, the County's support for the design standards is conditioned on the Commission's stated intent to provide flexibility for a participant to deviate from any guidance developed by the LSN Administrator regarding the standards to take into account individual needs and differences, at least so long as the fundamental design requirements are met. In

response to the County's concern, the Commission re-affirms its willingness to provide this type of flexibility. However, the Commission notes that the reference in the Supplementary Information to "flexibility" was made in the context of any guidance developed to implement the design standards. Regarding the standards themselves, the proposed rule would give the LSN Administrator the authority to allow variances from the standards to accommodate changes in technology or problems identified during initial operational testing of the individual participant LSN websites or the central LSN site. This authority has been carried forward into the final rule at § 2.1011(c)(6).

The Nuclear Energy Institute (NEI) noted that the proposed amendments represented a valuable tool for use in the repository licensing process and endorsed NRC's selection of the design standards. However, NEI also stated that guidance on implementation of the standards will be necessary. In response, the Commission notes that this guidance will be developed by the LSN Administrator.

DOE also was highly supportive of the proposed use of new information management technologies to make information available to interested parties. DOE stated its intent to use and continue to use web-based technology to make its publications and supporting documents promptly available. DOE also recommended clarifying the term "participant website" to read "participant LSN website," because a participant may have websites that are not related to the LSN. The Commission agrees that this is a necessary clarification and will use the recommended term through out the rule. DOE also recommends revising the term "LSN site", which refers to the LSN Administrator's portal site, to "central LSN site". The Commission agrees. The Commission also notes that the term "LSN " refers to the totality of the "central LSN site" and the various participant LSN websites.

The following comments were submitted on the individual design standards:

Section 2.1011(b)(2)(i). 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, or a crawler) must be able to canvass data files and server log files on the participant server.

Several comments were received on this standard. Some of these comments raised general issues concerning the basic document submission requirements of the LSN rule regarding "textual" material and "images," rather than specific issues about the design standard itself. To ensure that these basic requirements are fully understood, the Commission believes it would be helpful to restate those requirements at this point. To provide full text search capability for relevant documents, § 2.1003(a)(1) of the current regulations requires NRC, DOE, potential parties, parties, and interested governmental participants to provide an "electronic **file"** (emphasis added) for all documentary material. For "graphic-oriented" documentary material, an "electronic **image"** (emphasis added) must be provided under § 2.1003(a)(2) in lieu of the text file. Graphic-oriented material consists of such items as raw data, field notes, maps, and photographs. Any text that is embedded within this type of documentary material does not need to be separately entered in searchable full text, i.e., as an "electronic file." Graphic-oriented material will be retrievable from the bibliographic header material submitted by the participant. The Commission has revised § 2.1003(a)(2) to clarify that a bibliographic header is required for graphic-oriented documentary material.

DOE originally commented that proposed § 2.1011(b)(2)(i) should be revised to state that "[t]he participants shall make textual and/or image versions of their documents available...." This suggestion was based on the rationale that DOE has images of all documents but not the full text for any page in the document that was marked "image only." In addition, "some participants may have native files (Word or Word Perfect), so they may not have images of

textual documents. Requiring absolutely one or the other would be a problem if interpreted literally." As noted, the current regulations require an electronic file for text documentary material and an electronic image for "graphic-oriented" documentary material. Therefore, the option of providing images only for textual material would be contrary to the Commission's requirements and to the objective of providing full text search capability. In comments submitted by DOE as a supplement to its initial comments, DOE clarified that it now has a clearer understanding of when an electronic image is to be provided (consistent with the Commission's explanation). However, DOE also stated its intent to provide online electronic images, as well as electronic "files," of all its documents, not just for "graphic-oriented" documentary material. The Commission has no objection to this enhancement but emphasizes that it is not a requirement under the Commission's regulations.

Both DOE and NEI commented on some explanatory material in the Supplementary Information to the proposed rule on the requirements of § 2.1011(b)(2)(i). In the Supplementary Information (see 65 FR 50939), the Commission stated that this proposed standard does not affect the ability of parties or potential parties to correct or revise documents already made available on their websites, as long as:

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.

DOE recommended deletion of this notice requirement, or at least clarification that it is acceptable to post any changes in a "notice" section of the participant's LSN website, because DOE will not have the ability to know all potential parties in order to notify them of changes. Likewise, NEI commented that this requirement needs clarification in terms of how it will be

accomplished: “Will there be a central way of notifying the other parties? Will participants know whom all of the participating parties are?. . .should each participant be responsible for assuring that it is using the latest information from other participants sites?”

Although not cited in the Supplementary Information, the statements of concern are based on § 2.1004 of the current regulations which provides for amendments or additions to documents. In view of the DOE and NEI comments, the Commission is providing the following explanation of the process for amending or adding documents that should alleviate the commentors’ concerns. This provision, as explained in the Supplementary Information to the original rulemaking on the Licensing Support System (54 FR 14935; April 14, 1989), was to accomplish two objectives. The first was to address the correction of any errors discovered in the previous entry of a document. In these cases, the incorrect document would remain on the system with its own bibliographic header, and the corrected version of the document would be entered as a separate document with its own bibliographic header. The bibliographic headers for each document would include references to the other document. The second objective was to provide for the entry of updated pages to a document that was already on the system but was not being issued as a new, revised “stand-alone” document. In this case, the updated pages must be entered as a separate document with a separate bibliographic header. The bibliographic header of the original document and the bibliographic header of the updated pages must reference the other document. In the case of revisions that are new “stand-alone” revisions (e.g., a “Rev. 1" document), the revised document is entered as a separate document with its own bibliographic header that notes that it is a revision of another document that is on the system. There is no need to amend the header of the original document to indicate the existence of the new “stand-alone” revision because it is anticipated that the revision will be found through the routine full text search process. With any of these changes, the participant is not required to notify all of the other parties or potential parties individually. Rather, as

suggested by DOE, notice may be posted on the participant's LSN website if that site is accessible; however, at a minimum the participant must notify the LSN Administrator, and the central LSN site will notify users of the updated information through a notice on the central LSN site's webpage. The notice on the central LSN site will contain listings of changes, if any, to each participant's collection, identified by LSN accession number, with a description of what the change was, the date of the change, and why it was necessary.

Section 2.1011(b)(2)(ii). Participants would be required to make structured data available in the context of (or, under the control of) an accessible SQL (Standard Query Language)-compliant database management system (DBMS). Alternatively, the structured data may be made available in a standard database readable (e.g., comma delimited) file.

DOE recommends that the Commission explain the function of a "comma delimited" file. The Commission agrees and has revised the corresponding section of the Supplementary Information to explain that a "comma delimited file" or a "comma separated value (.csv) file" are ways to identify where the column values for each row in a particular data file begin and end so that it can be conveyed as input to another table-oriented application such as a database or spreadsheet application.

To ensure that this standard is clear, the Commission has revised this standard to substitute the term "bibliographic header" for the term "structured data." The revised standard will read "Participants would be required to make bibliographic data available in the context of (or under the control of) an accessible SQL (Standard Query Language)-compliant database management system (DBMS). Alternatively, the structured data containing the bibliographic header information may be made available in a standard database readable (e.g., XML

(Extensible Markup Language http://www.w3.org/xml/), comma delimited, or comma separated value (.csv) file.

Section 2.1011(b)(2)(iii). This section 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 (Portable Document Format) Normal, or HTML (Hypertext Markup Language).

DOE initially recommended inserting "plain text" in front of "native word" when discussing the acceptable text format. Upon further reflection, DOE clarified that it was recommending the insertion of "ASCII" rather than "plain text." The Commission agrees and the standard has been revised to read "textual material be formatted to comply with the ISO/IEC 8859-1 character set and be in one of the following acceptable formats: ASCII, native word processing (Word, WordPerfect), PDF Normal, or HTML." Note that the Commission has substituted "ISO/IEC" as the updated reference for this standard rather than "US.ISO".

Section 2.1011(b)(2)(iv). This section would require that image files 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). TIFF images are to 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.

DOE recommended that the Commission modify the proposed rule as follows (changes underlined): "TIFF images will be stored at 300 dpi (dots per inch) <u>or greater</u>, gray scale images

at 150 dpi or greater with eight bits of tonal depth, and color images at 150 dpi or greater with 24 bits of color depth." This would, in effect, establish minimum standards but allow the participants to incorporate features beyond the minimum standards. The Commission agrees with these changes and has revised the final rule accordingly.

DOE also noted that image formats can be used for textual material as well as for "non textual document materials" and recommended that the broader phrase "document materials" be substituted for the phrase "non textual document materials." As noted previously, the current rule only requires an electronic image for "graphic-oriented" documentary material. However, nothing precludes a participant, as in fact DOE has indicated, from making its TIFF images available in addition to the searchable text file; however, a TIFF is not acceptable in lieu of a searchable text file.

In addition, DOE commented that the phrase "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" is inconsistent with the preceding phrase in the sentence that "images be stored as single image-per-page to facilitate retrieval of no more than a single page." DOE recommends that the second phrase be revised to read "alternatively, images may be stored in an image-per-document format if software is incorporated in the webserver that allows image-per-page representation and delivery." The Commission agrees that this correction should be made.

NEI questioned whether the standard of storing images on participant servers as single-image-per-page means that all multi-page documents need to be broken up into individual documents by page with a tracking number. If so, NEI believes this would be unduly burdensome.

In response, the Commission notes that the images in question are only for non-textual documentary information, such as maps, presentation slides/overheads, etc., so the following discussion does not apply to every textual document a participant may make available. In addition, TIFF images may be stored as a single image in a single file or with multiple images enveloped into a single file. Software utility programs are available to either select a group of single image files and wrap them into an envelope, or conversely, to take an existing envelope, open it, and pull out individual page images. Additionally, participants may use document management software that stores in multi-image format but is able to deliver single page images on request. The Commission would encourage the use of this type of software. The Commission's concern with the ability to select single image files of a page is that this capability is necessary to avoid the time and expense of a participant having to send a large number of images simply to deliver an image of one particular page. For example, consider the case of a participant searching a text file and finding a desired chart on page 237 of a 500 page document. All the user needs is one page. If the participant "owner" of that document has to send the user the entire multi-page TIFF envelope through a 14.4 bps user modem, that image file will take a substantial amount of time to load. Also, if the user is paying a long-distance remote connection charge, it will be very expensive as well as time consuming. The Commission would like to avoid imposing unnecessary burdens on the general public or on participants who do not have current state-of-technology machines and bandwidth.

The LSN Administrator, in concert with the LSNARP, will continue to examine the most effective way to resolve this issue and accommodate participants' existing systems while ensuring that image file delivery is efficient and effective. However, for the time being, the Commission is retaining the proposed standard in the final rule. The Commission is revising this standard to clarify that in addition to TIFF images, it also applies to PDF (Portable Document Format) and PNG (Portable Network Graphics) images.

Section 2.1011 (b)(2)(v): This section would require that the parties programmatically link the bibliographic header record with the text or image file it represents. Each participant's system must afford the LSN software enough information to allow a text or image file to be identified to the bibliographic data which describes it.

NEI requested the Commission to provide an actual example of this header with the final rulemaking. The LSN Administrator has included an example of header field structure, with descriptions, in the March 2001 release of the Functional Requirements.

DOE recommended that the Commission adopt the following language (changes underlined): "The participants shall programmatically link the bibliographic header record with the text and/ or image files it represents. The bibliographic header record must contain fielded data identifying its associated objects (text and/ or image) file names and directory locations."

The Commission reiterates its previous statement that online availability of a bibliographic header and its associated electronic image are only required for "graphic-oriented" documentary material. In addition, the Commission is concerned that under the DOE approach, there could be multiple text and/or image files all associated with a single document and using a single bibliographic header, but logically stored under a number of file names and in multiple directory locations. Having multiple files with the same unique identifier assigned via the bibliographic header would not be acceptable. There may well be both an image and a text file associated with a given document but in those cases, there is usually an underlying Electronic Document Management System (EDMS) that controls the linkage between those associated files. The Commission believes that requiring the file name and directory locations to be placed in a bibliographic header field, as the only technically acceptable approach, restricts flexibility of the participants in designing their websites and is therefore easing that constraint; nonetheless, it is retaining the requirement that either a hyperlink in the header file

to the web published document (preferably) or some other programmatic mechanism must be provided by the participants' software, procedures, or system configuration to link headers with text or image files.

Section 2.1011(b)(2)(vi). 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]); and

(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.

No comments were received on this standard. However, the Commission has eliminated the reference in § 2.1011(b)(2)(vi)(C) to version 4.0 of HTML. To avoid having to change the rule text as new versions of HTML become available and acceptable, "HTML" alone is being specified. The LSN Administrator will notify participants of the acceptability of a particular version. In addition, § 2.1011(b)(2)(vi)(E) has been revised to note that "MIME" is Multipurpose Internet Media Mail Extensions rather than Multimedia Internet Mail Extensions.

2. Comments on the Role of the LSN Administrator

Nye County, Nevada, supported the added responsibilities being given to the LSN Administrator, particularly the authority to grant variances from the design standards and to issue guidance to participants on how best to meet those standards.

DOE commented on the authority of the LSN Administrator in proposed § 2.1011(c)(4) to identify any problems regarding the integrity of documentary material certified by a participant. In its initial comments, DOE stated that the word "fidelity" should be used rather than "integrity" because it believed that the intent of this provision is related to the documentary material being accurately represented in the LSN, not to the content or completeness of the documentary material. However, in its supplemental comments, DOE noted that "[o]n further review, the DOE has a clearer understanding that the purpose of this section . . . is to . . . ensure that information provided to the LSN is not removed or modified. The DOE agrees that the LSNA should have the authority to ensure the integrity of the document set provided to the LSN."

In its initial comments, DOE also noted that the Supplementary Information to the proposed rule stated that "[a]ll 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" (See 65 FR 50941). However, according to DOE, proposed § 2.1011(c)(3) only refers to "LSN availability" and not to "documentary material or data availability." Section 2.1003 of the current regulations uses the term "availability" in the context of the obligation of participants to identify and make available documentary material. Thus "availability" not only refers to the functioning of a participant website but also to whether the requisite material has been made available. The Commission notes that proposed § 2.1011(c)(3), although referring to "LSN availability," also includes references to "the availability of individual participant's data." Nevertheless, the Commission has revised § 2.1011(c)(3) to be more explicit on the nature of "LSN availability."

3. Comments on the Regulatory Analysis and the Design of the Central LSN Site

NEI commented on a portion of the Regulatory Analysis in which the NRC states that the recommended design needs to be "based on a proven technical solution that has been successfully implemented." NEI requested that examples of such implementation should be provided. Examples of successful portal implementations for document management applications were provided at the February 23, 2000, LSN Advisory Review Panel meeting, as well as in documentation that was provided at that meeting. They included: http://tis.eh.doe.gov/portal/home.htm; http://www.osti.gov/EnergyFiles/ and http://igm.nlm.nih.gov/ . In addition, website locations (URLs) were included in the NRC's Business Case Analysis for the LSN, which is available via the NRC website in ADAMS at accession number ML003722750.

DOE commented that the discussion for LSN design Alternative 3 should be revised, otherwise it "could be interpreted to mean that the participant sites should be able to function independently to serve the documents to the public if the LSN site is unavailable." The narrative that DOE was referring to stated that participant servers' versions of the document would serve as backup copies should the LSN site become inoperative (see 65 FR 50943). DOE recommended that the language be revised to read "participants servers' versions of the documents serve as backup copies by being available to the LSN Administrator to facilitate recovery of the central LSN site should the central LSN site become inoperative." The Commission does not agree with this recommendation. The referenced design does not levy a requirement on participant servers for search and retrieval software capabilities to be made available. However, if participants elect to have search and retrieval capabilities at their websites, those capabilities could, indeed, be used in lieu of the LSN interface should the participants choose to make their external collections accessible to others besides the LSN

crawler software. In both cases, the documents maintained by the participants as the source collection, whether on a server or on a transfer tape, could serve as the backup copy of the document.

NEI asked several questions regarding the portal architecture referred to in the Regulatory Analysis: "Has NRC made specific decisions with regard to the portal software (i.e.: Which one? Who makes it? What does it cost? Is it proprietary?, etc.) Does NRC intend to make such decisions in consultation with the LSNARP?"

NRC decisions on portal architecture were made in consultation with the LSNARP, as documented in the LSNARP meeting materials of October 13, 1999 and February 23, 2000. The decision on the specific products used was made based on government procurement practices used for competitive procurement to deliver an operational system meeting stated requirements. The suite of products proposed by the design contract awardee include: NT SQL Server (RDBMS); Autonomy Portal Software (text search); WhatsUpGold and WebTrends (remote monitoring). All products are subject to government approval for use in operational development contingent upon the outcome of a formal design review session. Additional information is available by contacting the LSN Administrator. Also see Section III infra, on the LSN Site Design.

4. Comments on the Timing of Participant Compliance

There were several comments on those aspects of the proposed rule relating to the timing of participant compliance, i.e., when is a participant required to make its documentary material available and when does a participant need to certify that it has done so. All of the comments recommended tying the date of participant compliance to the DOE license application rather than to the DOE site recommendation to the President as is currently required, and as was proposed in the proposed rule. Under § 2.1003(a) and § 2.1001 of the current regulations, DOE and NRC are required to make their documentary material available 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. In addition, § 2.1009 of the current regulations 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. However, the current regulations do not specify when the initial certification must be made. Although the Commission did not propose a change to the § 2.1003(a) requirement on when documentary material must be made available, the Commission had proposed 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.

The State of Nevada noted that the LSN is not related to the DOE site recommendation. Therefore, the date of availability of documentary material, and the accompanying certification, should not be tied to it. Rather, it should be tied to the DOE license application. In addition, Nevada pointed out that there is a good possibility that significant new or revised information will be developed by DOE during the period between the submission of the site recommendation and the license application. Therefore, it would be more efficient to delay certification until a time that would include the initial capture of this information. This could reduce the need for DOE and others to capture documents that might be "obsolete, invalid, or irrelevant to the license application review and hearing." Therefore, Nevada recommended that certification be tied to some fixed period of time before the license application (e.g., six months). According to Nevada, this would ease the burden of compliance for all known and potential parties, eliminate the possibility of expending resources on unnecessary review of documents that might be superseded by the time of license application, and provide the LSN Administrator and his staff additional time to ensure that the system is properly designed and

implemented using the most up-to-date technology available. Finally, Nevada recommended that the date for NRC compliance be set at the same time as DOE compliance and that all other participants must comply after DOE and NRC compliance (e.g., sixty or ninety days later).

NEI also disagreed with the Commission's proposed revisions relative to certification, and by implication, the date of initial availability of documentary material. Similar to the Nevada comments, NEI noted that the purpose of the LSN is to facilitate review of the DOE license application, not the DOE Site Recommendation. NEI recommended that the timing of initial certification for DOE be specified as "no later than six months in advance of the DOE license application." Furthermore, NEI asserted that this time period would be "consistent with the original compliance expectation established for the LSS in 1989." NEI recommended that NRC compliance be set at the same time as DOE compliance, and for others after DOE and NRC compliance. In summary, NEI stated that "[o]ther participants would also not be encumbered to comply before compliance would be needed. This would make the network less likely to be cluttered with irrelevant information if DOE were to need to make adjustments to its repository design for licensing as a result of comments received during or conditions placed upon it by the site recommendation process. It would also assure that participants do not confuse the site recommendation with a licensing action."

DOE submitted comments similar to those of Nevada and NEI on this issue. While DOE stated its support for early access to information, DOE believed that there is a better way to facilitate focused contentions for the licensing proceeding and to ensure an efficient licensing process than tying DOE's certification of its documentary material to the Site Recommendation. DOE recommended that the initial certification of compliance be linked to its submission of the license application. Furthermore, DOE noted that it is "committed to ensuring that interested members of the public have a full six months in advance of submission of the license application to review the Department's documentary material."

DOE's rationale for its recommendation was threefold. First, its recommendation would link the initial certification to the License Application. According to DOE, this is consistent with the basic purpose of the LSN, which is to support the NRC's licensing process rather than the DOE's Site Recommendation process. Second, if certification were tied to the Site Recommendation, as it is in the proposed rule, it would be "virtually impossible" to predict how much time would be available for review of the documentary material before the license application is submitted. In contrast, tying the certification to the license application would ensure a defined period of time for review. In addition, DOE noted that it may wish to adjust or otherwise modify its license application in response to comments resulting from the Presidential or Congressional review of the site recommendation or to incorporate the results of additional scientific work that will likely take place during this period. Third, the approach will provide the necessary and appropriate flexibility for DOE to process the documentary material that will be required to be entered into the LSN, and to make it more likely that the material entered will be more fully developed and current. Accordingly, DOE recommended revising various provisions in the rule to require that the availability of documentary material, and the accompanying certification, should occur no later than six months before the submission of the license application. In no event should the Commission receive the license application before six months from when DOE actually made the certification. DOE 's recommendation would have NRC and other participant document availability and certification occur sixty days after DOE's certification.

In response to these comments, the Commission agrees that a balance needs to be drawn between the need to provide an adequate amount of time for participants to review the documentary material in advance of the license application and the need to be as efficient as practicable in providing this information. This latter need includes avoiding the unnecessary expense and time to DOE and other participants that may result from making documentary

material available before there is some certainty that a license application will become a reality, as well as avoiding the unnecessary expense and time that may result from the provision and review of a significant number of documents that may later become irrelevant or obsolete. In terms of the consideration of an adequate amount of time for participants to review the documentary material, the Commission identified early participant access to the LSN documentary material as a desirable objective and this continues to be an important component of efforts to meet the mandated three-year timetable for conducting the NRC's licensing review, including any adjudicatory proceeding, regarding the DOE application because of the system's capacity to provide early, equitable document discovery and contention formulation for the participants. The NRC and other participants have already made substantial financial and staff resource commitments to have their document collections available, as well as the LSN website ready for the 2001 LSN operational date which was based on of DOE's announced schedule. These commitments were based on the requirements for document text availability that have been a regulatory requirement since 1989.

With these considerations in mind, and before setting forth its approach on this issue, in the final rule, the Commission addresses two of the several points made by the commentors. First, in light of the many statements on "tying" the certification to the DOE site recommendation, the Commission notes that its initial selection of the submission of the site recommendation as the point for DOE and NRC to make their documentary material available was to pick a specific event to trigger the document availability requirements that would allow sufficient time for participants to review the material before the license application was submitted. The time period provided in the Commission's current regulations for the review of documentary material is based on the DOE site recommendation to the President because the approximately eight months of time between that event and the date

specified for submission of the DOE license application under the then extant DOE schedule for the repository, was viewed by the Commission as an appropriate amount of time for pre-application review of pertinent documents. By so providing the Commission did not intend to imply that the focus of the LSN was the review of the site recommendation. Second, as noted by several commentors, the original NRC rule on the "Licensing Support System" or "LSS" required DOE certification that it had complied with the document availability requirements no less than six months before the submission of the license application. However, the Supplementary Information to the original rule (54 FR 14935; April 14, 1989) also noted that the Commission anticipated that "LSS participants will have access to the LSS well before the license application is submitted." The term "well before" was not defined, but by implication, it was a time in advance of the six month certification of all backlog materials having been loaded that was required in the rule. Therefore, selecting the eight month period between the DOE site recommendation and the submission of the DOE license application as the expected time for participant review of information was not inconsistent with the Commission's intent in the original rule.

The Commission agrees that tying availability and certification to submission of the license application is a relatively simple and straightforward approach to this issue. The Commission does not entirely agree with the comments made by Nevada, NEI, and DOE on the need to eliminate the expense and time associated with making documents available when the submission of the license application may be speculative. The NRC would not be acting prudently if it did not begin serious preparations for the review of a possible DOE license application. Thus substantial staff and financial resources have already been committed in preparing to process such an application. The Commission likewise believes that the parties and potential parties need to prepare for a possible proceeding. The Commission is mindful of

the fact that there may be revisions to the DOE site design resulting from the Presidential and Congressional review process or new scientific information gathered during that period before any DOE application. However, the Commission is also aware that the development of the DOE license application and supporting materials is an ongoing process that, given the statutory schedules and the potential complexity and scope of those materials, requires that some effort be expended before it is finally known whether an application will be submitted. The Commission believes that providing for an eight-month period of DOE documentary material availability before the license application is submitted (which is the period that obtained under the DOE schedule that has been in effect for the past several years) continues to reflect an appropriate amount of pre-license application review time for participants to prepare for the licensing proceeding. The Commission thus has established the following framework on this issue in the final rule:

- DOE is required to make its documentary material available, and to provide an initial certification of compliance, no later than eight months before the license application is submitted;
- NRC is required to make its documentary material available, and to provide an initial certification of compliance, thirty days after the DOE certification. Although the current regulations require NRC compliance at the same time as DOE compliance, under the "eight months before submission of the license application" approach in the final rule, the NRC, like other participants, will have no certainty as to when the DOE certification will be made until it actually happens. Therefore, to eliminate unnecessary effort, the NRC will be permitted to certify thirty days after the DOE certification. As explained in the next paragraph, other participants will have ninety days after the DOE certification before being required to make their documents available. Due to the fact that the NRC will have a substantial amount of documentary material, the Commission wants to

ensure that the NRC material will be available as soon as practicable (i.e., thirty days) after the DOE certification.;

- The other participants will be required to make their documentary material available, and to provide an initial certification of compliance, ninety days after the DOE certification;
- NRC will not accept the DOE license application for docketing until at least eight months have passed between the DOE certification of compliance and receipt of the application. Regarding this requirement, the Commission notes that the pendency of a dispute contesting some aspect of the DOE initial certification would not be a reason to delay the NRC acceptance of the DOE license application.

Delaying receipt until the requisite eight-month review time has passed will mitigate the need, as described in the Supplementary Information for the proposed rule, 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 because DOE was unable to comply with the LSN rule.

On some related points, the Commission interprets the requirement in section 114(d) of the Act that the Commission "shall issue a final decision approving or disapproving the issuance of a construction authorization not later than three years after the date of submission" of the license application, as three years from the docketing of the license application. This interpretation was reflected in the issuance of the original LSS rule (see e.g., 10 CFR 2.1001 - "Pre-license application phase"), and is codified in the HLW repository hearing schedule contained in Appendix D to 10 CFR Part 2. This interpretation is consistent with the Commission's general practice since its establishment in 1975 to tie hearing schedules to the docketing of a license application rather than its filing by the applicant, for the obvious reason

that a license application may be substantially deficient in some material respect and must be returned to the applicant for revision. The Commission is also deleting from the final rule the provision in proposed § 2.1009(c) that would have required DOE to report to the Pre-License Application Presiding Officer in the event that it could not make the initial certification when required. Under the framework in the proposed rule, there was a possibility that a delay in the initial certification by DOE could substantially affect the time provided for advance review of the documentary material. Reporting to the Presiding Officer on the status of the initial certification would have been necessary and appropriate under such circumstances. Under the framework in the final rule, eight months of advance review will be provided because of the time limits on application submission discussed above. Finally, the Commission is eliminating the provision in § 2.1009(b) of the current regulations that requires the responsible official for a participant to update at twelve month intervals the intial certification that the documentary material specified in § 2.1003 has been made available. Based on the framework in the final rule, as well as the repository schedule in the NWPA, it is unlikely that there will be a need for a twelve month update.

The Commission believes that it would be useful to emphasize two points regarding the availability of documentary material:

(1) What constitutes “documentary material?”; and

(2) When are documents created after the initial certification of compliance required to be made available?

The definition of documentary material in the current regulations includes three separate classes of material, and is guided by the Topical Guidelines in NRC Regulatory Guide 3.69. The three classes of documentary material are:

(1) Any information on which a party, potential party, or interested governmental participant intends to rely and/or cite in support of its position in the HLW proceeding;

(2) Any information that is known to, and in the possession of, or developed by the party that is relevant to, but does not support, that information noted in item 1 or that party's position; and

(3) 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 license application or the issues set forth in the Topical Guidelines regardless of whether they will be relied upon or cited by a party.

Material in any of the three classes must be made available in the LSN. The three classes encompass a broad scope of material, as appropriate for an electronic information management system that was intended to provide document discovery rights similar to that normally available in NRC licensing proceedings.[1]

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[1]As specified in § 2.1003, DOE and the other participants remain responsible for incorporating all their "documentary material" that meets the requirements of that definition in § 2.1001, including material that is relevant to, but does not support, DOE positions in the high-level waste repository proceeding, and any reports or studies relevant to the license application or the Topical Guideline issues in Regulatory Guide 3.69, regardless of whether they are cited and/or relied upon by a party. Because the LSN will be populated during the pre-application phase of the proceeding before there are any party "contentions" defining the matters in controversy, whether this section 2.1001 "documentary material" is "relevant" must necessarily be defined in terms of whether it (1) has any possible bearing on a party's supporting information or a party's position for which the party intends to provide supporting

Documentary material created after the initial certification of compliance is expected to be made available reasonably contemporaneous with its creation, rather than stored for entry as a group at some point during the remaining time before submission of the license application. This concept has been part of the regulatory framework since the original LSS rule was issued in 1989 (April 14, 1989; 54 FR 14925 at 14934) and is based on the need to provide participants with early and useful access to documentary material before the license application is submitted. As DOE noted in its comments on the proposed rule, new information will continue to be produced during the period before the license application is submitted. Participants must have timely access to this material in order to prepare for the licensing proceeding.[2]

III. The LSN Site Design

As was described in the proposed rule, the Commission intends to implement a design for the "central LSN site" that will ensure that the totality of the individual websites operate in an "efficient and effective" manner. The final design standards for individual participant LSN websites are fully consistent and supportive of the design for the central LSN site. To evaluate the alternative designs for the central LSN site, the Technical Working Group of the

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information; or (2) is a report or study that has a bearing on the license application or any of the Regulatory Guide 3.69 Topical Guideline issues. See Commonwealth Edison Co. (Zion Station, Units 1 and 2), ALAB-196, 7 AEC 457, 462 (1974).

[2]The adopted change in the compliance certification dates creates the possibility that there could be a significant period between the time the LSN central site becomes operational and the dates upon which DOE and other potential parties must provide certifications that their existing section 2.1003 documentary material is accessible. The required certification dates notwithstanding, the Commission strongly recommends that all those who are parties or potential parties to the HLW repository proceeding make every effort to provide access to as much of their existing section 2.1003 documentary material as soon as possible after the LSN central site is operational. Providing such pre-certification access can only inure to the benefit of both the LSN central site's operator and users in terms of maximizing the LSN's efficiency and effectiveness.

LSNARP identified and characterized five design alternatives for review by the full Advisory Panel. These alternatives were then reviewed by the full LSNARP. 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 LSNARP supported these alternatives. The CPIC and the recommendations of the Information Technology Business Council were then reviewed by the former 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 LSNARP Technical Working Group. The Administrator’s recommendation was supported by the Information Technology Business Council and the former NRC Executive Council. A summary comparison of the alternative designs is included in the Regulatory Analysis for this 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. 20555-0001, telephone (301) 415-7401, email **djg2@nrc.gov.**

The recommended design is an LSN home page/website 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 website 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 central LSN site 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; provide an electronic environment that facilitates a thorough technical review of relevant documentary material; ensure equitable access to the information for the parties to the HLW licensing proceeding; ensure that document integrity has

been maintained for the duration of the licensing proceeding; most consistently provide the information tools needed to organize and access large participant collections; feature adequately scaled and adaptable hardware and software; and include comprehensive security, backup, and recovery capabilities.

IV. The Final Rule

To clarify the scope of this rulemaking, the Commission emphasizes that the requirements in the final rule are solely directed at the participants' obligations to make documentary material available during the pre-license application phase and are not directly related to the procedures for use of the adjudicatory docket for the hearing on the DOE license application. Regarding the adjudicatory docket, the current regulations in § 2.1013(b) require that, absent good cause, all exhibits tendered during the hearing must have been made available to the parties in electronic form before the commencement of that portion of the hearing in which the exhibit will be offered. In addition, § 2.1013(c)(1) requires that all filings in the adjudicatory proceeding on the license application shall be transmitted electronically by the submitter according to established format requirements. Although care has been taken in the development of this final rule to not unnecessarily foreclose any format options for filings in the adjudicatory proceeding, the specific requirements for the format of these filings will be addressed in a separate rulemaking or order.

1. 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 depends on the use of data structure and transfer standards and protocols. Adherence to these standards ensures usability and exchangeability to the users and verifiability of data integrity to the LSN Administrator. These design standards are generally accepted data structure and transfer protocols currently in use in the Internet environment and 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 is implementing a design for the "central LSN site" that will ensure that the totality of the individual websites operate in an "effective and efficient" manner. This "central LSN site" design complements the capabilities of, and relies on compatibility with, the design standards for individual participant LSN websites. A new paragraph (b)(2) is added to Section 2.1011 containing the following design standards:

(i) The participants must make textual (or, where non-text, image) versions of their documents available on a web-accessible server. The NRC's LSN web indexing software (also known as a robot, a spider, or a crawler) must be able to canvass data files and server log files on the participant server. This provision 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 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 revision does not affect the ability of parties or potential parties to correct or revise documents already made available on their websites. 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 either on the participant's LSN website or on the central LSN site.

As noted previously, notice may be posted on the participant's LSN website, and if access to participant LSN websites is through the central LSN site portal, as now contemplated, the participant must notify the LSN Administrator, and the central LSN site will notify users of

the updated information through a notice on the central LSN site's webpage. The notice on the central LSN site will contain listings of changes, if any, to each participant's collection, identified by LSN accession number, with a description of what the change was and why it was necessary.

(ii) The participants must make bibliographic header data available in an HTTP (Hypertext Transfer Protocol) accessible, ODBC (Open Database Connectivity) and SQL (Structured Query Language)-compliant (ANSI IX3.135-1992/ISO 9075-1992) database management system (DBMS). Alternatively, the structured data containing the bibilographic header may be made available in a standard database readable (e.g., XML (Extensible Markup Language http://www.w3.org/xml/), comma delimited, or comma separated value (.csv)) file.

These 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 central LSN web site. This amendment identifies multiple ways by which parties or potential parties can make a bibliographic header available for use by the LSN. ODBC and 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. XML is a flexible way to create common information formats and share both the format and the data on the world wide web, intranets, and elsewhere. A "comma delimited" file is a way to identify where a particular relational database file begins and ends. A "comma delimited file" or a "comma separated value (.csv) file" are ways to identify where the column values for each row in a particular data file begin and end so that it can be conveyed as input to another table-oriented application such as a database or spreadsheet application.

(iii) Textual material must be formatted to comply with the ISO/IEC 8859-1 character set and be in one of the following acceptable formats: ASCII, native word processing (Word, WordPerfect), PDF (Portable Document Format) Normal, or HTML. This revision 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.

(iv) 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). TIFF, PNG, or PDF images will be stored at 300 dpi (dots per inch) or greater, grey scale images at 150 dpi or greater with eight bits of tonal depth, and color images at 150 dpi or greater 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 an image-per-document format if software is incorporated in the web server that allows image-page representation and delivery. A “Tag Image File Format” or “TIFF” is a common format for exchanging raster (bitmapped) images between application programs. This revision 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.

(v) The parties or potential parties must programmatically link, preferably via hyperlink or some other automated process, the bibliographic header record with the text or image file (or

both if provided by the participant) it represents to provide for file delivery and display from participant machines via the LSN system. This revision establishes basic information management controls to clearly and systematically link the bibliographic record entry with the document it describes. Each participant's system must afford the LSN software enough information to allow a text or image file to be identified to the bibliographic data which describes it.

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

(1) 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]);

(2) 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];

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

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

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

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

2. The Role of the LSN Administrator

The role of the LSN Administrator under the current regulations 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 rule, the Commission believes that the LSN Administrator should have additional responsibilities. Section 2.1011(c)(6) of the final rule gives 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 participant LSN websites or the "central LSN site." Section 2.1011(c)(7) gives the Administrator 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 regulations.

Sections 2.1011(c)(3) and (c)(4) of the current regulations gives the Administrator the responsibility to "coordinate the resolution of problems" regarding "LSN availability" and the "integrity of documentary material", respectively. To be more explicit regarding the Administrator's responsibilities, the Commission is amending 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 will also report these problems and recommended resolutions to the Pre-License Application Presiding Officer provided for in § 2.1010 of the final 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.

3. <u>The Timing of Participant Compliance Determinations</u>

Under § 2.1003(a) of the current regulations, DOE and NRC are required to make their documentary material available 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. In addition, § 2.1009 of the current regulations 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. However, the current regulations do not specify when the initial certification must be made. Although the Commission did not propose a change to the § 2.1003(a) requirement on when documentary material must be made available, the Commission did propose 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 is made available under § 2.1003.

Based on an evaluation of the comments submitted on this issue in response to the proposed rule, the Commission is adopting the following amendments to the documentary availability and certification requirements of the rule:

(1) Section 2.1003(a) is amended to require DOE to make its documentary material available at least eight months before it submits the license application for the HLW repository. NRC shall make its documentary material available thirty days after the DOE initial certification of compliance under § 2.1009. Each other potential party, interested governmental participant or party shall make their documentary material available ninety days after the DOE initial certification of compliance under § 2.1009.

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

Section 2.1012(a) has been amended to specify that the Director of the NRC's Office of Nuclear Material Safety and Safeguards may not determine that the license application is

acceptable for docketing unless a period of eight months has elapsed between the DOE initial certification under § 2.1009 and the submission of the application.

In addition, the Commission is adopting the following related amendments to the rule:

(1) In § 2.1001 the definition of “Pre-License Application Phase” has been revised to note that the pre-license application phase is the period of time before the license application for the HLW repository is docketed.

(2) Section 2.1003(a)(2) has been amended to clarify that a bibliographic header is required for graphic-oriented material.

(3) Section 2.1010(b) has been amended to specify that the Pre-Llcense Application Presiding Officer may be designated at any point in time during the pre-license application phase that the Commission finds appropriate, but in any event no later than fifteen days after the date of submission of the DOE initial certification under § 2.1009.

(4) The definition of “Bibliographic Header” in § 2.1001 has been revised to delete references to a “full header.” In addition, the definition of “Full Header” in § 2.1001 has been deleted. The “full header” concept was originally part of the implementation framework for the original LSS rule but no longer has any viability under the present framework.

(5) The reference in § 2.1003(a)(2)(xv) to “paragraph (b)(1)” has been revised to read “in this paragraph”. There is no paragraph (b)(1) in § 2.1003.

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 final rule establishes basic design standards that participant LSN websites must use to participate in the LSN. The standards in the final 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 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 final 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 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. This material would be supplied on individual participant websites. No requirements would be established to ensure 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 LSNARP. Individual participants would be free to adopt or reject these suggested standards. Option 3 is reflected in

the final rule. This Option establishes basic design standards for individual websites but also provides for flexibility in the implementation of the standards.

Regarding 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 not to provide contextual guidance to the parties and potential parties in the design of individual websites. Individual participant judgments on the costs and benefits of providing data without a contextual framework of what is necessary to provide for effective data availability may compromise effective design. Without this guidance, the funds that have been spent on the design and development of the LSN could be compromised by poor implementation. 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 not to establish minimal standards to ensure effective operation. Therefore, the Commission has adopted Option 3 which is reflected in the final rule.

Central LSN Site Design Options. 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 architecture of the central LSN site and its interaction

with participant document collection websites: 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 “central 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 website 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 a central LSN homepage/website developed using portal software technology. Web portals represent a fully featured hardware and software environment capable of “crawling” participant documentary collection websites, 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 website acts as a file server to deliver to Internet users the text documents responsive to a query found through a search at the central 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 uses 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 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.

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 NRC's ability to meet its three-year schedule for making a decision on repository construction authorization. The Commission would also note that the LSNARP Technical Working Group did not believe that Design Option 1 provided the functionality necessary for the system to be effective.

Although Design Option 3 adds value over and above the design in Design Option 2, it 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 may also present a potential difficulty 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 it ensures that document integrity is 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 final 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 final rule does not have a significant economic effect on a substantial number of small entities. The amendments modify the NRC's rules of practice and procedure regarding 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 final rule. Some of the participants affected by the final 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 requirements provide flexibility to participants in how these standards are implemented. No comments were submitted on this issue in response to the proposed rule.

Backfit Analysis

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

Small Business Regulatory Enforcement Fairness Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996, the NRC has determined that this action is not a major rule and verified this determination with the Office of Information and Regulatory Affairs of OMB.

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. 552 and 553; the NRC is adopting 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. 161b, 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 § 2.1001, the definition of “Full header” has been removed and the definitions of “Bibliographic header” and “Pre-license application phase” are revised to read as follows:

§ 2.1001 Definitions.

“Bibliographic header” means the minimum series of descriptive fields that a potential party, interested governmental participant, or party must submit with a document or other material.

* * * * *

“Pre-license application phase” means the time period before the license application to receive and possess high-level radioactive waste at a geologic repository operations area is docketed under § 2.101(f)(3).

* * * * *

3. In § 2.1003, the introductory text of paragraphs (a) and (a)(2), and paragraph (a)(2)(xv) are revised to read as follows:

§ 2.1003 Availability of material.

(a) Subject to the exclusions in § 2.1005 and paragraphs (b) and (c) of this section, DOE shall make available, no later than eight months in advance of submitting its license application to receive and possess high-level radioactive waste at a geologic repository operations area, the NRC shall make available no later than thirty days after the DOE certification of compliance under § 2.1009(b), and each other potential party, interested governmental participant or party shall make available no later than ninety days after the DOE certification of compliance under Section 2.1009(b)--

* * * * *

(2) In electronic image format, subject to the claims of privilege in §2.1006, graphic-oriented documentary material that includes raw data, computer runs, computer programs and codes, field notes, laboratory notes, maps, diagrams and photographs, which have been printed, scripted, or hand written. Text embedded within these documents need not be separately entered in searchable full text. A bibliographic header must be provided for all graphic-oriented documentary material. Graphic-oriented documents may include-

* * * * *

(xv) Descriptive material related to the information identified in this paragraph.

* * * * *

4. In § 2.1009, paragraph (b) is revised 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 for the DOE shall also update this certification at the time of submission of the license application.

5. In § 2.1010, paragraph (a)(2) is revised to read as follows:

§ 2.1010 Pre-License Application Presiding Officer.

(a) * * *

(2) The Pre-License Application Presiding Officer shall be designated at such time during the pre-license application phase as the Commission finds it appropriate, but in any event no later than fifteen days after the DOE certification of initial compliance under § 2.1009(b).

* * * * *

6. 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 bibliographic header data available in an HTTP (Hypertext Transfer Protocol) accessible, ODBC (Open Database Connectivity) and SQL (Structured Query Language)-compliant (ANSI IX3.135-1992/ISO 9075-1992) database management system (DBMS). Alternatively, the structured data containing the bibliographic header may be made available in a standard database readable (e.g., XML (Extensible Markup Language http://www.w3.org/xml/), comma delimited, or comma separated value (.csv)) file.

(iii) Textual material must be formatted to comply with the ISO/IEC 8859-1 character set and be in one of the following acceptable formats: ASCII, 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). TIFF, PDF, or PNG images will be stored at 300 dpi (dots per inch) or greater, grey scale images at 150 dpi or greater with eight bits of tonal depth, and color images at 150 dpi or greater 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 an image-per-document format if software is incorporated in the web server that allows image-per-page representation and delivery.

(v) The participants shall programmatically link, preferably via hyperlink or some other automated process, the bibliographic header record with the text or image file it represents.

Each participant's system must afford the LSN software enough information to allow a text or image file to be identified to the bibliographic data that describes it.

(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 [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 (Multipurpose Internet Mail Extensions) per [http://www.faqs.org/rfcs/rfc2045.html]) to accommodate multipurpose 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, including disputes on the availability of an individual participant's data;

(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 paragraph (b)(2) of this section, and provide for individual variances from the design standards to accommodate changes in technology or problems identified during initial operability testing of the individual documentary collection websites or the “central LSN site”.

(7) Issue guidance for LSN participants on how best to comply with the design standards in paragraph (b)(2) of this section.

* * * * *

7. In § 2.1012, paragraph (a) is revised to read as follows:

§ 2.1012 Compliance.

(a) In addition to the requirements of § 2.101(f), the Director of the NRC’s Office of Nuclear Material Safety and Safeguards may determine that the tendered application is not acceptable for docketing under this subpart if at least eight months have not elapsed between the DOE initial certification of compliance under § 2.1009(b) and submission of the application , if the application is not accompanied by an updated certification pursuant to § 2.1009(b), or if the Secretary of the Commission determines that the application cannot be effectively accessed through the Commission’s electronic docket system.

* * * * *

Dated at Rockville, Maryland, this ____ day of May 2001.

For the Nuclear Regulatory Commission.

_____

Annette Vietti-Cook,
Secretary of the Commission.

necessary and appropriate under these circumstances. Under the framework in the final rule, eight months of advance review will be provided because of the time limits on submission of the application discussed above.

Coordination:

The attached rulemaking proposal was developed in cooperation with the LSN Administrator and the Atomic Safety and Licensing Board Panel (ASLBP). The ASLBP has concurred in the rulemaking package. The Office of the Chief Financial Officer and the Office of the Secretary have concurred in the rulemaking package. The rulemaking package was coordinated with the Office of Nuclear Materials Safety and Safeguards and the Office of the Chief Information Officer.

Recommendations:

The Office of the General Counsel recommends that the Commission:

1. Approve publication of the attached notice of final rulemaking

2. To satisfy the requirements of the Regulatory Flexibility Act, 5 U.S.C. 605(b), certify that this rule, if promulgated, will not have a significant impact on a substantial number of small entities. This certification is included in the attached Federal Register Notice.

Scheduling:

The LSN participants and the LSN Administrator are now in the process of designing their websites in order to meet the compliance requirements of the LSN rule. The final design standards are necessary to complete these designs. Expeditious Commission action on the attached proposal will facilitate the ability of the LSN participants to complete the design and implementation of their websites.

Karen D. Cyr
General Counsel

Attachment: Draft Federal Register Notice
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