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

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[1]The 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.

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[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	• Use multiple EIE transmissions ($\leq$50 MB each) to submit the files with a transmittal letter. — *and* — • Deliver a courtesy copy of the files submitted via EIE on OSM
Complex	Any	Any combination of the following electronic object categories: • Textual or graphic-oriented electronic files in PDF • electronic files that can not be segmented into 50 MB files • Other electronic objects, such as computer programs, simulations, video, audio, data files, and files with special printing requirements	Use the Dual-Submittal Method: • Use one or more EIE transmissions ($\leq$50 MB each) to submit a transmittal letter and (**if applicable)**, single or multiple segmented PDF files. — *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

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 IS0 9660 allows an overall limit on <u>length of path</u> 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 letter[3] (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

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[3]A 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 objects[4].

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

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[4]Include 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 signaturing 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 space[5], 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.

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[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

[1]You 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   WM-00011(PRE)
Atomic Safety and Licensing Board
Attn: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

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   WM-00011(PRE)
Atomic Safety and Licensing Board
Attn: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

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**	✔
Everett	**Craig**	**ceverett@logicon.com**	✔
Hung	**Daniel**	**Hungda@mail.northgrum.com**	✔
Skoczlas	**John**	**jas1@nrc.gov**	✔
Smith	**Joe**	**jxr1001smith@nrc.gov**	✔

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   WM-00011(PRE)
Atomic Safety and Licensing Board
Attn: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

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)

C6

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			
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	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.		
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**	**xxx@nrc.gov**	✔
Everett	**Craig**	**ceverett@logicon.com**	✔
Hung	**Daniel**	**Hungda@mail.northgrum.com**	✔
Skoczlas	**John**	**jas1@nrc.gov**	✔
Smith	**Joe**	**jxr1001smith@nrc.gov**	✔

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.