

RULEMAKING ISSUE NOTATION VOTE

October 28, 2003

SECY-03-0180

FOR: The Commissioners

FROM: Karen D. Cyr
General Counsel

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

PURPOSE:

To seek Commission review and approval of proposed 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.

BACKGROUND:

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

- (1) To provide full text search and retrieval access to the relevant documents of all parties and potential parties to the HLW repository licensing proceeding beginning in the time period before the Department of Energy (DOE) license application for the repository is submitted;
- (2) To provide for electronic submission of filings by the parties, as well as the orders and decisions of the Atomic Safety and Licensing Board Panel, during the proceeding; and
- (3) To provide access to an electronic version of the HLW repository licensing proceeding docket.

The staff is recommending that the Commission's Rules of Practice in 10 CFR Part 2, Subpart J, be revised to establish specific requirements and standards for the submission of adjudicatory materials to the electronic hearing docket by parties to the high-level radioactive waste licensing proceeding (function "2" above). The draft proposed rule in Attachment A proposes amendments to the Commission's rules to establish these standards for electronic transmission, as well as to address other issues.

CONTACT: Francis X. Cameron, OGC
(301) 415-1642

DISCUSSION:

The proposed amendments would address five aspects of the current rules:

- The requirements and standards for a party's submissions to the electronic docket for the HLW licensing proceeding;
- Those provisions that result in the loading of duplicate documents on individual participant LSN document collection servers;
- Those provisions related to the continuing obligation of LSN participants to update their documentary material;
- The provisions related to the Secretary of the Commission's determination that the DOE license application is electronically accessible; and
- The provisions on material that may be excluded from the LSN.

Submissions to the electronic docket for the hearing

The primary motivation for the proposed amendments is to establish the basic standards and requirements for the electronic submission of filings during the HLW adjudicatory hearing. 10 CFR 2.1013(c)(1) requires that all filings in the HLW licensing proceeding be transmitted electronically by the submitter to the Presiding Officer, the parties, and the Secretary of the Commission. The purpose of this requirement is to reduce the time that it takes to serve filings by substituting electronic transmission for the physical mailing of filings that is typically used in NRC licensing proceedings. The staff believes that the majority of these filings will consist of simple documents that can be readily transmitted through the NRC's Electronic Information Exchange (EIE). However, after further considering the nature of some of the documents that may be submitted by the parties during the proceeding, the staff believes that it is necessary to specify requirements for submitting large and/or complex documents.

The staff anticipates that some of the filings in the HLW adjudicatory proceeding will be of a size and nature that will create transmission, viewing, or downloading challenges for the NRC staff, the parties to the HLW licensing proceeding, and the public (e.g., significant delays in transmission, uploading, or downloading times). Examples of potential large documents are:

- DOE Site Characterization Plan
- DOE License Application and supporting materials
- DOE Environmental Impact Statement
- Adjudicatory documents (e.g., motions, responses, transcripts, exhibits, and orders)

In electronic format, some of these files could be up to several hundreds of megabytes (MB) in size.

In addition, some of the filings will be "complex documents". Complex documents consist (entirely or in part) of electronic files having substantial portions that are neither textual nor image in nature. As part of complex document submittals, the NRC anticipates receiving files that--

(1) Due to their file size, may preclude easy transmission, retrieval, and use; or

- (2) May require specialized software and/or hardware for faithful display and subsequent use; and
- (3) May not be suitable for inclusion in a “generic” file format such as the Adobe® Acrobat Portable Document Format (PDF).

Examples of files that could be part of a complex document are:

- maps
- databases
- simulations
- audio files
- video files
- executable programs

In response to these potential problems, the staff is recommending that Section 2.1001 be revised to establish three categories of electronic filings for purposes of the HLW licensing proceeding. Specifically, Section 2.1013(c)(1) would be revised to specify the submission requirements for the following three categories of electronic filings:

“Simple documents” are textual or graphic oriented material that are less than 50 megabytes (MB) in size. These documents are transmitted electronically via EIE as contemplated by the current 10 CFR 2.1011. Test results have demonstrated that 50 MB is a reasonable size for downloading files across wide area networks or from the Internet via phone lines.

“Large documents” are those that have textual or graphic oriented material larger than 50 MB in size. Under proposed Section 2.1013(c)(1)(ii), these documents must be submitted via the EIE in multiple transmissions of 50 MB each.

“Complex documents” are any combination of the following:

- Textual or graphic-oriented electronic files
- Electronic files that cannot be segmented into 50 MB files
- Other electronic objects, such as computer programs, simulations, video, audio, data files, and files with special printing requirements.

Under proposed Section 2.1013(c)(1)(iii), those portions of complex documents that can be electronically submitted through the EIE, again in 50 MB or less segments, will be transmitted electronically. Those portions that are not amenable to electronic transmission will be delivered on optical storage media. The optical storage media must include the complete document, i.e., include the portions of the document that have been delivered via the EIE. In addition to these proposed revisions, Section 2.1013 (c)(1) would also be amended to require electronic submissions to have 300 dots per inch (dpi) as the minimum resolution for bi-tonal, color, and grayscale resolution; to be in the appropriate PDF output format; to be free of hyperlinks to other documents or websites; and to be free of any security restrictions imposed by the author of the document.

Additional information for LSN participants on the submission of these filings will be provided in a guidance document prepared by the staff, “Guidance for Submission of Electronic Docket

Materials Under 10 CFR Part 2, Subpart J”, U.S. Nuclear Regulatory Commission, October, 2003. See Attachment B.

Other proposed revisions

- The proposed revisions would also clarify the responsibility of the Secretary of the Commission, under §§ 2.1012(a) and 2.1013 (a)(2), to determine if the DOE license application for a HLW repository can be properly accessed under the Commission’s “electronic docket rules”. Under § 2.1012(a), the DOE license application cannot be docketed unless the Secretary of the Commission finds that it can be effectively accessed. The proposed revisions would not change this requirement. However, the staff believes that this compliance requirement needs to be clarified to refer to the accessibility of the DOE license application as part of the NRC staff **licensing** docket rather than the Commission’s **hearing** docket (emphasis added). This is consistent with traditional NRC practice where a license application is part of the NRC staff licensing docket but is not added to the Commission’s hearing docket unless a party offers all or part of the license application as evidence. §§ 2.1012(a) and 2.1013(a)(2) would be revised to specify that the Secretary’s determination on electronic accessibility would be based on whether the DOE license application could be effectively accessed through the Commission’s Agencywide Document Access and Management System (ADAMS) rather than the electronic hearing docket.
- Section 2.1003 of the current LSN rule requires a party, a potential party, or an interested governmental participant (hereinafter “participant”) to make its documentary material available in electronic form. The definition of “documentary material” includes material prepared by an individual participant, for example, all reports or studies prepared by, or on behalf of, a participant. It also includes other material in the possession of the participant on which the participant intends to rely and/or cite in support of its position in the HLW licensing proceeding, as well as material that does not support its position. This provision can be read to obligate a party who possesses a document prepared by another participant to make that document available on its LSN document collection server even though it is already available on the LSN document collection server of the party who had prepared the document. The staff believes that it would be beneficial to eliminate or at least significantly reduce the loading of duplicate documents. Reducing duplication will not only alleviate burdens on the participants, but will also make search and retrieval of the LSN collection more efficient. Therefore, the proposed amendment to § 2.1003(a)(1) would allow a LSN participant to avoid loading a document created by another LSN participant if that document has already been made available by the LSN participant who created the document or on whose behalf the document was created.
- The staff is also recommending that § 2.1003 be revised by adding a new paragraph (e) to this section. Proposed § 2.1003(e) would require LSN participants to supplement the documentary material provided under § 2.1003(a) in its initial certification with documentary material produced after that event. While much of an LSN participant’s documentary material will be made available early, it is reasonable to expect that additional material will be created after the initial compliance period specified in § 2.1003(a).

- In the Supplementary Information to the proposed rule, the staff has included language that clarifies the responsibilities of LSN participants in regard to the three classes of documentary material in Section 2.1001. These three classes 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 a potential party, interested governmental participant, or party, regardless of whether they will be relied upon or cited by a party.

The first two classes of documentary material are based on a “reliance” criterion. The concept of reliance is tied to the position that a party takes with regard to an issue at the hearing, i.e., a contention offered under Section 2.1014(a)(2) for litigation in the proceeding. Because the full scope of coverage of the reliance concept will only become apparent after proffered contentions are admitted by the Presiding Officer in the proceeding, the staff has included a clarification in the Supplementary Information for the proposed rule that an LSN participant would not be expected to specifically identify which of its documents fall within either Class 1 or Class 2 documentary material in the pre-license application phase. However, a participant would still be expected to make a good faith effort to make available on its LSN document collection server all the Class 1 and Class 2 documentary material that can be identified by the date specified for initial compliance in Section 2.1003(a) of the Commission's regulations. A party would later be required to identify the specific documents that comprise its Class 1 and Class 2 documentary material after contentions have been admitted in the HLW licensing proceeding.

OGC believes that this clarification will facilitate compliance with the LSN rule. The history of the LSN and its predecessor, the Licensing Support System, makes it apparent that it was the Commission's expectation that the LSN, among other things, would provide potential participants with the opportunity to frame meaningful contentions and to avoid the delay potentially associated with document discovery, by requiring parties and potential parties to the proceeding to make all their Subpart J-defined documentary material available through the LSN prior to the submission of the DOE application. The clarification discussed above does not alter this expectation. In addition, the clarification provided in the Supplementary Information should substantially reduce the potential for disputes over Class 1 and Class 2 documentary material being brought before the Pre-license application Presiding Officer in the pre-license application stage.

- Finally, we have conducted a review of the Commission's procedural rules applicable to the HLW proceeding, including the LSN requirements, to assess whether they appropriately reflect the evolution of the relevant technology, law, and policy since the rules were originally promulgated in 1987, being mindful of the July 2003 report of the House Committee on Appropriations expressing concern on the extent of documentation

that DOE may be required to provide as part of the LSN. The Committee encouraged the Commission to review its regulatory requirements regarding the LSN to ensure that they do not require the duplication of information otherwise easily obtainable, focus on information that is truly relevant to the substantive decisions that will have to be made, and establish a time frame in accord with the traditional conduct of an adjudicatory proceeding.¹ Based on this review, we have recommended an additional change to address the Committee's concerns, while still maintaining the overall purpose and functionality of the LSN. The proposed rule would amend § 2.1005 of the Commission's regulations to specify an additional category of documents, "congressional correspondence", that may be excluded from the LSN. Section 2.1005 of the Commission's regulations establishes several categories of documents that do not have to be entered into the LSN, either under the documentary material requirements of § 2.1003, or under the derivative discovery provisions of § 2.1019. These include materials that are either widely available or do not have any significant relevance to the issues that might be litigated in the HLW licensing proceeding. The staff is proposing to add "correspondence between a party, potential party, or interested governmental participant and the Congress of the United States" to these exclusions. We do not believe that this type of material will have a significant bearing on repository licensing issues. Much of it either relates to budgetary or other administrative issues or is merely a reiteration of an agency primary document. It would normally not be the source of material that a party would rely on for its case in the hearing or as a source of material that would be contrary to such reliance information. However, the material directed to federal entities will still be available as part of the normal federal recordkeeping requirements. If a particular item of Congressional correspondence does become relevant to a contention admitted in the HLW proceeding, it can be made available at that time.

Coordination:

The attached rulemaking proposal was coordinated with the Atomic Safety and Licensing Board Panel and the LSN Administrator, SECY, NMSS, and OCIO.

The staff has consulted the LSN Advisory Review Panel (LSNARP) on the document format standards and document duplication issues that are the subject of these proposed revisions. The staff anticipates additional interaction with the LSNARP on other matters raised in the proposed rule and will further evaluate the LSNARP advice in conjunction with its evaluation of the public comments received on these proposed revisions.

Recommendations:

The Office of the General Counsel recommends that the Commission:

1. Approve publication of the attached notice of proposed rulemaking allowing 45 days for public comment.

¹H.R. Rep. No. 108, 108th Cong. 1st Sess. (2003).

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:

Given the schedule for the submission of the DOE license application for a HLW repository in December 2004, expeditious Commission action on the attached proposal will facilitate the ability of the LSN participants to prepare for the HLW licensing proceeding. The OGC target date for the final rule is the first quarter of CY 2004.

/RA/

Karen D. Cyr
General Counsel

Attachments:

- A. Draft Federal Register Notice
- B. "Guidance for Submission of Electronic Docket Materials Under 10 CFR Part 2, Subpart J", U.S. Nuclear Regulatory Commission, October, 2003.

NUCLEAR REGULATORY COMMISSION

10 CFR PART 2

RIN 3150-AH31

Licensing Proceeding for the Receipt of High-Level Radioactive
Waste at a Geologic Repository: Licensing Support Network,
Submissions to the Electronic Docket

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule.

SUMMARY: The Nuclear Regulatory Commission is proposing to amend its Rules of Practice applicable to the use of the Licensing Support Network and the electronic hearing docket in the licensing proceeding on the disposal of high-level radioactive waste at a geologic repository. The proposed amendments would establish the basic requirements and standards for the submission of adjudicatory materials to the electronic hearing docket by parties to the high-level radioactive waste licensing proceeding. The proposed amendments would also address the issue of reducing the unnecessary loading of duplicate documents on individual participant Licensing Support Network document collection servers; the continuing obligation of LSN participants to update their documentary material after the initial certification; the Secretary of the Commission's determination that the DOE license application is electronically accessible; and the provisions on material that may be excluded from the LSN.

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

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

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ADDRESSES: You may submit comments by any one of the following methods. Please include the following number RIN 3150-AH31 in the subject line of your comments. Comments on rulemakings submitted in writing or in electronic form will be made available to the public in their entirety on the NRC rulemaking web site. Personal information will not be removed from your comments.

Mail comments to: Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, ATTN: Rulemakings and Adjudications Staff.

E-mail comments to: SECY@nrc.gov. If you do not receive a reply e-mail confirming that we have received your comments, contact us directly at (301) 415-1966. You may also submit comments via the NRC's rulemaking web site at <http://ruleforum.llnl.gov>. Address questions about our rulemaking website to Carol Gallagher (301) 415-5905; email cag@nrc.gov.

Hand deliver comments to: 11555 Rockville Pike, Rockville, Maryland 20852, between 7:30 am and 4:15 pm Federal workdays. (Telephone (301) 415-1966).

Fax comments to: Secretary, U.S. Nuclear Regulatory Commission at (301) 415-1101.

Publicly available documents related to this rulemaking may be viewed electronically on the public computers located at the NRC's Public Document Room (PDR), O1 F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland. The PDR reproduction contractor will

copy documents for a fee. Selected documents, including comments, may be viewed and downloaded electronically via the NRC rulemaking web site at <http://ruleforum.llnl.gov>.

Publicly available documents created or received at the NRC after November 1, 1999, are available electronically at the NRC's Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html>. From this site, the public can gain entry into the NRC's Agencywide Document Access and Management System (ADAMS), which provides text and image files of NRC's public documents. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC Public Document Room (PDR) Reference staff at 1-800-397-4209, 301-415-4737 or by email to pdr@nrc.gov.

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, among other things, the use of an electronic information management system to provide documents related to the high-level radioactive waste (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) The Licensing Support Network (LSN) provides full text search and retrieval access to the relevant documents of all parties and potential parties to the HLW licensing proceeding in the time period before the U.S. Department of Energy (DOE) license application for the repository is submitted;

(2) The NRC Electronic Information Exchange (EIE) provides for electronic submission of filings by the parties, as well as the orders and decisions of the Atomic Safety and Licensing Board Panel (ASLBP), during the proceeding; and

(3) The Electronic Hearing Docket (EHD) provides for the development and access to an electronic version of the HLW licensing proceeding docket.

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 sets as a goal Commission issuance of a final decision approving or disapproving issuance of the construction authorization for a geologic repository for HLW within three years of the docketing of the DOE license application. The Commission anticipated that the HLW proceeding would involve substantial numbers and volumes of documents created by well-informed parties on numerous and complex issues. The Commission believed that the LSN could facilitate the timely review of DOE's license application by providing for electronic access to relevant documents via the LSN before the license application is submitted, rather than the traditional, and potentially time-consuming, discovery process associated with the physical production of documents after a license application is submitted. In addition, the Commission believed that early access to these documents in an electronically searchable form would allow for a thorough and comprehensive technical review of the license application by all parties and potential parties to the HLW licensing proceeding, resulting in better focused

contentions in the proceeding. The LSN would also facilitate agency responses to Freedom of Information Act (FOIA) requests by providing the public with electronic access to relevant documents.

The current requirements in 10 CFR 2.1003(a) require the DOE to make its documentary material available to other potential parties and the public in electronic form via the LSN no later than six months in advance of DOE's submission of its license application to the NRC. The NRC must make its documentary material available in electronic form via the LSN no later than thirty days after the DOE certification of compliance. All other participants must make their documents available in electronic form no later than ninety days after the DOE certification of compliance. Originally, the LSN was conceived of as a large, centralized information management system administered by what was then called the Licensing Support System Administrator (now the LSN Administrator). To take advantage of the advances in technology that occurred since the promulgation of the original rule, the Commission revised the rule to use the Internet to link geographically dispersed sites rather than relying on a complex and expensive centralized system (63 FR 71729; December 30, 1998).

The proposed amendments would address a number of aspects of the current rules:

- The requirements and standards for a party's submissions to the electronic docket for the HLW licensing proceeding;
- Those provisions that could result in the loading of duplicate documents on individual participant LSN document collection servers;
- The provisions related to the Secretary of the Commission's determination that the DOE license application is electronically accessible; .

- Those provisions related to the continuing obligation of LSN participants to update their documentary material; and
- Those provisions on material that may be excluded from the LSN.

The Commission has consulted the LSN Advisory Review Panel (LSNARP) on the document format standards and the document duplication issues that are the subject of these proposed revisions. The Commission, which appreciates the advice of the LSNARP on these items, anticipates additional interaction with the LSNARP on matters raised in the proposed rule, and will further evaluate any LSNARP advice in conjunction with its evaluation of the public comments received on these proposed revisions.

II. Submissions to the electronic docket for the hearing

As noted, one of the objectives of the regulations in 10 CFR Part 2, Subpart J is to provide for electronic submission of filings by the parties, as well as the orders and decisions of the ASLBP, during the proceeding. The objective of this function is to reduce the time that it takes to serve filings by substituting electronic transmission for the physical mailing of filings that is typically used in NRC licensing proceedings. Shortening the amount of time for certain activities during the hearing process will support the NRC's efforts to meet the schedule in the NWPA. 10 CFR 2.1013(c)(1) requires that all filings in the HLW licensing proceeding be **transmitted electronically** (emphasis added) by the submitter to the Presiding Officer, the parties, and the Secretary of the Commission. The Commission believes that the majority of these filings will consist of simple documents that can be readily transmitted by EIE. However, after further considering the nature of some of the documents that may be submitted by the

parties during the proceeding, the Commission believes that it is necessary to specify requirements for submitting large and/or complex documents.

Large documents consist of electronic files that, because of their size, create challenges for both the NRC staff, potential parties and the public when transmitting, viewing, or downloading the document (e.g., significant delays in transmission, uploading, or downloading times). The Commission anticipates that the potential license application and some filings in the HLW adjudicatory proceeding will be of a size that will create transmission, viewing, or downloading challenges. In electronic format, some of these files could be up to several hundreds of megabytes (MB) in size. Examples of potential large documents are:

- DOE Site Characterization Plan
- DOE License Application and supporting materials
- DOE Environmental Impact Statement
- Adjudicatory documents (e.g., motions, responses, transcripts, exhibits, and orders)

Additionally, any or all of these types of documents could contain embedded photographs, charts, tables, and other graphics.

Complex documents consist (entirely or in part) of electronic files having substantial portions that are neither textual nor image in nature. For example, these types of specialized documents may include:

- executable files, which can be opened (run) to execute a programmed series of instruction on a computer or network;

- runtime executable software, which generally is operational upon demand without being installed on a computer or network;
- viewer or printer executable software that causes images to be displayed on the computer monitor or pages to print on an attached printer;
- files from a dynamic link library (.dll), which are a collection of small, bundled executable programs that each provide one or more distinctive functions used by application programs and operating systems and are available when needed by applications or operating systems;
- large data sets associated with an executable; and
- actual software code for analytical programs that a party may intend to introduce into the proceeding.

As part of complex document submittals, the NRC anticipates receiving files that--

(1) Due to their file size, may preclude easy transmission, retrieval, and use; or

(2) May require specialized software and/or hardware for faithful display and subsequent use;

and

(3) May not be suitable for inclusion in a “generic” file format such as the Adobe® Acrobat

Portable Document Format (PDF).

Examples of files that could be part of a complex document are:

- maps
- databases
- simulations

- audio files
- video files
- executable programs

Some of the problems posed by the electronic transmission of these large or complex documents are:

Electronic Submission Process.

When submitted via the Internet, very large documents or files can cause “time-out” problems for computers at either end of the transfer, resulting in a failed or canceled transfer. Time-outs occur when a computer program terminates prematurely, sometimes because the computer notices a lapse in interaction with the user during the long amount of time needed to transfer a large document. Transmission times are dependent on the speed of the sender’s communication device and the technology used by the Internet service provider. Large documents or files require lengthy transmission times during which the potential for error conditions or other service interruptions increases in direct proportion to the time the communication link must be maintained. Service interruptions can result from human error, excessive network traffic, or network component failure that prevent users from communicating with other users or networks over a local network connection or the Internet. The time-out problems could affect each party who receives the documents as part of the service of a filing. The actual transfer times for very large documents or files may approach 24 hours using standard Internet File Transfer Protocol (FTP) routines. In terms of ensuring timeliness, this may not be a significant improvement over the use of an overnight courier to send the files on optical storage media (e.g., CD-ROM).

Access to Large, Complex Documents in the Electronic Hearing Docket (EHD).

Keeping a large document together in one very large file may allow users to easily search for, retrieve, and analyze the document in its entirety, but may result in service interruption problems similar to those described above. This is particularly true if a user wants to download the image file of one of these large documents. Retrieval time will be unacceptably slow, or will result in a time-out problem with the user's Internet connection.

Users of the EHD may encounter comparable download delays because of the file size of large or complex documents and, depending on the nature of the file, the file may not be executable on a user's desktop personal computer because of configuration, memory, display, or other technical problems.

Use of Large, Complex Documents in a Hearing Room.

Large documents may be pre-filed in their entirety as potential exhibits in the hearing docket; however, in the hearing room, it is possible that only portions of such documents, i.e., chapters, pages, or paragraphs will be offered. In a dynamic and fast-paced hearing room environment, it would not be desirable to delay the proceeding to wait for a large file to load; navigate to the desired chapters, pages, or paragraphs; and then extract the appropriate selection for use in the proceeding. Complex documents may also require specialized hardware and/or software to execute software program files and access their associated data.

Official Record and Federal Records Management Considerations.

For both large and complex documents, the NRC must consider the need to generate an official record of the proceeding for use in potential appellate environments, see 10 CFR 2.1013(a), and for generating an Official Agency Record (OAR) version of the docketed materials for retirement to the National Archives and Records Administration (NARA). Each of these situations requires the ability to reassemble the record version of the documentary

material (excluding software executables), independent of the media or software initially used to create it.

In response to these potential problems, the Commission is proposing a revised framework for the submission of filings during the HLW licensing proceeding. This revised framework is based on segmenting large documents using manageable file size units to reduce the potential for interruption or delay in transmission, uploading, or downloading. For example, large documents could be segmented into pieces, which correspond to the organization (chapters or sections) of the document, in order to address the transfer and retrieval performance problems discussed above. The author of the document would be in the best position to break up document files into usable segments without adversely impacting the organization or content of the document.

The electronic submission of filings in the HLW licensing proceeding must be made via the Internet using the NRC EIE, when practicable. The EIE is an electronic transfer mechanism being established by the NRC for electronic transmission of documents to the agency via the Internet. EIE provides for the transmission of documents in a verifiable and certifiable mode that includes digital signatures.

The proposed amendments would revise § 2.1001 to establish three categories of electronic filings for purposes of the HLW licensing proceeding and would revise § 2.1013(c)(1) to specify the submission requirements for these three categories of electronic filings.

“Simple documents” are textual or graphic oriented material that are less than 50 megabytes (MB) in size. These documents are transmitted electronically via EIE as contemplated by the current 10 CFR 2.1011. Test results have demonstrated that 50 MB is a

reasonable size for downloading files across wide area networks or from the Internet via phone lines.

“Large documents” are those that have textual or graphic oriented material larger than 50 MB in size. Under proposed § 2.1013(c)(1)(ii), these documents must be submitted via the EIE in multiple transmissions of 50 MB each. The large document submission may also be supplemented with a courtesy copy on optical storage media to provide NRC staff, parties, and interested governmental participants in the HLW licensing proceeding with an useful reference copy of the document. For purposes of the NRC staff review of the DOE license application, as opposed to an electronic submission to the adjudicatory docket, the requirements for DOE’s submission of the license application are already specified 10 CFR 63.22 of the Commission’s regulations. 10 CFR 63.22(a) specifies that the application, any amendments to the application, and an accompanying environmental impact statement and any supplements, must be signed by the Secretary of Energy or the Secretary’s representative and must be filed with the Director in triplicate on paper and optical storage media. In addition, 10 CFR 63.22(b) requires that 30 additional copies of the license application be submitted on paper and optical storage media.

“Complex documents” are any combination of the following:

- Textual or graphic-oriented electronic files
- Electronic files that cannot be segmented into 50 MB files
- Other electronic objects, such as computer programs, simulations, video, audio, data files, and files with special printing requirements.

Under proposed § 2.1013(c)(1)(iii), those portions of complex documents that can be electronically submitted through the EIE, again in 50 MB or less segments, will be transmitted electronically. Those portions that are not amenable to electronic transmission will be delivered

on optical storage media. The optical storage media must include the complete document, i.e., include the portions of the document that have been delivered via the EIE.

In addition to these proposed revisions, § 2.1013 (c)(1) would also be amended to require the following:

- Electronic submissions must have 300 dots per inch (dpi) as the minimum resolution for bi-tonal, color, and grayscale resolution.
- Electronic submissions must be in the appropriate PDF output format. These formats and their use are:
- PDF - Formatted Text and Graphics -- use for textual documents converted from native applications
- PDF - Searchable Image (Exact) -- use for textual documents converted from scanned documents
- PDF - Image Only -- use for graphic-, image-, and forms-oriented documents

Tagged Image File Format (TIFF) images and the results of spreadsheet applications will need to be converted to PDF, except in those rare instances where PDF conversion is not practicable. Spreadsheets may be submitted using Microsoft® Excel, Corel® Quattro Pro, or Lotus® 123.

- Electronic submissions to the hearing docket cannot contain any hyperlinks to other documents or websites. Electronic submissions to the hearing docket, however, may contain hyperlinks within a single PDF file, if those links are created using PDF authoring software. Hyperlinks are electronic links that allow a user to automatically access a document or website by clicking on the

hyperlink. The existing NRC Document Management System used as the basis for the electronic hearing docket does not accept hyperlinks to other documents or websites. Even if the NRC Document Management System were changed in the future to include a hyperlink capability, questions about the integrity of the Commission's electronic hearing docket might arise if the hyperlink in a document did not function. This could happen because either a "hyperlinked" website is not operating or a "hyperlinked" document is not included in the electronic hearing docket. Furthermore, it is uncertain whether NARA will accept as an official record documents containing hyperlinks to other documents or websites.

- Electronic submissions must be free of any security restrictions imposed by the author (proposed § 2.1013(c)(1)(vii)).

Additional information on the submission of these filings will be provided in a guidance document from the NRC. See "Guidance for Submission of Electronic Docket Materials Under 10 CFR Part 2, Subpart J", U.S. Nuclear Regulatory Commission, October, 2003. The Guidance document is available on the NRC Web site (www.nrc.gov).

The NRC expects parties, interested governmental participants, and potential parties to use the detailed instructions in the Guidance document to ensure that their electronic filings are effectively submitted. Areas covered by the guidance document address the need for and format of the transmittal letter for electronic filings, file naming conventions, copyrighted information, and instructions on sensitive or classified information.

The proposed revisions would also clarify the responsibility of the Secretary of the Commission, under §§ 2.1012(a) and 2.1013 (a)(2), to determine if the DOE license application

for a HLW repository can be properly accessed under the Commission's "electronic docket rules". Under § 2.1012(a), the DOE license application cannot be docketed unless the Secretary of the Commission finds that it can be effectively accessed. The proposed revisions would not change this requirement. However, the Commission is clarifying that this compliance requirement refers to the accessibility of the DOE license application as part of the NRC staff **licensing** docket rather than the Commission's **hearing** docket (emphasis added). This is consistent with traditional NRC practice where a license application is part of the NRC staff licensing docket but is not added to the Commission's hearing docket unless a party offers all or part of the license application as evidence. §§ 2.1012(a) and 2.1013(a)(2) would be revised to specify that the Secretary's determination on electronic accessibility would be based on whether the DOE license application could be effectively accessed through the Commission's Agencywide Document Access and Management System (ADAMS) rather than the electronic hearing docket.

III. Documentary Material

Section 2.1003 of the current LSN rule requires a party, a potential party, or an interested governmental participant (hereinafter "participant") to make its documentary material available in electronic form. The definition of "documentary material" includes material prepared by an individual participant, for example, all reports or studies prepared by, or on behalf of, a participant. It also includes other material in the possession of the participant on which the participant intends to rely and/or cite in support of its position in the HLW licensing proceeding or that doesn't support its position. This provision can be read to obligate a party who possesses a document prepared by another participant to make that document available on its LSN document collection server even though it is already available on the LSN document collection server of the party who had prepared the document. For example, under this

interpretation a document prepared by DOE would not only need to be available through the centralized LSN website from the DOE LSN document collection server, but also from the LSN document collection server of other participants. Without compromising the objective of ensuring that all documentary material is available on the LSN, the Commission believes that it would be beneficial to eliminate or at least significantly reduce the loading of duplicate documents. Reducing duplication will not only alleviate burdens on the participants, but will also make search and retrieval of the LSN collection more efficient. Therefore, the proposed amendment to § 2.1003(a)(1) would allow a LSN participant to avoid loading a document created by another LSN participant if that document has already been made available by the LSN participant who created the document or on whose behalf the document was created. If, in the process of eliminating duplicate documents, an LSN participant identifies a document which the creator of that document has not included on its LSN document collection server, as a practical matter, the participant who identified the document should include it on its LSN document collection server, as well as notifying the creator of the document that it is taking that action. Moreover, in such circumstances, it is not apparent what purpose would be served by raising the issue before the Pre-license application Presiding Officer (PAPO) unless the documentary material has some readily apparent significance as a Class 2 document (as delineated in the discussion below) or a significant number of “missing” documents were identified with regard to a particular LSN participant, so as to raise the issue of a concerted, deliberate effort not to comply with the regulations.

The Commission is also proposing to amend §2.1003 by adding a new paragraph (e) to this section. Proposed § 2.1003(e) would require LSN participants to supplement the documentary material provided under § 2.1003(a) in its initial certification with documentary material produced after that event. While much of an LSN participant’s documentary material

will be made available early, it is reasonable to expect that additional material will be created after the initial compliance period specified in § 2.1003(a). In addition, the ongoing performance confirmation program required of DOE by § 63.131 of the Commission's regulations will generate additional documentary material after the license application is docketed. In addition, during the proceeding, the Atomic Safety and Licensing Board can always direct that additional discovery must take place.

Finally, the Commission is providing further information and a clarification on the responsibilities of LSN participants in regard to the three classes of documentary material in § 2.1001. These three classes 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 a potential party, interested governmental participant, or party, including all related "circulated drafts" relevant to the license application and the issues set forth in the Topical Guidelines, regardless of whether they will be relied upon or cited by a party.

The first two classes of documentary material are tied to a "reliance" criterion. Reliance is fundamentally related to a position that a party in the HLW licensing proceeding will take in regard to compliance with the Commission regulations on the issuance of a construction authorization for the repository. These compliance issues take the form of "contentions" of law or fact that a party has successfully had admitted for litigation in the HLW proceeding under § 2.1014(a)(2) of the regulations. The third class of material, "reports and studies prepared for or

on behalf of the potential party,” has meaning independent of any contentions that might be offered. The material in this class must be available on the LSN regardless of whether it has any relation to a contention offered at the hearing. It is also a likely source of the material that a party would use to develop its contentions. “Reports” and “studies” will also include the basic documents relevant to licensing such as the DOE environmental impact statement, the NRC Yucca Mountain Review Plan, as well as other reports or studies prepared by a LSN participant or its contractor.

To fall within the definition of “documentary material”, reports or studies must have a nexus to both the **license application** (emphasis added) and the Topical Guidelines contained in NRC Regulatory Guide 3.69. This dual requirement is designed to ensure that LSN participants do not have to identify, and include as documentary material, reports or studies that have no bearing on the DOE license application for a geologic repository at the Yucca Mountain site, such as reports or studies on other potential repository sites or on issues outside of the NRC licensing criteria. In addition, § 63.21 of the Commission’s regulations requires that the DOE Environmental Impact Statement (EIS) must accompany the license application. Therefore, reports and studies relevant to issues addressed by the DOE EIS must also be made available as Class 3 documentary material. This is also consistent with the coverage of the Topical Guidelines.

To assist participants in identifying documentary material that may be relevant to the future license application in the time period before it is submitted, the Commission is recommending that LSN participants use the NRC Yucca Mountain Review Plan (NUREG-1804, Rev. 2, July, 2003) as a guide . The Yucca Mountain Review Plan provides guidance to the NRC staff on evaluating the DOE license application. As such, it anticipates the form and substance of the

DOE license application and can be used as a reliable guide for identifying documentary material.

The Commission also notes that the history of the LSN and its predecessor, the Licensing Support System, makes it apparent it was the Commission's expectation that the LSN, among other things, would provide potential participants with the opportunity to frame focused and meaningful contentions and to avoid the delay potentially associated with document discovery, by requiring parties and potential parties to the proceeding to make all their Subpart J-defined documentary material available through the LSN prior to the submission of the DOE application. These purposes still obtain. Nonetheless, the Commission is clarifying that, because the full scope of coverage of the reliance concept will only become apparent after proffered contentions are admitted by the Presiding Officer in the proceeding, an LSN participant would not be expected to identify specifically which of its documents fall within either Class 1 or Class 2 documentary material in the pre-license application phase.

In this regard, the Commission still expects all participants to make a good faith effort to include on their LSN document collection servers all of the Class 1 and Class 2 documentary material that reasonably can be identified by the date specified for initial compliance in § 2.1003(a) of the Commission's regulations. Thereafter, in conjunction with its license application submission, DOE would be required to supplement its Class 1 and Class 2 documents to the degree the application makes it apparent the scope of the DOE documentary material in those classes had changed, a process that might well be repeated by all parties following the admission of contentions. Finally, as part of the regular post-contention admission discovery process under § 2.1018, a party could be required to identify the specific documents that comprise its Class 1 and Class 2 documentary material. As a consequence, while it is not possible to say there are no special circumstances that would necessitate a ruling by the PAPO

on the availability of a particular document in the pre-license application stage based on its Class 1 or Class 2 status, disputes over Class 1 and Class 2 documentary material generally would be of a type that would be more appropriately raised before the Presiding Officer designated in the Notice of Hearing during the fifteen months following the admission of contentions that are allotted to the NRC staff to complete the Safety Evaluation Report in its entirety.

IV. Exclusions

The Commission has reviewed its procedural rules for the HLW licensing proceeding, including the LSN requirements, to assess whether they appropriately reflect the evolution of the relevant technology, law, and policy since the rules were originally promulgated in 1987, being mindful of a recent report by the House Committee on Appropriations, issued July, 2003, expressing concern on the extent of documentation that DOE may be required to provide as part of the LSN. The Committee encouraged the Commission to review its regulatory requirements regarding the LSN to ensure that they do not require the duplication of information otherwise easily obtainable, focus on information that is truly relevant to the substantive decisions that will have to be made, and establish a time frame in accord with the traditional conduct of an adjudicatory proceeding.¹ Based on our review, the Commission has determined that the LSN rule could be further revised to address the Committee's concerns, while still maintaining the overall purpose and functionality of the LSN.

The Commission is proposing to revise § 2.1005 of the rule to specify an additional category of documents, "congressional correspondence", that may be excluded from the LSN. Section

¹H.R. Rep. No. 108, 108th Cong. 1st Sess. (2003).

2.1005 of the Commission's regulations establishes several categories of documents that do not have to be entered into the LSN, either under the documentary material requirements of § 2.1003, or under the derivative discovery provisions of § 2.1019. These include materials that are either widely available or do not have any significant relevance to the issues that might be litigated in the HLW licensing proceeding. The Commission is proposing to add "correspondence between a party, potential party, or interested governmental participant and the Congress of the United States" to these exclusions. This reflects the Commission's current judgement that this type of material will not have a significant bearing on repository licensing issues. Much of this material either relates to budgetary issues or is merely a reiteration of an agency primary document. It would normally not be the source of material that a party would rely on for its case in the hearing or as a source of material that would be contrary to such reliance information. However, the material directed to federal entities will still be available as part of the normal federal recordkeeping requirements. If a particular item of Congressional correspondence does become relevant to a contention admitted in the HLW proceeding, it can be made available at that time. The Commission does not anticipate that any disputes over this clearly and narrowly defined exclusion would be brought before the PAPO.

Plain Language

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

specifically with respect to the clarity of the language used. Comments should be sent to the address listed under the ADDRESSES caption of the preamble.

Voluntary Consensus Standards

The National Technology Transfer and Advancement Act of 1995, Pub. L. 104-113, requires that Federal agencies use technical standards that are developed or adopted by voluntary consensus standards bodies unless using such a standard is inconsistent with applicable law or otherwise impractical. This proposed rule would establish requirements and standards for the submission of filings to the electronic docket for the HLW licensing proceeding. Although the specific standards in the proposed rule are unique to the Commission's HLW proceeding, they are based on industry -wide standards such as Portable Document Format (PDF).

Environmental Impact: Categorical Exclusion

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

Paperwork Reduction Act Statement

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

Regulatory Analysis

The following regulatory analysis identifies several alternatives to the Commission's proposal set forth in the proposed rule. Subpart J of 10 CFR Part 2 establishes an electronic environment for the adjudicatory proceeding for consideration of a potential license application by the U.S. Department of Energy (DOE) to construct, receive, and emplace waste at the proposed HLW repository at Yucca Mountain, Nevada. The NRC expects to begin receiving and processing a significant volume of electronic documents associated with the adjudicatory proceeding in the near future. Some of these filings will consist of large or complex documents. Examples of these large electronic files include maps, charts, video presentations, computer modeling or simulation programs with their associated databases, and narrative reports with extensive embedded graphic objects. Consistent with 10 CFR Part 2, Subpart J :

- The NRC has established the Licensing Support Network (LSN) so that all parties, potential parties, and participants in the proceeding will be able to make their documentary material electronically available to meet discovery requirements through individual participant LSN websites.
- The NRC will direct all participants in the adjudicatory proceeding to use the agency's EIE capabilities to submit their filings electronically to the NRC when practicable.
- After processing, documents submitted in the HLW proceeding would be available in the Electronic Hearing Docket (EHD), which is accessible via the Internet; electronic objects that cannot be made directly accessible via the EHD web site, such as computer simulation models, will be described in the EHD and made available on optical storage media.

The assessment of existing and anticipated technology capabilities identified a number of potential issues that may make it difficult to meet the challenges of electronic submission of

large documents as specified in 10 CFR Part 2, Subpart J. Those challenges are driven by the following fundamental issues:

- Technology limitations of current electronic document and records transmission and management systems.
- Maintaining document and object fidelity, integrity, and authenticity.
- Receiving source document formats in an acceptable resolution.
- Management of and access to non-textual information.
- Federal recordkeeping requirements.
- General usability of the electronic submittals.
- Potential limitations of information technology (hardware, software, or Internet service provider) used by the general public.

The Nature of the Documents

Documents may be large, complex, or a combination of both, as follows:

- Large documents consist of electronic files that, because of their size, create challenges for both the NRC and the public when transmitting, viewing, or downloading the document (e.g., significant delays in transmission, uploading, or downloading times). The NRC anticipates that the potential license application and some filings in the HLW adjudicatory proceeding will be of a size that will create transmission, viewing, or downloading challenges. In electronic format, some of these files could contain several hundred megabytes.

- Complex documents consist (entirely or in part) of electronic files having substantial portions that are neither textual nor image in nature. For example, specialized exhibits may include computer software programs and their operating components, large data files, and

actual software code for analytical programs that a party may intend to introduce into the proceeding.

Articulation of the Issues

Large and/or complex documents may pose challenges in any or all of the following general areas:

- Electronic Submission Process.

When submitted via the Internet, very large documents or files can cause “time-out” problems for computers at either end of the transfer, resulting in a failed or canceled transfer. Transmission times are dependent on the speed of the sender’s communication device and the technology used by the Internet service provider. Very large document or files require lengthy transmission times during which the potential for error conditions or other service interruptions increases in direct proportion to the time the communication link must be maintained. The time-out problems could affect each party who receives the documents as part of the service of a filing. The actual transfer times for very large documents or files may approach 24 hours using standard Internet File Transfer Protocol (FTP) routines. In terms of ensuring timeliness, this may not be a significant improvement over the use of an overnight courier to send the files on optical storage media (e.g., CD-ROM).

- Access to Large, Complex Documents in the Electronic Hearing Docket (EHD).

Keeping a large document together in one very large file may allow users to easily search for, retrieve, and analyze the document in its entirety, but may result in service interruption problems similar to those described above. This is particularly true if a user wants to download the image file of one of these large documents. Retrieval time will be unacceptably slow, or will result in a time-out problem with the user’s Internet connection.

Users of the EHD may encounter comparable download delays because of the file size of large or complex documents and, depending on the nature of the file, the file may not be executable on a user's desktop personal computer because of configuration, memory, display, or other technical problems.

- Use of Large, Complex Documents in a Hearing Room.

Large documents may be pre-filed as potential exhibits in the docket; however, in a hearing room, it is possible that only portions of such documents, i.e., specified chapters, pages, or paragraphs' will be offered. In a dynamic and fast-paced hearing room environment, it would not be desirable to delay the proceeding to wait for a large file to load; navigate to the desired chapters, pages, or paragraphs; and then extract the appropriate selection for use in the proceeding. Complex documents may also require specialized hardware and/or software to execute software program files and access their associated data.

- Official Record and Federal Records Management Considerations.

For both large and complex documents, the NRC must consider the need to generate an official record of the proceeding for use in potential appellate environments, see 10 CFR 2.1013(a), and for generating an Official Agency Record (OAR) version of the docketed materials for retirement to the National Archives and Records Administration (NARA). Each of these situations requires the ability to reassemble the record version of the documentary material (excluding software executables), independent of the media or software initially used to create it.

Coupled with the project objectives and technical requirements (discussed in the next section), these issues represent the framework for potential solutions. The NRC analysis

distilled and assessed the objectives, technical requirements, and issues and developed four designs.

Technical Requirements

Given the anticipated size and complexity of individual documents, and the quantity of submittals, the need to transmit, manage, and retrieve electronic documents and objects challenges both the NRC's current processes and its information technology/information management (IT/IM) infrastructures, and the information technology (hardware, software, Internet service provider) in use by the general public. Examples of potential large documents are:

- The DOE Site Characterization Plan;
- The DOE License Application and supporting materials;
- The DOE Environmental Impact Statement;
- Adjudicatory documents (e.g., motions, responses, transcripts, exhibits, and orders).

Any or all of these types of documents may contain embedded photographs, charts, tables, and other graphics that contribute to the understanding of the narrative.

The NRC also anticipates receiving files that could be part of complex document submittals that:

- (1) Due to their file size, may preclude easy transmission, retrieval, and use; or
- (2) May require specialized software and/or hardware for faithful display and subsequent use; and

(3) May not be suitable for inclusion in a “generic” file format such as PDF. The PDF standard, though it is proprietary to Adobe®, has been published and is available for use by software vendors. Users can access the content of a PDF format file through the use of the Adobe Reader® viewer software.

Examples of files that could be part of complex documents include maps, databases, simulations, audio files, video files, and executable programs.

The analysis of the challenges of handling large documents in the NRC and public IT environments considered the following functional areas:

- **Transmit** activities entail sending a submittal from the submitter to the NRC, either via electronic format (through transmission or media) or as a physical object (e.g., video or audio).

- **Capture** relates to the receipt of electronic objects, with notifications provided according to an approved service list, preferably through e-mail. Upon receipt at the NRC, each submittal is staged for additional processing.

- **Index & Cross-Reference** are two distinct processes. Each submittal must be indexed based on prescribed profile templates. In addition, as part of the cataloging process, a submittal may be identified (or cross-referenced) as part of a package or compound document.

- **Store** manages the storage location of a submittal, i.e., within a folder or larger collection for electronic submittals, or the physical media location for submittals provided on optical storage media (e.g., CD-ROM) containing text, data, and objects. This process involves applying security and audit controls, as well as the appropriate retention schedule.

- **Search & Retrieve** operations involve querying the bibliographic header and content, displaying the pertinent object(s), and, if desired, printing all or part of the displayed object(s).

- **Create & Revise** activities facilitate the creation or revision of new documents using content that has been extracted (copied and pasted) from original submittals.

- **Copy & Distribute** activities involve maintaining distribution (service) lists and providing the means to copy or download an individual document or a collection of documents.

These activities may also involve reproduction when the need arises to generate a hard copy of a submittal (e.g., "8.5"x"11" paper", drawings, etc.).

Finally, there was an assessment of the existing NRC document and records management systems environment as well as requirements for enhancements to support the large document business requirements.

Assessment and Alternatives

The NRC assessed a number of alternatives to the existing technology infrastructure, current and planned operating procedures for processing documents, and regulatory requirements to determine how the identified objectives, issues, and technical requirements can be addressed while ensuring that —

- Document fidelity and integrity is preserved (e.g. organization, accuracy, completeness);
- Documents are accessible to users via commonly used computer configurations;
- The information is available on reliable and controllable media; and
- Unique submittals with special software/hardware components can be handled.

The assessment also considered that the NRC should provide guidance to participants in the proceeding well in advance of when large, complex filings are reasonably anticipated. The guidance, as well as the underlying technology and procedures, would address matters

such as processes, file sizes, file formats, document organization overviews to facilitate reconstruction of the complete filing, labeling formats, and alternative transfer media.

This section presents general concepts and four alternatives for handling large, complex electronic submittals in the HLW proceeding.

General Concept

The overall information infrastructure for receiving and managing HLW-related documents involves several existing agency information systems. Participants in the proceeding will primarily send submittals to the NRC in the preferred PDF format via EIE, which provides a Web-form (an entry form similar to that of an overnight express mail carrier shipping form) for the submitter to accurately identify what is being transmitted. Upon receipt, each submittal would be entered into ADAMS. Once captured within ADAMS, the submittal would be available for internal use by agency staff, and the information would be made publicly available (as appropriate) via the EHD. Variations on this general process and issues associated with large, complex documents are described in the following sections.

Alternative 1

Description: Documents, images, and other submittal components are submitted through the EIE as a single file, and the EIE Web-form serves as the transmittal letter. The NRC captures large files as single units, without the need for any manual manipulation, such as breaking a submission into workable pieces. Based on the service list, an e-mail is sent to provide notification of receipt and a link from the EIE server to the file for immediate access by parties and participants to the proceeding. In addition, the file is made available (as appropriate) to the EHD. Interested parties can search on the bibliographic header information,

the content, or a combination of the two. Retrieval of a document is directly to the user's desktop.

Positives: This alternative would satisfy the electronic transmission requirements of 10 CFR Part 2, Subpart J. This alternative primarily benefits and is less restrictive to the submitter. That is, the submitter dictates the form and format of the content, and the submittal comes in as a single optimized PDF format file.

Negatives: Submittal file size could be very large (potentially several hundred MB), particularly if graphics are widely used. The transmission may be problematic because of service interruptions or time-outs attributable to the very long transfer times required for large files. File sizes could also make this alternative unfeasible for subsequent users of a file, primarily because of download delays and time-outs. In addition, although any executables contained in the submittal could be stored in the EHD, they could not be indexed for search and retrieval or accessed online. The executable file would need to be downloaded and run locally.

Alternative 2

Description: The only object transmitted through the EIE is the transmittal letter for the large, complex document, which notifies the NRC of an impending package submittal. All other electronic files pertaining to the submittal are sent on optical storage media (e.g., CD-ROM), which is delivered to the NRC via an overnight express mail carrier. Based on the service list, the NRC sends an e-mail containing links from the EIE server to the transmittal letter for immediate access by parties and participants to the proceeding. All text-based components (e.g., narrative with embedded graphics) are rendered as optimized PDF format files. The NRC extracts each file from the optical storage media (e.g., CD-ROM) and makes the files available (as appropriate) to the EHD as either individual objects or a compound document, depending on the document organization. The NRC also links a bibliographic header to the appropriate

optical storage media (e.g., CD-ROM) for files or objects that are not candidates for extraction (because of some technical constraint). Interested parties can search the EHD on the bibliographic header, the content, or a combination of the two. Retrieval of a document or specified component(s) is directly to the user's desktop. Additionally, the NRC provides copies (upon request and for a fee) of the optical storage media (e.g., CD-ROM) for public access.

Positives: The NRC provides guidance to the submitter to facilitate processing and use within the agency. This alternative also avoids potential problems associated with submitting large files via the EIE.

Negatives: This alternative does not meet the electronic service requirements of 10 CFR Part 2, Subpart J. There may also be a delay in parties and participants receiving documents. As compared with Alternative 1, additional processing will be required to extract, profile, and store files in a timely manner. In addition, use of this alternative could adversely affect document fidelity and integrity (e.g. organization, accuracy, or completeness) which could affect the efficient conduct of an adjudication, as well as for agency recordkeeping and eventual turnover to NARA.

Alternative 3

Description: Documents, images, and other components (including the transmittal letter and enhanced Web-form) are transmitted through the EIE as multiple segmented files ("chunks") of a single submittal. All text-based components (e.g., narrative with embedded graphics) are rendered as optimized PDF format files. Based on the service list, the NRC sends an e-mail containing links from the EIE server to the transmittal letter and the various segmented files for immediate access by parties and participants to the proceeding. Upon receipt and subsequent processing, the NRC makes the segmented files available (as appropriate) to the EHD as a "package" or "compound document." Interested parties can

search on the bibliographic headers, or content, or a combination of both. Retrieval of selected components is direct to the user's computer.

Positives: This alternative satisfies electronic transmission requirements of 10 CFR Part 2 and allows submission via the EIE. It also allows the NRC to provide guidance to have precisely defined segments and bibliographic header information associated with each segment. The segmentation facilitates later use and access.

Negatives: This alternative requires the EIE to facilitate the transfer, segregate component content from bibliographic header information and the transmittal letter, and make that information available to the EHD. A possible fatal flaw is that some file types may not be able to be segmented into manageable sizes (e.g., graphic-oriented materials showing subsurface geology in color or computer modeling information and/or software), and some materials may not be accessible via the EHD.

Alternative 4

Description: All text-based components (e.g. narrative with embedded graphics) are rendered as optimized PDF format files and transmitted in manageable segments. All non-text components (e.g., runtime executable software, viewer or printer executables) that are not suitable for an optimized PDF file are placed on optical storage media (e.g., CD-ROM). When necessary, due to the nature of the submittal, a submittal letter identifies all electronic files that comprise the submission, clearly indicating which components are submitted via EIE, and which are submitted on optical storage media (e.g., CD-ROM). The submittal letter, enhanced Web-forms, and all segmented text files are sent through the EIE. The optical storage media (e.g., CD-ROM) containing the complete submission (i.e., text-based segments submitted via EIE and any files submitted only on optical storage media) are delivered to the NRC and other parties

via an overnight mail carrier or other overnight delivery service. The NRC links a bibliographic header to the optical storage media (e.g., CD-ROM) component of the submission.

Based on the service list, the NRC sends an e-mail containing links from the EIE server to the transmittal letter and the various components submitted through the EIE for immediate access by parties and participants to the proceeding. The NRC indexes the text-based components sent via EIE and makes them available to the EHD as a “package” or “compound document.” Additionally, the NRC provides copies (upon request and for a fee) of the optical storage media (e.g., CD-ROM) for the public. Interested parties can search on the bibliographic header information, content, or a combination of both. Retrieval of text-based components is directly to the user’s computer, and non-text components are retrievable from the optical storage media (e.g., CD-ROM).

Positives: This alternative combines the best features and advantages of Alternatives 2 and 3, including text-based component submission through the EIE and non-text component submissions via optical storage media (e.g., CD-ROM). This alternative provides several means to optimize a submission and allows the NRC to process the submission appropriately; provide access to end-users (i.e., adjudicatory proceeding participants and the general public); and prepare for the eventual transfer to NARA.

Negatives: Processing by the NRC staff will need to be closely coordinated to maintain the integrity of the various submittal components (segmented files stored in ADAMS with the bibliographic header records that point to optical storage media, such as a CD-ROM).

Documentary material submitted on optical storage media and sent by overnight mail (or other expedited delivery services) would not meet the electronic transmission requirements of 10 CFR Part 2, Subpart J. There may be a delay in parties and participants receiving document components contained only on the optical storage media (e.g., CD-ROM).

Planned Actions

Alternative 4 is the recommended approach for the NRC to meet the identified objectives. The NRC believes that this alternative provides the best means for transferring the wide variety of file types and sizes received from parties and participants in the proceeding, as well as the most practical means for delivering electronic information to parties and participants in the HLW adjudicatory proceeding, the presiding officer, and the Office of the Secretary (SECY), under the requirements of 10 CFR Part 2, Subpart J.

Toward that end, the agency will take the following steps:

- Develop guidance for use in generating HLW proceeding submissions that specifies the size, file characteristics, and method (either EIE or optical storage media) for different submittal types (i.e. simple, large, or complex). This guidance will also provide direction concerning the information the agency requires to ensure proper identification of each segment.
- Implement enhancements to the agency's existing IT/IM systems (such as an improved EIE capability) in anticipation of storage, search, and retrieval needs, as they pertain to Alternative 4.
- Implement enhancements to the agency's current document processing work flows in anticipation of the receipt, indexing, and distribution of information, as they pertain to Alternative 4.
- Develop a rule change to implement the recommended alternative.

Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act (5 U.S.C. 605(b)), the Commission has evaluated the impact of the proposed rule on small entities. The NRC has established

standards for determining who qualifies as small entities (10 CFR 2.810). The Commission certifies that this proposed rule, if adopted, would not have a significant economic effect on a substantial number of small entities. The proposed amendments would modify the NRC's rules of practice and procedure in regard to the HLW licensing proceeding. Parties to the HLW licensing proceeding will be required to submit their filings during the proceeding according to the standards in the proposed rule. Some of the participants affected by the proposed rule, for example, DOE, NRC, the State of Nevada, would not fall within the definition of "small entity" under the NRC's size standards. Other parties and potential parties may qualify as "small entities" under these size standards. However, the required standards will overall make it easier for those parties who are small entities to participate in the HLW licensing proceeding.

Backfit Analysis

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

List of Subjects in 10 CFR Part 2

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

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended; and 5 U.S.C.

553; the Nuclear Regulatory Commission is proposing the following amendments to 10 CFR Part 2.

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

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

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

Section 2.101 also issued under secs. 53, 62, 63, 81, 103, 104, 105, 68 Stat. 930, 932, 933, 935, 936, 937, 938, as amended (42 U.S.C. 2073, 2092, 2093, 2111, 2133, 2134, 2135); sec. 114(f), Pub. L. 97-425, 96 Stat. 2213, as amended (42 U.S.C. 10134(f)); sec. 102, Pub. L. 91-190, 83 Stat. 853, as amended (42 U.S.C. 4332); sec. 301, 88 Stat. 1248 (42 U.S.C. 5871). Sections 2.102, 2.103, 2.104, 2.105, 2.721 also issued under secs. 102, 103, 104, 105, 183, 189, 68 Stat. 936, 937, 938, 954, 955, as amended (42 U.S.C. 2132, 2133, 2134, 2135, 2233, 2239). Section 2.105 also issued under Pub. L. 97-415, 96 Stat. 2073 (42 U.S.C. 2239). Sections 2.200-2.206 also issued under secs. 161 b, l, o, 182, 186, 234, 68 Stat. 948-951, 955, 83 Stat. 444, as amended (42 U.S.C. 2201 (b), (l), (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, definitions of “Complex documents,” “Large documents,” and “Simple documents” are added to read as follows:

§ 2.1001 Definitions

* * * * *

“Complex document” means a document that consists (entirely or in part) of electronic files having substantial portions that are neither textual nor image in nature. For example, specialized submissions may include runtime executable software, viewer or printer executables, dynamic link library (.dll) files, large data sets associated with an executable, and actual software code for analytical programs that a party may intend to introduce into the proceeding.

* * * *

“Large document” means a document that consists of electronic files that are larger than 50 megabytes.

* * * * *

“Simple document” means a document that consists of electronic files that are 50 megabytes or less.

* * * * *

3. In § 2.1003, the introductory text of paragraph (a) and paragraph (a)(1) are revised, and paragraph (e) is added, to read as follows:

§ 2.1003 Availability of Material.

(a) Subject to the exclusions in § 2.1005 and paragraphs (b), (c), and (e) of this section, DOE shall make available, no later than six 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 § 2.1009(b)--

(1) An electronic file including bibliographic header for all documentary material (including circulated drafts but excluding preliminary drafts) generated by, or at the direction of, or acquired by, a potential party, interested governmental participant or party; provided, however, that an electronic file need not be provided for acquired documentary material that has already been made available by the potential party, interested governmental participant or party that originally created the documentary material. Concurrent with the production of the electronic files will be an authentication statement for posting on the LSN website that indicates where an authenticated image copy of the documents can be obtained.

* * * * *

(e) Each potential party, interested governmental participant or party shall continue to make available to other participants via the LSN documentary material created after the time of its initial certification in accordance with paragraph (a)(1) through (a)(4) of this section.

4. In § 2.1005, paragraph i is added to read as follows:

§2.1005 Exclusions.

(i) Correspondence between a potential party, interested governmental participant, or party and the Congress of the United States.

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

§2.1012 Compliance

(a) If the Department of Energy fails to make its initial certification at least six months prior to tendering the application, upon receipt of the tendered application, notwithstanding the provisions of §2.101(f)(3), the Director of the NRC's Office of Nuclear Material Safety and Safeguards will not docket the application until at least six months have elapsed from the time of the certification. The Director may determine that the tendered application is not acceptable for docketing under this subpart 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 Agencywide Documents Access and Management System (ADAMS).

* * * * *

6. In § 2.1013, paragraph (a)(2) and (c)(1) are revised to read as follows:

§ 2.1013 Use of the electronic docket during the proceeding.

* * * * *

(a)(2) The Secretary of the Commission will establish an electronic docket to contain the official record materials of the high-level radioactive waste licensing proceeding in searchable full text, or, for material that is not suitable for entry in searchable full text, by header and image, as appropriate.

* * * * *

(c)(1) All filings in the adjudicatory proceeding on the license application to receive and possess high-level radioactive waste at a geologic repository operations area under part 60 or 63 of this chapter shall be transmitted by the submitter to the Presiding Officer, parties, and Secretary of the Commission, according to the following requirements—

- (i) “Simple documents” must be transmitted electronically via EIE ;
- (ii) “Large documents” must be transmitted electronically in multiple transmissions of 50 megabytes each via EIE;
- (iii) Those portions of complex documents that are amenable to electronic submission must be transmitted electronically. Those portions that are not amenable to electronic transmission must be delivered on optical storage media. The optical storage media must include the complete document, including the portions of the document that have been transmitted electronically;
- (iv) Electronic submissions must have 300 dots per inch (dpi) as the minimum resolution for bi-tonal, color resolution, and grayscale resolution.
- (v) Electronic submissions must be generated in the appropriate PDF output format by using:
 - (A) PDF - Formatted Text and Graphics for textual documents converted from native

applications; (B) PDF - Searchable Image (Exact) for textual documents converted from scanned documents; and (C) PDF - Image Only for graphic-, image-, and forms-oriented documents. In addition, Tagged Image File Format (TIFF) images and the results of spreadsheet applications must to be converted to PDF, except in those rare instances where PDF conversion is not practicable.

(vi) All electronic submissions must be free of hyperlinks to other documents or websites, provided, however, that electronic submissions to the hearing docket may contain hyperlinks within a single PDF file, if those links are created using PDF authoring software;

(vii) All electronic submissions must be free of author-imposed security restrictions.

* * * * *

Dated at Rockville, Maryland, this ____ day of November, 2003.

For the Nuclear Regulatory Commission.

Annette Vietti-Cook,
Secretary of the Commission.

**Guidance for Submission of Electronic Docket Materials
under 10 CFR Part 2, Subpart J**

September 9, 2003

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1.0 INTRODUCTION

1.1 Background

In accordance with the provisions of Title 10, Part 2, Subpart J, of the *Code of Federal Regulations* (10 CFR Part 2, Subpart J), the U.S. Nuclear Regulatory Commission (NRC) maintains an electronic docket for the adjudicatory proceeding associated with the anticipated application for a license to receive and possess high-level waste (HLW) at a geologic repository at Yucca Mountain. The High-Level Waste Electronic Hearing Docket (HLW-EHD) will contain the official record of documentary and other materials submitted in the pre-license application phase and post-docketing phase of the Yucca Mountain licensing proceeding, in accordance with the provisions of 10 CFR 2.1010(d) and 2.1013(c). Specifically, those provisions require that all filings submitted and all orders and decisions issued during the course of the proceeding must be transmitted electronically to participants in the proceeding, the presiding officer, and the Office of the Secretary of the Commission (SECY).

The NRC has analyzed and evaluated the capabilities of current information technologies and the various document and record management processes executed by the Agency to handle the anticipated submittals. Based on those analyses, the NRC anticipates that many electronic submittals in the HLW adjudicatory proceeding will be "large documents" consisting of hundreds of pages of textual and graphic-oriented materials with electronic file sizes more than several hundred megabytes(MB).

To provide for the integrity and accessibility of the large and complex electronic documents in the HLW proceeding, the NRC is providing this guidance document to facilitate 1) submittal processing, 2) ready access to, and use of, such submittals by participants in the HLW proceeding, 3) public access to the HLW-EHD, and 4) the eventual transfer of these docket materials to National Archives and Records Administration (NARA). (Attachment B to this guidance presents a glossary of related terms.)

1.2 Scope

This guidance document addresses the electronic transmission and submission of documentary materials to the NRC by all participants in HLW adjudicatory proceeding conducted under 10 CFR Part 2, Subpart J.¹

Electronic submittals may be textual documents, graphic-oriented documents (e.g., maps, photographs, charts, handwritten documents), or other large or complex

¹The U.S. Department of Energy (DOE) should also use this guidance in submitting its license application and related materials for NRC review. DOE need not submit its license application via Electronic Information Exchange.

electronic objects (e.g., computer programs, computer simulations, spreadsheets, audio and/or video files, data files). Examples of documents submitted in the pre-license application and post-docketing phase of the adjudicatory proceeding include:

- Licensing Support Network Certifications and filings challenging those certifications
- Other adjudicatory documents (e.g., intervention petitions, motions, responses, transcripts, exhibits, decisions, and orders)
- DOE License Application and supporting materials
- DOE Environmental Impact Statement
- DOE responses to NRC requests for additional information

Generally, this guidance provides for service of adjudicatory docket materials via the Internet using the NRC's Electronic Information Exchange (EIE) (see Section 4.0) in an electronic format that "locks down" the content and pagination of documentary material for ease of citation in the proceeding, thereby ensuring document integrity when accessed on computer desktops. This guidance also provides instructions for electronic submittals (including large submittals segmented into manageable file sizes) via (a) the Internet (Section 4.0) and/or (b) physical delivery on Optical Storage Media (OSM) (e.g., CD-ROM (Compact Disk, Read Only Memory)) (Section 5.0).

Physical delivery of OSM is permitted, in part, in recognition that it may not be practical to submit some large and complex electronic files via the Internet.² *Any OSM delivered to the NRC should contain a complete copy of the electronic submission, including any and all associated files that were also transmitted by EIE.*

Failure to comply with this guidance may result in a submittal being rejected.

² The following electronic files may not be suitable for submission via the Internet:

- multimedia files (e.g., audio and/or video files, simulations);
- executable programs, including database files, spreadsheet;
- data files specific to commercially available software
- data files specific to non-commercially available software

2.0 APPLICABLE SUBMITTAL TYPES

The NRC anticipates that electronic documentary submittals will fall into three general categories based on the submittal type, size, and characteristics. The following table describes these categories and summarizes the applicable submission methods.

Submittal Description Table

Submittal Type	Submittal Size	File Characteristics	Method
Simple	Less than 50 MB	One or more textual or graphic-oriented electronic files in Portable Document Format (PDF)	Use a single EIE transmission to submit the file(s) with a transmittal letter.*
Large	Greater than 50 MB	Textual or graphic-oriented electronic files in PDF that can logically be segmented into 50 MB files	<ul style="list-style-type: none"> Use multiple EIE transmissions (≤ 50 MB each) to submit the files with a transmittal letter. <li style="text-align: center;">— and — Deliver a courtesy copy of the files submitted via EIE on OSM
Complex	Any	<p>Any combination of the following electronic object categories:</p> <ul style="list-style-type: none"> Textual or graphic-oriented electronic files in PDF electronic files that can not be segmented into 50 MB files Other electronic objects, such as computer programs, simulations, video, audio, data files, and files with special printing requirements 	<p>Use the Dual-Submittal Method:</p> <ul style="list-style-type: none"> Use one or more EIE transmissions (≤ 50 MB each) to submit a transmittal letter and (if applicable), single or multiple segmented PDF files. <li style="text-align: center;">— and — Deliver the balance of the submission, together with all associated files transmitted via EIE, on OSM for a complete submission. Note: if documentary material is only being submitted on OSM, the transmittal letter is still sent via EIE.

* A submittal of a single file less than 50 MB does not require a transmittal letter.

3.0 PARAMETERS FOR ELECTRONIC FILE SUBMISSION

This section describes how documentary material should be constructed for submission to the NRC.

3.1 File Formats

Electronic documentary materials submitted in the HLW adjudicatory proceeding should be submitted in PDF (a freely available format) or otherwise meet the specifications delineated in this section. Scanning of the best available copy of a paper document to create a Searchable Image (Exact) PDF file creates an accurate electronic copy of the original document.

The following table defines the particular PDF output file formats and their use when submitting electronic documents to the NRC:

Preferred PDF Output File Format General Information Table

File Format	Version	Filename Extension	Recommended Use
Adobe® Acrobat Portable Document Format (PDF) Formatted Text and Graphics (Formerly known as PDF Normal). Options should be set according to the settings described in Attachment A	Current or 2 previous ***	pdf	Textual documents converted from native applications only *, **
Adobe® Acrobat PDF Searchable Image (Exact) [formerly known as PDF Original Image with Hidden Text]. Options should be set according to the settings described in Attachment A	Current or 2 previous ***	pdf	Textual documents converted from scanned documents
Adobe® Acrobat PDF Image Only. Options should be set according to the settings described in Attachment A	Current or 2 previous ***	pdf	Preferred format for graphic-, image-, and forms-oriented documents (not for capture of text)

* Textual documents scanned from original paper copies converted to PDF Formatted Text and Graphics result in capture of only a text file that contains OCR conversion errors. This inaccurate representation of the original document is not acceptable for capture by the NRC as an archival record. If the native format of a document is not available for creating a PDF file, the NRC recommends that Searchable Image (Exact) PDF be generated from a scanned image of the document. This will create a PDF file that contains a 100% accurate representation of the original document which will be acceptable for transfer to the National Archives.

** Adobe® PDF Formatted Text and Graphics files that contain embedded images of text will not be accepted. These files are usually a result of cutting and pasting images of text instead of the text itself, from one document to another while creating documents using word processing applications. This practice results in a picture of the text being created that is not full text searchable. However, images of text that are intended as a graphical representation only and are not meant to convey the information contained in the text will be accepted

*** The acceptable versions of PDF output files include the current market (non-beta) version distributed by the

software vendor, the version distributed directly previous to the current version, and the version distributed two versions previous to the current version.

Note: Adobe has recently established a fourth PDF output file format (PDF Searchable Image (Compact)) that uses compression techniques to reduce file sizes of images. This is not an acceptable format for submission to the NRC.

Adobe® Acrobat 5.0 provides four default optimizations when creating the Formatted Text and Graphics PDF. These are eBook, Press, Print, and Screen. The NRC has reviewed these optimizations and has established a custom optimization that strikes a balance between print and screen optimizations. This custom optimization provides adequate retrieval response time for viewing online while providing sufficient clarity and resolution for printing. The settings contained within this custom optimization are in Attachment A and can be saved locally for use on all submittals to the NRC. The parameter values listed in Attachment A are specific to Adobe® Acrobat 5.0, however, when PDF creation software other than Adobe® Acrobat 5.0 is used, the PDF creation software should be configured with parameter values equivalent to those listed in Attachment A. All fonts should be embedded in the PDF file to ensure compliance with NARA guidelines.

Images originally created in a Tagged Image File Format (TIFF) that are primarily graphic-oriented in nature may be converted into PDF for submission to NRC using the PDF Image Only format as described above.

When submitting an electronic file using one of the acceptable formats listed in the tables above, the file name should contain the three-character default extension in which the file was created (e.g., a document prepared as "license_amendment.pdf" should be submitted with the ".pdf" file extension).

Spreadsheet Formats

The NRC requires that the results of spreadsheet applications be converted to one of the acceptable PDF file formats. The NRC staff may also request spreadsheet data to perform additional calculations/analyses. Spreadsheet data may be submitted using the following acceptable formats.

Acceptable File Extensions General Information Table

File Format	Version	Filename Extension	Preferred Use
Microsoft® Excel®	Current or 2 previous *	xls	Spread Sheet calculations
Corel® QuattroPro	Current or 2 previous *	wb3	Spread Sheet calculations
Lotus® 1-2-3	Current or 2 previous *	wk3/wk4	Spread Sheet calculations

* The acceptable versions of spreadsheets include the current market (non-beta) version distributed by the

software vendor, the version distributed directly previous to the current version, and the version distributed two versions previous to the current version.

Graphic-oriented and Large and Complex Electronic Objects

To the extent practical, textual files, graphic-oriented files, and other electronic objects (e.g., spreadsheets, audio and/or video files) should be submitted electronically as PDF files. If the applicable file size and resolution restrictions (see Sections 3.2, 3.7) cannot be met for a given graphic-oriented file or other electronic object, do not submit that file or object in PDF.

The NRC recommends submitting oversize image files in a non-proprietary format that does not utilize lossy compression (e.g., tagged image file format, also known as TIFF). Similarly, the NRC recommends submitting video and audio files in a format compatible with commercially available playback devices.

Electronic objects specific to highly specialized software applications such as special-purpose computer programs, simulations, and data files are acceptable in their native file format. Submission of these specialized electronic objects that are specific to commercially available software should include the following information about the software:

- software title and version
- compatible computer operating system
- hardware requirements (including the minimum recommended hardware configuration)
- a list of user-controlled parameters used with the software.

Submission of these specialized electronic objects that are specific to non-commercially available software should include (1) a freely distributable “run-time” version of all software components that the submitter used to create the files, and (2) the following information:

- validation reports on the software used to create the files
- compatible computer operating system
- software and hardware installation/configuration parameters
- hardware requirements (including the minimum recommended hardware configuration)
- other information to ensure seamless access to and review, duplication, and printing of the files.

3.2 File Size Limitations

Large files create challenges for users when transmitting, viewing, or downloading documents. Submitters should limit file sizes to 50 MB for electronic submittals and divide larger electronic files into segments of 50 MB or less at logical breaks in the document (e.g., at individual chapters) as described in Section 3.3.

Compression techniques that are not inherent in authoring software used to produce PDF or TIFF files (e.g., zipped files) may not be used.

The 50 MB file size will allow participants in the adjudicatory proceeding and the general public to access electronic files in the HLW-EHD via the Internet. Test results indicate that 50 MB is a reasonable file size for downloading files across wide area networks or from the Internet via phone lines. In addition, larger files (greater than 50 MB) are difficult for end-users to navigate.

While we do not recommend a minimum file size, small files that are components of a larger document should be combined into one file to facilitate efficient distribution and use of the documentary material. For example, if a document consists of 15 separate 2 MB files, those 15 files should be combined to result in one 30 MB file.

3.3 Segmentation of Large Documents

Large documents with file sizes greater than 50 MB should be divided in file segments of 50 MB or less at logical breakpoints such as:

- a. Chapters
- b. Sections
- c. Subsections
- d. Appendices
- e. Exhibits or attachments
- f. Charts, Tables, Formulae
- g. For large transcripts, the end of a witness' testimony or session recess

If the recommended file size cannot be achieved, consider moving the graphics (which are often large files) to an appendix or attachment. Any graphic or other Binary Large Object (BLOB) that exceeds the 50 MB limit and that cannot logically be divided, should not be segmented. In this case, the graphic or BLOB cannot be sent via EIE (see Section 4.0) and should be provided on OSM in accordance with guidance in Section 5.0.

When OSM are submitted, use electronic folders to organize the contents at the chapter level consistent with the file name guidance outlined in Section 3.5. In addition to the limit on file name length, the Joliet Extension to ISO 9660 allows an overall limit on length of path of 255 characters, including the file name and extension. The numeric portion of the file name should be sequential across all folders. Therefore:

- Each Chapter will have its own folder which should then contain all files associated with that Chapter, including sections, subsections, and graphics (either embedded within those sections/subsections or provided separately).
- The sections/subsections should be placed in logical sequential order within a folder.

- Separate folders may be created for appendices, exhibits, or attachments. Each item should have the file name reflect the folder where it resides, if practical in conjunction with complying with the file name guidance in Section 3.5.

If multiple OSM are submitted (either alone or as a supplement to an EIE submission), place the Table of Contents for the entire submission on each OSM in a multi-set submission. Place all files submitted via EIE on the first OSM and as many additional OSM as required to store those files submitted via EIE. Submit other electronic objects such as computer programs, simulations, video, audio, data files, etc., on separate OSM and include any special software components, their configuration parameters, and any hardware configuration requirements, as applicable.

3.4 Transmittal Letter

Include with each submittal, a transmittal letter³ (see Attachment C) that provides explanatory information that will enable the NRC to ensure the completeness and integrity of the submission. On the first page of the transmittal letter submitters should include the following information:

- Organization or Individual Name/Address (Author)
- Docket Number (WM-00011)
- Subject Line (a non-sensitive brief, but descriptive narrative of the subject of the submission)
- Any requests for withholding from public disclosure in accordance with 10 CFR 2.790, 2.1003, 2.1006.

On the last page of the transmittal letter, submitters should provide:

- the name, mailing and e-mail addresses, and phone number of a point of contact that can resolve discrepancies in document submittals should they arise
- a complete listing of the document components (electronic files and/or physical objects) that make up the submittal. The components should be listed in the order in which they appear in the document, and if applicable, the total number of OSM that are submitted by expedited delivery (e.g., same day courier, overnight) (see Section 3.5)
- a list of parties served with the submission

³A submittal of a single file less than 50 MB does not require a transmittal letter.

Each of the listed components should indicate the following information:

- The filename (as defined in Section 3.5, including file extension)
- the size of the file
- Sensitivity level (e.g., publicly available, proprietary, classified, etc.)
- an indication of whether the component is being submitted via EIE and/or submitted on OSM
- the associated LSN number (if applicable)
- a file that provides a non-sensitive description of all electronic components characterized as "BLOBS" or other physical objects⁴.

The NRC will reject any submittal if there are any inconsistencies, including omission, between the transmittal letter and the files or physical objects received. In such instances, the NRC will inform the submitter of the rejection. In addition, if one or more of the optical storage devices contain classified information (i.e., National Security Information and Restricted Data); sensitive unclassified information; or non-public documents, additional Sensitive Information requirements apply as described later in Section 3.13.

3.5 Electronic File Naming Conventions

OSM identified in a transmittal letter submitted via EIE should meet the ISO 9660 format. The Joliet Extension to ISO 9660 should be followed. The file naming conventions, for consistency, are applicable to files transmitted via EIE as well as PDF files submitted on OSM.

The Joliet Extension allows file names of up to 64 characters; however, documents submitted via EIE are programmatically provided a unique sequential number assigned to each of the files contained in the submission and a date of receipt for each file. This is a 15-character unique number. Documents submitted to the NRC should therefore have filenames that are limited to 49 characters in length (including the ".", spaces, and the three-character filename extension). This 49 character limit is subject to the following criteria:

- The first three characters of the file name should always be used to identify the sequence of the file in the organization of the document. For example, a document may be comprised of 3 separate files. The name of the first file for the document would start with "001," the name of the second file that comprises the document

⁴Include any special instructions or information necessary to view or use the information, such as special instructions regarding the use of OSM, computer operating system or software requirements for data files, computer models, etc. (See Attachment D.)

would start with "002" and so on for as many files as necessary to comprise the document. For consistency, if a document is comprised of only one file, the file name should still begin with "001."

- The filenames should reflect, to the extent possible within the remaining characters, the section number and title of the file/segment being submitted, per the following:

'section number' 'title'.pdf

(Where 'section number' reflects the lowest level of document breakpoint and 'title' is a meaningful reference to the actual document title.)

- The default three-character file extension associated with the format in which the document was created needs to be retained (Example: for files created to conform to PDF, ".pdf").

File Naming Example Table:

Document Title	File Name
Multiple File Documents	
Chapter 1, Section 1 Estimate of Long-Term Geo-chemical Behavior	001_1.1 Estimate of Long-Term Geochem Behavior.pdf
Chapter 2, Section 2 Estimate of Long-Term Geo-chemical Behavior	002_2.2 Estimate of Long-Term Geochem Behavior.pdf
Appendix A Estimate of Long-Term Geo-chemical Behavior	003_Ap A Estimate - Long-Term Geochem Behavior.pdf
Single File Documents	
Attachment II, CAL-EBS-NU-000017 Rev 003 Calculation, Radiolytic Specie Generation from Internal Waste Package Criticality	001_Att 2 CAL-EBS-NU-000017 R003.pdf
List and Schedule for Model Validation Reports related to Criticality	001_List_Sched for MVRs related to Criticality.pdf

3.6 Security/Access Settings

Submissions should not contain any security settings, password protections, or any other attributes that will exclude full NRC access to and use of the files. NRC's internal security and archival processes will maintain the integrity of the materials that are submitted.

Encrypted documents are not acceptable for submittal to the NRC and will be rejected.

3.7 Resolution

To meet the expectations of the document users, and to comply with NARA Standards, PDF documents should be created using the following resolution guidelines:

- Bi-tonal (black and white) PDF resolution, not less than 300 dpi
- Color PDF resolution, not less than 300 dpi
- Grayscale PDF resolution, not less than 300 dpi

Also see Attachment A for additional guidance on Adobe Acrobat settings.

Adobe® Acrobat “downsampling” (an optimization option available in Adobe Acrobat) may result in images with resolutions less than acceptable for submission to the NRC. Therefore, its use is not recommended.

The 300 dpi minimum resolution also applies to non-PDF graphic-oriented electronic files (e.g., TIFF images).

In special situations, the submitter may use flexibility with respect to the minimum resolution. In these cases, the submitter should maintain the integrity of the scanned image, the quality of the graphic presentation, and a readable representation of the original work capable of being duplicated and/or reproduced.

3.8 Files with Special Printing Requirements

Documents that contain electronic files with special printing requirements, such as requiring the use of a plotter or other special equipment to print, oversize drawings or graphics that require a paper size larger than 11 inches by 17 inches, or other enhancements such as 3D images, etc., may only be submitted electronically via OSM as separate files. If special software components (e.g., printer drivers) are necessary, include those components, their configuration parameters, and any hardware configuration requirements on the same OSM.

3.9 File Linkages

Files containing objects (e.g., pictures, tables, spreadsheets, and images of text) using link protocols such as Object Linking and Embedding (OLE), Dynamic Data Exchange (DDE), or any other object linking between electronic files are not practicable for the NRC to accept because the relationships among links in multiple file submissions are lost when captured in ADAMS or other agency electronic recordkeeping systems.

However, links within a single electronic PDF file are acceptable, if those links are created

using PDF authoring software. Multiple linked PDF files may be combined into a single PDF file using utilities often included in PDF authoring software.

3.10 Viruses

Files received by the NRC will be checked for viruses prior to acceptance. Macros in files such as Microsoft® Excel are sometimes detected as viruses. Therefore, the use of macros should be limited because a file identified as having a virus will be rejected and the submitter notified of the rejection.

3.11 Copyrighted Information

Submitting information electronically to the NRC shall be deemed to constitute authority for the NRC to place a copy of the information on its public document database and to reproduce and distribute sufficient copies to carry out its official responsibilities. NRC use of the information specified herein does not constitute authority for others to use the information outside applicable requirements of copyright law.

3.12 Accessibility (Section 508)

Section 508 of the Rehabilitation Act and the accessibility standards set forth in implementing regulations requires that Federal Agencies' electronic and information technology is accessible to people with disabilities. Tools and plug-ins are now available to allow PDF files to comply with Section 508, but care must be taken in developing documents and converting them to PDF to ensure that the author has constructed the documents and used the appropriate tools with accessibility in mind. The submitter should consider accessibility issues during document authoring. The use of simple layouts, consistent application of styles, accessible table formats, and the inclusion of alternate text for images improves the ability of people with disabilities to use the information.

3.13 Sensitive or Classified Information

If a document contains information that is deemed sensitive unclassified, specifically proprietary (e.g. trade secrets, privileged, company confidential or financial information), personal privacy or other official use only information, it may be submitted via EIE. The document must be clearly marked (e.g., watermark) and the transmittal letter must indicate the sensitivity for each document.

If it is not practical to submit a large document containing sensitive unclassified information via EIE (see Section 1.2, 3.3, 3.4), submit the document via OSM. Submissions made on OSM must be accompanied by a transmittal letter (see section 3.4) that contains

information regarding the sensitivity level of the transmitted documents. This letter should contain a listing of each file contained in the submission, with a description and the sensitivity for each file clearly marked.

When submitting documents via OSM that contain both publicly and non-publicly available files, all of the files should be included. In addition, separate OSM must be provided that contains only the publicly available files. Each OSM must be clearly labeled indicating its availability. Files contained on OSM labeled as "Publicly Available" will be released to the public.

OSM containing classified information must be processed and produced on systems approved under the provisions of 10 CFR 95.49. Each OSM must be clearly labeled as containing classified information.

The mailing package containing OSM with documents comprised of Safeguards, Proprietary, or Privacy Act Information must be processed, marked and transmitted in accordance with the requirements set forth in 10 CFR 2.790(b), 73.21(e), 73.21(g), and 73.21(h), as appropriate. Documents containing Safeguards Information may not be submitted via EIE.

OSM containing Classified Information (i.e., National Security Information or Restricted Data), must be packaged and submitted to the NRC in accordance with the requirements contained in 10 CFR 95.37, 95.39, and 95.41. Documents containing classified information may not be submitted via EIE.

If sensitive unclassified or classified documents are appended to filings in the adjudicatory proceeding, the submitter shall seek an appropriate order from the Presiding Officer pursuant to 10 CFR Part 2, Subpart J, or follow the procedures for Classified Information in 10 CFR Part 2, Subpart I.

3.14 Document Updates

Document component updates will not be accepted. If changes to the submitted document are necessary, the entire document (including all of the electronic files and electronic objects that comprise the document), and all OSM sets in their entirety should be re-submitted as that version will become a new document. The subsequent transmittal letter should indicate the part(s) (e.g., chapter, section, or graphic) that has been changed as well as the general scope of the change. The submittal guidelines given in Section 3.4 of this guidance should once again be followed. The document should be identified as a new version and file identification information submitted accordingly.

4.0 EIE SUBMISSIONS

Each individual that plans to transmit electronic documentary materials via EIE needs to obtain a digital signature certificate (Digital Certificate) and software plug-ins downloaded and installed on the user's computer. The NRC EIE web page (located on the Internet at www.nrc.gov by choosing "Site Map" followed by "Electronic Information Exchange") has detailed information about EIE.

- All EIE users will be assigned a Digital Certificate in order to use EIE. A Digital Certificate is used to submit and digitally sign the form used to submit documents and will be required in order to access the EIE external server to retrieve documents, if appropriate. The EIE system requires the use of an NRC-issued Digital Certificate.
- All EIE system users will need to download and install software plug-ins. The specific plug-ins required are the Internet Form Viewer, which is a required plug-in regardless of the browser used, a signing plug-in for Netscape users, and a separate viewer plug-in for Microsoft® Internet Explorer users.
- Submission of documents via EIE in 50 MB segments is done using the NRC's EIE form. The EIE form is a document based on Extensible Mark-up Language (XML). It allows participants to sign, enclose, submit, and verify documents via the Internet. The document to be submitted or transmitted must be presented as an attachment to the form. Once the form is displayed, users will need to fill in the fields on the form and attach the document(s) for submission to the NRC. Once the fields have been filled in and the intended documents are attached, the form must be digitally signed.
- NRC regulations require that some documents be filed under oath or affirmation. There are currently two acceptable methods for providing this oath using the EIE processes.
 1. Documents requiring oath or affirmation may use EIE to digitally sign the affirmation on the document. Using this process, the document must conclude with a statement to this effect:

"I declare under penalty of perjury that the foregoing is true and correct. Executed on [date]".

The electronic document *must* be digitally signed by the person affirming this statement. This person may then transmit the document directly to the NRC using EIE or may forward the document to someone else for transmission to the NRC. In the latter case, the transmitter must also sign the document to authorize the electronic transmission.

Except as set forth below, multiple documents requiring individual digital signatures by different persons cannot be sent in a single EIE transmission. The current EIE process only allows two persons to digitally sign a single transmission. Therefore, the NRC recommends that the method described below in item 2 be used for submissions that require multiple oath and affirmations.

Note: When digitally signing a document, the submitter is actually digitally signing the EIE transmission form, not the document. Signing the form is the equivalent of signing the document.

2. Oath or affirmation affidavits may also be created in hard copy and physically signed. The original paper copy may then be scanned to create a PDF Searchable Image (Exact) file of the original signature page. This page, with the rest of the PDF file of the entire attachment, may then be submitted via EIE.

Note: Although there are other methods available to electronically sign documents using word processing and other software, these are not currently acceptable for use in signing documents for submission to the NRC because they do not provide the levels of authentication, certification, and non-repudiation that are present in the EIE process.

- Verification of Receipt - The NRC EIE form is the equivalent of signing a FEDEX receipt for shipping the document and must be digitally signed. Any submission sent via EIE that is successfully received will receive a date/time stamp and EIE will return a "message received" confirmation. In the absence of this confirmation, it is the submitter's responsibility to follow-up and verify that the submittal was in fact received. The NRC will compare the files delivered to the list identified in the transmittal letter to ensure that all files have been delivered. Where discrepancies are found between the transmittal letter and the actual files:
 - If a period of 8 hours has elapsed between the beginning of the transmittal of the first file of a given EIE submission and notification of receipt of the last file of the same EIE submission, and the EIE system has not yet received all files, the NRC will reject the submittal and notify the submitter. The NRC does not anticipate that this time limit will address the transmittal of a single EIE form and its attachments; rather, this time limit is intended to address the transmittal of multiple EIE forms and their attachments in situations where the size of the submission requires more than one EIE transmission to accomplish delivery of all attachments that comprise the submission.
 - In the event that the NRC identifies discrepancies between the transmittal letter and the files actually received via EIE (e.g., a file is listed, but not included; an unidentified file is sent; or the total number of attachments stated does not equal the number actually received), the NRC will reject the submission and notify the submitter.

- If the OSM received do not contain all of the files described in the transmittal letter, the NRC will reject the submittal and notify the submitter. Similarly, if the OSM do not arrive within the time specified in Section 5.0, the NRC will reject the submittal and notify the submitter.

The processes and steps described above are specific to both Netscape Navigator/Communicator 4.6 or higher and Microsoft Internet Explorer 5.0 or higher. The recommended workstation configuration requires a Pentium 900 MHZ processor (or higher) with a minimum of 128 MB of RAM, adequate available disk space⁵, a device for creating and/or reading OSM, and access to the World Wide Web (Web) through an Internet Service Provider (ISP). The operating system should be either Windows NT or Windows 95 (or higher). Other browser types, such as AOL or Mosaic, are not currently supported for use in the EIE system.

⁵ The requirement for disk space is dependent on the volume of material the participant intends to submit and/or retrieve. To calculate required disk space, multiply the size of the submittal or retrieval by 2, for example, a 33 MB file will require 66MB of available disk space.

5.0 OPTICAL STORAGE MEDIA SUBMISSIONS

OSM should be used in the following circumstances:

- The documentary material cannot be transmitted via EIE (e.g., file size, graphic-oriented electronic objects)
- The EIE submittal exceeds 50 MB and is comprised of multiple segmented files
- A document segment cannot be submitted via EIE although the remaining document portions could be transmitted via EIE
- The document contains sensitive unclassified information (i.e., Safeguards information) or classified information (i.e., National Security information and Restricted Data).

In addition:

- The transmittal letter should be included on the OSM (see Section 3.4 for transmittal letter guidelines)
- NRC regulations require that some documents be filed under oath or affirmation. If such a document is submitted on OSM, either the transmittal letter or the first page of the document contained on the OSM must contain the oath and the signature of the person swearing to the accuracy of the information submitted. Specifically, the letter must include the following statement with the signature of the person affirming it:

"I declare under penalty of perjury that the foregoing is true and correct. Executed on [date]".

If the oath or Affirmation is submitted on the transmittal letter, it must contain the original signature of the person swearing to the accuracy of the information. If submitted as part of the document contained on the OSM, the page containing the signature must be provided as a scanned PDF Searchable Image (Exact) file along with the PDF version of the entire document being submitted.

- Include the entire submission (i.e., all files submitted separately through EIE and those submitted only on OSM). Place files submitted through EIE on OSM that is separate from the files submitted only on OSM.

Software used to produce OSM should be configured to ensure that the OSM is "read only" prior to its delivery to NRC.

All OSM content should be readable either by commercially available software, or by providing, where appropriate, executable programs that are located on the OSM.

The OSM should be labeled with the Transfer Media Configuration (e.g., drive transfer rate)

as well as any numbering, exterior marking, or labeling that should reference the submittal provided through EIE. If appropriate, the version number may also be included.

As stated in Sections 3.3 and 3.5, the acceptable OSM format must be compliant with ISO-9660, using the Joliet Extension.

Submitters should transmit OSM, along with a hard copy of the transmittal letter, by expedited delivery service. Given the paramount importance of submittal and document integrity and fidelity, expedited delivery of the OSM is essential to ensure proper coordination of the companion submittals transmitted via EIE and on OSM. In addition, to ensure that all intended information has been received, the NRC will not deem a submittal complete, "in-hand," or ready for further processing and staff review until the agency has received the last document/segment.

Subsequent to the anthrax mailings in late September 2001, incoming mail addressed to the Federal government is irradiated prior to delivery. Irradiation of electronic information media may result in damage to the media and its contents. Therefore, packages containing OSM submission should be clearly marked "CONTENTS CONTAIN OPTICAL STORAGE MEDIA DO NOT IRRADIATE."

The following address is to be used for delivering OSM to the NRC:

**ATTN: Document Control Desk
HLW SUBMISSION
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 20852**

ATTACHMENT A - SETTINGS

The following table provides guidance on the settings to be used when using Adobe® Acrobat Distiller 5.0.5 to produce an optimal PDF for submission and subsequent use by NRC staff and the public. When PDF creation software other than Adobe® Acrobat Distiller 5.0.5 is used, the PDF creation software should be configured with parameter values equivalent to those listed below.

Options		Recommendation Optimal on 5.0
General Options		
	Compatibility	5.0
	Optimize for Fast Web	X
	Embed Thumbnails	
	Auto-Rotate	
	Binding	Left
	Resolution (dpi)	300
Compression		
	Color Images	Bicubic Downsampling (NOT SELECTED)
	For images above	300 dpi
	Compression	ZIP
	Quality	8-bit
	Grayscale	Bicubic Downsampling (NOT SELECTED)
	For images above	300 dpi
	Compression	ZIP
	Quality	8-bit
	Monochrome	Bicubic Downsampling (NOT SELECTED)
	For images above	450 dpi
	Compression	CCITT – Group 4
	Anti-Alias to Gray	Not Selected
	Compress Text & Line Art	Selected
Font		
	Embed All Fonts ¹	X
	Subset embedded fonts when percent of characters used is less than 100 %	
	When Embedding Fails	Warn & Continue

Continued on next page

¹You must check the license(s) for any font(s) you intend to embed, to verify that embedding is allowed. In some cases, the program will warn you if a font is not licensed for embedding, but this varies by vendor. Fonts must be embedded to comply with NARA guidelines.

Options (cont'd)		Recommendation Optimal on 5.0
Color		
	Setting File	None
	Color Management Policy	Tag Everything for Color Management
	Intent:	Default
	Gray	None
	RGB	SRGB IEC61966-2.1
	CMYK	US Web Coated (SWOP)v2
	Preserve Overprint Settings	X
	Preserve Under Color Removal	X
	Transfer Function	Preserve
	Preserve Halftone	
Advanced Options		
	Prologue.ps & Epilogue.ps	
	Allow PS to Override Job Options	X
	Preserve Level 2 Semantics	X
	Save Job Ticket	X
	Illustrator Mode	X
	Gradients to Smooth Shades	X
	ASCII Format	
	Process DSC Comments	X
	Log DSC Warnings	
	Resize for EPS	X
	Preserve EPS Info	X
	OPI Comments	X
	Preserve Doc Info from DSC	X

ATTACHMENT B – GLOSSARY

Agencywide Documents Access and Management System (ADAMS)

ADAMS is the NRC's primary records management system that contains the bibliographic header (metadata) about a record, searchable text, and an image of a record (either in PDF or TIFF formats). Two access methods for the public are offered today:

- through the Citrix server (which provides client/server-type access to ADAMS)
- a Web browser based interface to publicly available records.

Bibliographic Header

A structured description of a document, file, or object.

Binary Large Object File (BLOB)

A large file, typically an image or sound file, that must be handled (for example, uploaded, downloaded, or stored in a database) in a special way because of its size.

Courtesy Copy

A non-required copy of a document provided as a useful reference copy of an official document.

Document

A document is any written printed, recorded, magnetic, graphic matter, or other documentary material, regardless of form or characteristic.

Documentary Material

Documentary material means any information upon which a party, potential party, or interested governmental participant intends to rely and/or to cite in support of its position in the proceeding.

Electronic Information Exchange (EIE)

Electronic Information Exchange is the electronic transfer mechanism established by the NRC for electronic transmission of documents to the agency via the Internet, where the documents are transmitted in a verifiable and certifiable mode that includes digital signatures. EIE is a Public Key Infrastructure (PKI) system using RSA Labs' 128-bit encryption, Verisign's Public Key Certificate Services (PKCS), and PureEdge's Extensible Forms Definition Language (XFDL) webform.

High-Level Waste Electronic Hearing Docket (HLW-EHD)

The High-Level Waste Electronic Hearing Docket is the NRC information system that receives, distributes, and stores the Commission's adjudicatory docket materials in the proceeding on the application of the Department of Energy (DOE) for license to receive and possess high-level radioactive waste at a geologic repository at Yucca Mountain. The High-Level Waste Electronic Hearing Docket was established pursuant to the requirements

of 10 CFR §2.1013, to contain the official record materials of the HLW proceeding in searchable full text, and for material that is not suitable for entry in searchable full test, by header and image, as appropriate.

File Format

A file format is the layout of a file in terms of how the data within the file is organized. A program that uses the data in a file must be able to recognize and access data within the file. A particular file format is often indicated as part of a file's name by a file name extension (suffix). Conventionally, the extension is separated by a period from the name and contains three or four letters that identify the format. Examples are: 1) word processing (.doc for MS® Word, .wpd for Corel® WordPerfect), 2) spreadsheet (.xls for MS® Excel, .wb3 for Corel® Quattro Pro), 3) "generic" (.pdf for Adobe Systems' ® Acrobat).

Length of Path (ISO 9660, Joliet Extension))

The Joliet Extension to ISO 9660 allows filenames of 64 characters in length and is the least restrictive interchangeable format. However, the ISO 9660 standard imposes a limit on length of path to each file that cannot exceed 255 characters. Length of path is the sum of the lengths of all relevant directories, the length of the file name and extension, and the number of relevant directories.

Licensing Support Network (LSN)

The Licensing Support Network (LSN) is a web portal that provides access to multiple document collections pertaining to the high-level waste repository. It uses "web-crawler" technology to index those various collections. It provides web-based access to the document collection structured information (bibliographic) and unstructured information (content files, image files).

Macro

A macro (for "large"; the opposite of "micro") is any programming or user interface that, when used, expands into something larger. A macro definition defines how to expand a single language statement or computer instruction into a number of instructions. The macro statement contains the name of the macro definition and usually some variable parameter information. Macros were (and are) useful especially when a sequence of instructions is used a number of times. For example, In Microsoft Word and other programs, a macro is a saved sequence of commands or keyboard strokes that can be stored and then recalled with a single command or keyboard stroke.

Optical Character Recognition (OCR)

Optical Character Recognition is the recognition of printed or written text characters by a computer. This involves the photo scanning of the text character-by-character, the analysis of the scanned-in image, and then translation of the character image into character codes, such as ASCII. The scanned-in image is analyzed for light and dark areas in order to identify each alphabetic letter or numeric digit. When a character is recognized, it is converted into an ASCII code. OCR can be accomplished either through software alone,

or through a combination of specialized hardware and software.

Portable Document Format (PDF)

This is Adobe® Systems, Incorporated's Acrobat document publishing software package output format. Current release is Acrobat 5.0.5. The PDF standard, though it is proprietary to Adobe, has been published, is freely available, and the capability to create PDF documents has been integrated into many other software applications. PDF documents can be generated from any application that can generate Postscript printer files (a popular printing language standard); thus anything that can be printed can be represented in PDF. When files are converted from standard applications to PDF, the information and pagination are "locked down" for the general user, who can access the content through the use of PDF viewer software. The following are definitions of the various types of PDFs:

- *Formatted Text & Graphics*
Formerly known as "PDF Normal". This type of PDF is a popular output file format created when materials have been produced on a word processing or publishing system. It contains the full text of the page with appropriate coding to define fonts, sizes, etc. The files are relatively small; screen display and printed version are comparable in readability of content.
- *Searchable Image*
Formerly known as "PDF Original Image with Hidden Text." When a document is created in this type of PDF, the resultant file consists of two layers: a bit-mapped layer and a hidden text layer. The bitmapped layer maintains the visual representation of the original document. The text layer is created through optical character recognition software (OCR). There are two "flavors" of this type of PDF:
 - *Searchable Image (Exact)*
Formally known as 'PDF Image + Hidden Text.' This creates the largest file size, but is the more accurate of the two "flavors". When the plug-in is launched, a layer of text is placed behind the image, making the page appear exactly as it did when scanned, but now it is searchable. Thus, the Searchable Image (Exact) preserves the look of the original scanned image, making it an ideal format for meeting legal requirements.
 - *Searchable Image (Compact)*
This captures the same image as searchable image (exact), producing smaller files sizes than the Exact method. The general look and feel of the image is retained and it becomes searchable. The quality is not quite as good as the Exact method, as the compression routines used are "lossy" techniques. Because of the lossy techniques used here, the NRC will not accept any documents created in this format. This decision is consistent with guidance from NARA.

- *Image Only*
This type of PDF is essentially a scanned image of the page in a PDF wrapper and contains no searchable text. There is no ability for text searching. The image quality is dependent on the quality of the source materials and the quality of the scanning operation.

Segment

A segment is subpart, or subunit, of a document usually created at a logical division such as a chapter, section, or subsection of a large document.

Submittal

An information package delivered to the NRC for a specific purpose and may consist of one or more documents

Target File

A file required by most electronic document management systems to store and retrieve bibliographic header information.

**ATTACHMENT C - Sample Transmittal Letters and Corresponding EIE
Forms**

SIMPLE SUBMITTAL

State of Xxxx
Office of the Governor
12345 Main Street
Anywhere, XX 56789

September 23, 2005

United States Nuclear Regulatory Commission
Atomic Safety and Licensing Board
Attn: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

WM-00011(PRE)

Enclosed are the State of XXXX's Response to DOE Interrogatories 3 and 7 and Notice of Appearance for J. Doe, Esq.

Questions concerning this submittal may be directed to:
State of XXXX
Office of the Governor
Attn: Mary Smith (000) 555-xxxx
e-Mail: MESmith@stateofXX.us
12345 Main Street
Anywhere, XX 56789

Sincerely,
J. Doe
Attorney for the State of XX

cc: Provide list of parties served

Document Components:
001 State Transmittal Letter.pdf 1024 bytes (EIE)
002 State Response to 3 &7.pdf, 15,683,112 bytes (EIE)
003 Notice of Appearance-Doe.pdf, 1,056,011 bytes (EIE)

EIE SUBMISSION FORM

U.S. Nuclear Regulatory Commission				
*Adjudicatory/EHD Documents				
Instructions: Please fill out the form completely and Sign to Authorize transmittal. Press Submit when you are finished.				
Docket	WM-00011			
Document Title	State of XX Response to DOE Interrogatories 3 and 7			
Attachment	Attach	Remove	View	Extract
Date	23 Sep 2005			
Author	John Doe			
Comments	3 Attached files submitted by EIE (transmittal letter and 2 documents)			
Signature	Click to Digitally Sign Document			
Authorization	Click to Authorize Transmission			
	Submit		Cancel	
Service List Recipients				
The following people may receive notifications. Check the box next to each name that you would like to receive a notification. Make sure a valid email is entered.				
Last Name	First Name	Email		Notify
Bollwerk	Judge Paul	gpb@nrc.gov		✓
Everett	Craig	ceverett@logicon.com		✓
Hung	Daniel	Hungda@mail.northgrum.com		✓
Skoczlas	John	jas1@nrc.gov		✓
Smith	Joe	jxr1001smith@nrc.gov		✓

LARGE SUBMITTAL

United States Department of Energy
Office of the General Counsel
Hearing Division
Washington, DC 20585

September 18, 2005

United States Nuclear Regulatory Commission
Atomic Safety and Licensing Board
Attn: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

WM-00011(PRE)

Enclosed are DOE's Response to Interrogatories Related to Quality Control Procedures

Questions concerning this submittal may be directed to:
US Department of Energy
Hearing Division
Attn: S. Smith (202) 555-xxxx
e-Mail: SESmith@usdoe.gov
Washington, DC 20585

J. Doe, Attorney for DOE

cc: Provide list of parties served

Document Components:

001 DOE Transmittal Letter.pdf 1024 bytes (EIE)
002 Evaluation Quality Control (1 of 4).pdf 48,321,678 bytes (EIE)
003 Evaluation Quality Control (2 of 4).pdf 47,421,178 bytes (EIE), Proprietary
004 Evaluation Quality Control (3 of 4).pdf 49,223,167 bytes (EIE)
005 Evaluation Quality Control (4 of 4).pdf 37,522,178 bytes (EIE)

EIE SUBMISSION FORM

U.S. Nuclear Regulatory Commission				
*Adjudicatory/EHD Documents				
Instructions: Please fill out the form completely and Sign to Authorize transmittal. Press Submit when you are finished.				
Docket	WM-00011			
Document Title	DOE Evaluation of Quality Control Procedures for Analysis of Core Samples			
Attachment	Attach	Remove	View	Extract
Date	18 Sep 2005			
Author	J. Doe			
Comments	1 Submittal consisting of 1 transmittal letter and 4 - 48MB files, submitted by EIE			
Signature	Click to Digitally Sign Document			
Authorization	Click to Authorize Transmission			
	Submit		Cancel	
Service List Recipients				
The following people may receive notifications. Check the box next to each name that you would like to receive a notification. Make sure a valid email is entered.				
Last Name	First Name	Email	Notify	
Bollwerk	Judge Paul	gpb@nrc.gov	<input checked="" type="checkbox"/>	
Everett	Craig	ceverett@logicon.com	<input checked="" type="checkbox"/>	
Hung	Daniel	Hungda@mail.northgrum.com	<input checked="" type="checkbox"/>	
Skoczlas	John	jas1@nrc.gov	<input checked="" type="checkbox"/>	
Smith	Joe	jxr1001smith@nrc.gov	<input checked="" type="checkbox"/>	

COMPLEX SUBMITTAL

United States Nuclear Regulatory Commission
Office of the General Counsel
Hearing Division
Washington, DC 20555

September 30, 2005

United States Nuclear Regulatory Commission
Atomic Safety and Licensing Board
Attn: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

WM-00011(PRE)

Enclosed are NRC Motion in Support of DOE's Site Characterization Plan - Estimates on Groundwater Travel in Area 16 of the Yucca Mountain Facility and Notice of Appearance for J. Jones, Esq.

Questions concerning this submittal may be directed to:
United States Nuclear Regulatory Commission
Office of the general Counsel
Hearing Division
Attn: Jane Doe, (301) 415-xxxx
e-Mail: xxx@nrc.gov
11555 Rockville Pike
Rockville, MD 20852

Jane A. Doe, Attorney for the NRC

cc: Provide list of parties served

Document Components:

001 NRC Transmittal Letter.pdf 1024 bytes (EIE)
002 NRC Motion in Support of DOE Analysis.pdf, 15,679,411 bytes (EIE)
003 Notice of Appearance for J. Jones, Esq.pdf, 1,056,911 bytes (EIE)
004 Description Analytical Code DOE Site Plan.pdf, 142,846 bytes (EIE), Proprietary
005 Description Core Sample 3.pdf, 1,032,116 bytes (EIE), LSN-#####
006 Description Video - Jan. 21, 2003.pdf, 156,936 bytes (EIE), LSN-#####

OSM#1:

Located in the OSM root:
000 Table of Contents.pdf

Located in the "documents" folder:
001 NRC Transmittal Letter.pdf 1024 bytes (EIE)
002 NRC Motion in Support of DOE Analysis.pdf, 15,679,411 bytes (EIE)
003 Notice of Appearance for J. Jones, Esq.pdf, 1,056,911 bytes (EIE)

004 Description Analytical Code DOE Site Plan.pdf, 142,846 bytes (EIE), LSN-#####
Document Components: cont'd

005 Description Core Sample 3.pdf, 1,032,116 bytes (EIE), LSN-#####
006 Description Video - Jan. 21, 2003.pdf, 156,936 bytes (EIE), LSN-#####

OSM#2

Located in the OSM root:
000 Table of Contents.pdf

Located in the "Analytical Code" folder:
001 DOE Site Characterization Plan Analysis.exe 123,311,123 bytes, (Description submitted via EIE), Proprietary

Located in the "Video" folder:
002 Video Recording of Jan. 21, 2003 Meeting.wmv, 236,561,440 bytes, (Description submitted via EIE), LSN-#####

EIE SUBMISSION FORM

U.S. Nuclear Regulatory Commission				
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Docket	WM-00011			
Document Title	NRC Motion in Support of DOE's Site Characterization Plan - Estimates on Groundwater Travel in Area 16			
Attachment	Attach	Remove	View	Extract
Date	30 Sep 2005			
Author	Jane Doe			
Comments	1 transmittal letter, 5 files submitted via EIE and 2 OSMs submitted via overnight delivery.			
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ATTACHMENT D - Sample Files Describing "BLOBS" or Physical Objects

004 Analytical Code Used for DOE Site Characterization Plan, Chpt 4, Groundwater Level Analysis, (Description submitted via EIE) LSN-D4567823

This enclosure provides the Analytical Code used for the analysis of information presented in Chapter 4 of DOE's Site Characterization. Code is run on a UNIX PC utilizing abcd Operating system, ~~~~~

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**005 Core Sample 3, Area 16 (Description submitted via EIE)  
LSN-C456789**

Core Sample 3 was taken from Area 16 on the southeastern slope of Yucca Mountain and displays strata from

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**006 Videotape of Jan. 21, 2003 Meeting to Discuss Core Sample Evaluations  
(Description submitted via EIE, Video file submitted on OSM) LSN-V987654**

This is a video recording of the January 21, 2003 meeting between the US Department of Energy, the Center for Nuclear Waste Regulatory Analyses, and the Nuclear Regulatory Commission to discuss procedures used to perform core sample evaluations of area 22 on the southwestern slope of Yucca Mountain.

**Technical Parameters/Special Instructions:**

This video file was created using XXX software running on a 900 MHz personal computer utilizing Windows XP Video Viewer 123, which is widely available for free on the Internet. File Size is 236 MB. Total run time is approximately 1 hours and 20 minutes.