

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 a 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. Section 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: