Digital Data Management System (DDMS)

Project Definition and Analysis Document

Prepared for

Nuclear Regulatory Commission

Washington, D.C. 20555-001

Under RFQ Number

NRC-33-01-183

Prepared by

PEC Solutions, Inc.

November 22, 2002

Revision Number	*Description*	*Date*
1.0	Preliminary Submission of DDMS Project Definition and Analysis Document(PDAD)	10/7/2002
1.1	Updates to Preliminary Document based on NRC comments	10/23/2002
2.0	Final Document based on input and comments from NRC	11/22/2002

Table of Contents

SECTION 1 INTRODUCTION 1

1.1 BACKGROUND 1
1.2 OBJECTIVES 2
1.3 SCOPE 2
1.4 SYSTEM DEVELOPMENT METHODOLOGY 3
1.5 ASSUMPTIONS 4
1.6 APPLICABLE DOCUMENTS 4
1.7 OVERVIEW 5

SECTION 2 APPROACH 6

2.1 OVERALL APPROACH 6
2.2 SCHEDULE 6
2.3 EXCEPTIONS 6
2.4 CONTRACTOR TEAM 6
2.5 PROJECT QUALITY ASSURANCE 7
2.6 CONFIGURATION MANAGEMENT 8
2.7 COMPONENT ACQUISITION 8

SECTION 3 SYSTEM REQUIREMENTS SPECIFICATIONS (SRS) 9

3.1 PROOF-OF-CONCEPT (POC) REQUIREMENTS 9
3.2 PRODUCTION REQUIREMENTS 10

SEC TION 4 DATA REQUIREMENTS 11

4.1 ENTITY LIST AND DEFINITIONS 11
4.2 SYSTEM CONTEXT DIAGRAM 11

SECTION 5 ASSESSMENT OF CURRENT SYSTEM 12

SECTION 6 ANALYSIS OF ALTERNATIVES 13

6.1 ALTERNATIVES CONSIDERED 13
6.2 ADVANTAGES AND DISADVANTAGES OF FEASIBLE ALTERNATIVES 13
6.3 SELECTION OF THE MOST ADVANTAGEOUS ALTERNATIVE 13
6.4 DESIGN ALTERNATIVES 13

SECTION 7 SYSTEM OPERATIONS CONCEPT (SOC) 15

7.1 SYSTEM DESCRIPTION 15
7.1.1 Top-Level View 15
7.1.2 Functional and Operational Capabilities 16
7.1.3 System Characteristics 17
7.1.4 Reference Architecture 17
7.1.5 System Interfaces 19
7.2 SYSTEM ENVIRONMENT 19
7.2.1 Organizational Environment 20

7.2.2 Operational Environment *20*
7.2.2.1 Multimedia Management 20
7.2.2.2 Hearing Management 21
7.2.2.3 Document/Object Management 21
7.2.3 User Environment *21*
7.2.4 Development Environment *22*
7.2.5 Project Management *22*
7.3 SYSTEM OPERATIONS 22
7.3.1 Operational Description *22*
7.3.2 Significant Operational Requirements *23*
7.3.3 Operational Interfaces *23*
7.3.4 Operational Scenarios *23*
7.3.5 Personnel Requirements *24*
7.3.5.1 Contractor Staff **24**
7.3.5.2 NRC Personnel 24

SECTION 8 ACRONYMS AND ABBREVIATIONS 25

SECTION 9 REFERENCES 26

9.1 STATUTES AND REGULATIONS 26
9.2 TECHNICAL DOCUMENTS / PLANS / STANDARDS 26

APPENDIX A—DDMS FUNCTIONAL REQUIREMENTS 1

APPENDIX B—USER ACCESS RIGHTS REQUIREMENTS 1

APPENDIX C— DDMS DATA ELEMENTS 1

Figures

FIGURE 4.1: CONTEXT LEVEL DIAGRAM 11
FIGURE 7-1: THE DDMS HIGH-LEVEL FUNCTIONAL OVERVIEW 15
FIGURE 7-2: THE DDMS ARCHITECTURE FOR THE POC SYSTEM 18
FIGURE 7-3: PROJECTED DDMS ARCHITECTURE FOR THE FULL PRODUCTION SYSTEM 19

SECTION 1 INTRODUCTION

The Nuclear Regulatory Commission (NRC) has defined requirements that reflect their vision for establishing and operating a courtroom with digital information retrieval, utilization, and display capabilities. The NRC will use its new courtroom while litigating the largest adjudicatory proceeding ever held in the United States. At the end of the congressional mandated three-year period for this adjudicatory proceeding, the NRC will have decided whether to approve a Department of Energy (DOE) license application for constructing a high-level radioactive waste repository at Yucca Mountain, Nevada. While intended to support the high level waste (HLW) hearings, the intent is that the resources developed for DDMS will be available for all other Atomic Safety and Licensing Board Panel (ASLBP) proceedings.

These circumstances give rise to the Commission's need for a Digital Data Management System (DDMS) equipped courtroom whose technology is simple to operate, reliable and fast. The remainder of this document describes the planned technical and project management approaches for meeting the described needs.

1.1 Background

The U.S. Nuclear Regulatory Commission (NRC) has a requirement for establishing and operating a courtroom with digital information retrieval, utilization, and display capabilities in conjunction with anticipated licensing proceedings for a high-level radioactive waste repository at Yucca Mountain, Nevada. These capabilities also are expected to be available for use in other licensing proceedings conducted by the Atomic Safety and Licensing Board Panel (ASLBP) in the NRC's Rockville, Maryland facility. Additionally, it is envisioned that portable and remote capabilities would be used to support local hearings conducted across the United States.

The ASLBP is responsible for conducting the adjudicators' proceedings regarding the Department of Energy's (DOE) application for construction authorization for a High Level Waste (HLW) repository at Yucca Mountain, Nevada. The current estimated date for beginning evidentiary hearings is May 2005. The scope and nature of this proceeding dictate the essential need for efficient capture and management of the enormous volume of multimedia data that must be processed and displayed in a very short time frame for this hearing. The enormity of the HLW repository licensing hearing is evidenced by the number of documents that the Office of the Secretary (SECY) estimates will be part of the hearing docket at the completion of the proceeding. The SECY estimate of 50,000 documents is 300 times the volume associated with a typical ASLBP hearing and 24 times the volume of the largest hearing currently being conducted. In the current environment, ASLBP hearings are conducted using paper-based information and limited audio/visual (A/V) capabilities. This current approach clearly cannot support a hearing of the magnitude of the HLW repository licensing proceeding and cannot meet Commission rules established for the proceeding including the provision for online access to the SECY maintained electronic docket during the hearing. [Reference: 10 C.F.R. 2.1013(d)]

NRC has conducted a comprehensive analysis to examine alternative solutions, including the utility of its existing Agency-wide Document Access and Management System (ADAMS) (see http://www.nrc.gov/reading-rm/adams.html), for establishing an "electronic courtroom"/hearing room Digital Data Management System (DDMS) to fulfill this mission need. As part of this analysis, NRC has developed a vision of a DDMS that will be used in the Rockville hearing room and in a hearing room that will be established in the Las Vegas, Nevada area to conduct the majority of the proceeding. The system will enable the creation and use of an integrated, comprehensive digital record for the HLW repository licensing proceeding. Using information that is pre-filed electronically by hearing participants in the agency's ADAMS-based Electronic Hearing Docket (EHD), DDMS will record, store, and display the text and image of documents and other digital data presented in the hearing and permit access and retrieval of the entire documentary and video record of the proceeding in an electronic format. The system will allow counsel for the parties to bring prepared materials to the evidentiary hearing electronically and have it integrated and accessible concurrently with the record being presented in the hearing room. The record will be continually accessible by the presiding officer and the parties in the litigation. The DDMS will support hearing activities and information management during the pre-hearing, hearing, and post-hearing phases.

NRC has identified an aggressive schedule for providing this courtroom data and document management capability, from initial planning and coordination activities through delivery and maintenance of an operational system. This project is intended to deliver the required range of services in a four-phase project, with each phase separately authorized and funded. The first three phases of work are completed under this contract. The fourth phase, implementation of the Las Vegas capability, will be implemented at a later date.

1.2 Objectives

The major objective of the DDMS is to help the NRC meet the congressionally-mandated three-year time requirement for the HLW repository licensing proceeding and to meet the regulatory requirement that there be online access to the HLW repository hearing docket during the hearing. Properly structured, the DDMS will support other ASLBP hearings as well. The DDMS is intended to achieve time and resource savings by improving the efficiency of conducting this high profile HLW repository licensing hearing with the anticipated large volume of electronic discovery and evidentiary information and is essential to the ASLBP in preparing timely decisions throughout the proceeding. It will also support the Office of General Counsel (OGC) and the Office of Nuclear Materials Safety and Safeguards (NMSS) staff and other parties in preparing for evidentiary proceedings and may be useful to Commissioners' staff in performing appellate review/oversight activities.

1.3 Scope

The DDMS is a critical component in ASLBP's plan to fulfill Congress' mandate to NRC to efficiently process the Yucca Mountain HLW license application. DDMS will employ stable and best-of-breed information technologies that will provide the NRC community

access to shared information and processes. The key to the success of the DDMS is the effectiveness of its user interface - to save time in conducting hearings. DDMS will enable users to rapidly and easily access information on demand.

PEC has been tasked with the design, development, and implementation of the DDMS. This objective will be met through a series of tasks:

1. Task 1 – Define the DDMS requirements--both for a proof-of-concept (POC) system and for the full production system, create the design, field, and evaluate the POC.
2. Task 2 – Design, install, and test new audio/visual components in the NRC's Rockville, Maryland, Hearing Room.
3. Task 3 – Develop the DDMS full production system, based on derived input from the POC operations, and field the DDMS production system in Rockville, Maryland.

1.4 System Development Methodology

The DDMS will be developed in two parts. A POC system will be developed with a subset of the full Production System functional and technical requirements covering document management, hearing management, exhibit and transcript handling, video/audio presentation and real-time transcription. The POC serves to prove the technical feasibility of the DDMS approach, including the architecture, security, interoperability, and basic functions of the full production system. The POC will utilize the existing audio and video system as inputs to the DDMS. The key users, including judicial staff, NRC staff, and possibly party attorneys, will have full access to the appropriate functions within the DDMS.

Once the POC system is complete, PEC will apply well defined configuration management tools and procedures to capture and maintain the baseline POC system before moving ahead to develop the Production System. Once the implementation, testing and establishment of the POC baseline is completed, PEC will develop a full-scale Production System to implement for the HLW hearings. The production system will be functionally similar to the POC, with enhanced functionality and additional performance and redundancy features. The major enhancements added to the POC to implement the production system are primarily operational capabilities in the performance and availability areas.

This planned methodology focuses on the use of rapid prototyping to validate the system's operational concept and the user interface-- a critical set of requirements. PEC will include multiple reviews with judges and court administrative personnel to ensure the DDMS design is easy to use under the constraints of real-time courtroom conditions. In addition, PEC will perform a hearing management assessment to identify the potential best of breed product (including Government Off-The-Shelf or GOTS) that best fits with the HLW proceedings management needs from both an operational and implementation standpoint.

In terms of implementation, the planned approach centers on the use of best-of-breed COTS products (e.g. Plumtree Corporate Portal and Collaboration Servers, Microsoft SQL Server, Adobe Capture and Adobe Acrobat). These COTS products not only provide the maximum amount of required functionality out of the box, but also the modularity and flexibility needed to customize the integrated system to best meet the needs of the ASLBP.

1.5 Assumptions

For planning purposes, PEC has made the following assumptions:

- Requirements collection meetings and interviews will be conducted on-site at NRC Rockville facilities.
- Initial integration and development of the POC system will be performed at PEC facilities. At the conclusion of internal testing, an evaluation POC system will be configured at NRC in Rockville, Maryland. PEC will then perform initial testing and support the conduct of NRC evaluation testing.
- All meetings will be held at NRC or PEC team facilities.
- The DDMS will capture information from EHD and distribute information to ADAMS (via the Data Processing Center or DPC). The effectiveness of the DDMS is dependent on the availability of the interfaces with these systems.
- Success in Task 1 is prerequisite to moving on to Task 2 and Task 3.
- Government review and appropriate approvals to proceed will be offered on a timely
- Continuation of future tasks is dependent on the availability of funding.

1.6 Applicable Documents

- Workforce Investment Act of 1998, Rehabilitation Action Amendments of 1998, Section 508, Implementation.
- System Development and Life-Cycle Management Methodology (SDLCM), Handbook, Version 2.2, December 1999 (the official SDLCM process in place at the time of contract award).
- Nuclear Regulatory Commission Hearing Room Digital Data Management System Study, Aspen Systems (Redacted), July 26, 2001.
- Digital Data Management System Statement of Work originally dated March 15, 2002 and amended on April 12, 2002.
- PEC's Digital Data Management System (DDMS) Updated Technical Proposal dated June 18, 2002.
- PEC's Digital Data Management System Project Action Plan dated November 2002.

1.7 Overview

This section, Section 1, serves as an introduction describing the background, objectives and scope of the DDMS project. The remainder of the document is structured as follows:

- Section 2 describes PEC's overall approach to implementing the DDMS system including the overall schedule and the DDMS team.
- Section 3 summarizes the system requirements in terms of both Proof-of-Concept (POC) and production system needs.
- Section 4 summarizes the data entities to be handled in the DDMS and how the DDMS fits into the NRC system environment.
- Section 5 addresses the assessment of the current system.
- Section 6 discusses alternative DDMS architecture and design approaches.
- Section 7 describes the functional areas of the DDMS and the concept of how the DDMS will work. In addition, this section addresses project team organization.
- Section 8 contains an expansion of acronyms and abbreviations.
- Section 9 indicates the applicable statutes, regulations, plans and standards involved in the creation of the DDMS.
- Appendix A contains the detailed table of functional requirements introduced in Section 3. These represent the preliminary list that will be refined and expanded during the course of the project.
- Appendix B contains the table detailing the DDMS users, and their access privileges. These represent the preliminary definition that will be refined and expanded during the course of the project.
- Appendix C summarizes the initial data items to be supported by the DDMS. This represent a preliminary list that will be refined and expanded during the course of the project.

SECTION 2 APPROACH

2.1 Overall Approach

The DDMS project team consists of ASLBP management staff, the Office of the Chief Information Officer (OCIO) technical project manager and contractor personnel. In Task 1, with the overall guidance and direction provided by NRC ASLPB staff members, PEC will evaluate requirements, design both a POC and a full production system, and build the POC for NRC evaluation. The DDMS will contain standard hardware components, operating systems, and relational database technologies. The DDMS will utilize a web-portal interface for system users and touch screen interfaces for judges and support staff in the hearing room. All hardware and software acquisition activities will be performed by PEC under the terms of the contract with the appropriate authorizations issued by NRC's CO enabling PEC to order parts from GSA schedules.

2.2 Schedule

The DDMS schedule has been developed to accommodate NRC hearing requirements, as mandated by law. The detailed schedule, included in the *DDMS Project Action Plan*, November 2002, shows all tasks and subtasks identified for the project. The DDMS schedule reflects an evaluation and validation of requirements, running in conjunction with a rapid application design (RAD) approach for the portal interface. This accelerated approach allows NRC to quickly review and comment on the proposed system, leading to a more accurate system development.

2.3 Exceptions

PEC takes no exception to the Statement of Work as applied to the POC requirements, required deliverables content or milestone schedule. In some cases, PEC is providing several of the required deliverable documents together in one larger document with specific required content appearing as separate sections within the larger document. This is true particularly for the Requirements and Design document that will contain logical design, physical design and tactical integration planning information in individual sections of the overall document. The Security Plan, however, will be delivered as a separate document.

2.4 Contractor Team

The PEC Solution team includes a project manager, technical leads, analysts, system architects, and members from each of the sub-contracting companies. The technical leads and sub-contractor members all report to the PEC Project Manager. The PEC Project Manager has overall responsibility for the project and will provide the guidance and direction to the entire staff. A more detailed list of responsibilities is provided below:

- The lead requirements analyst is responsible for evaluating and validating the DDMS system requirements, as identified in the SOW, the technical proposal, and through a series of interviews with select NRC staff.
- The lead system architect will design and oversee the development of the overall system architecture, including all security and infrastructure requirements.

- The lead system integrator will design the database components and, while working closely with the subcontractors and the system architect, ensure the overall interoperability of the DDMS.
- The lead audio/video designer will design and develop the audio and video components of the DDMS to include the streaming video and portal interface.
- The lead Quality Assurance inspector will review all deliverables to insure quality of the product and assure that the deliverable is in compliance with NRC's SDLCM requirements.

No additional subcontracting is anticipated to augment the team as reflected in the PEC proposal.

2.5 Project Quality Assurance

The purpose of a quality assurance plan is to document the actions, measures, controls, reviews, etc., that the project will include assuring the highest quality product. Controls and reviews help to correct problems or deficiencies at the earliest possible phase of the development process. Quality Assurance actions, under the initiation of the quality assurance team leader are taken throughout the development process. The key elements of a Quality Assurance Plan include:

- Documentation and project management standards
- Tools, techniques, methods used to improve quality, i.e., user reviews, code walk-throughs, formal code inspections, prototyping, user satisfaction surveys
- Metrics--defined methods for measuring the quality of a product and tracking changes in quality over time. Possible metrics are: defect measures, change activity, error seeding, problem measures and reliability and availability
- Problem reporting and correction procedures (usually included in configuration management plan)

In order to address these elements for the DDMS project, PEC will utilize the following QA methods:

- Follow the NRC SDLC Methodology and standards
- Include regular requirements and design review meetings among NRC and PEC staff, both informal and formal
- Facilitate NRC auditing of any QA process conducted by PEC
- Ensure all requirements identified during the evaluation and validation phase are measurable, and identify the test methods used to verify the requirements during the testing phase
- Create test cases and evaluation criteria for use during the test phase
- Turn over the POC for test and evaluation by NRC staff

For the DDMS project, PEC will follow our corporate standard QA process. Software Quality Assurance involves reviewing and auditing documents and software products and activities to verify that they comply with applicable procedures and standards and

providing the Project Manager and other appropriate managers the results of the reviews and audits.

The quality assurance group, lead by the quality assurance team leader, works with the software project during its early stages to establish plans, standards, and procedures that will add value to the software project and developed documents, as well as satisfy the constraints of the project and the organization's policies. By participating in establishing the plans, standards, and procedures, the quality assurance group helps ensure they fit project needs, and verifies they will be usable for performing reviews and audits throughout the software life cycle. The quality assurance group reviews project activities and audits work products throughout the life cycle and provides management visibility into whether the project is adhering to its established plans, standards, and procedures.

Compliance issues are first addressed within the project and resolved there, if possible. If an issue cannot be resolved within the project, the quality assurance group escalates the issue to an appropriate level of management for resolution.

2.6 Configuration Management

At some point in time toward the end of Task 1, the delivered POC DDMS must be put under configuration management control in order to baseline the system. This is necessary in order to ensure the state of the POC system is well defined at all times. This includes reviewing, approving and tracking of all changes made to the baseline system. Enforcing this controlled environment will enable PEC and NRC to manage proposed changes resulting from POC system assessments so that they can be systematically evaluated for impact on the final production system design. It will also enable PEC to roll back the system to specific previous system configurations should that prove necessary. Specific plans for implementing configuration management are discussed in Section 2.4.2 of the *Digital Data Management System (DDMS) Project Action Plan.*

2.7 Component Acquisition

As indicated in the proposal, PEC will purchase all components required for the implementation of the POC DDMS. Components will be purchased from GSA contracts, as appropriate. NRC's CO will issue a letter of authorization to order these components on behalf of the NRC. No components will be purchased before NRC authorization is issued following the successful completion of the POC design review. PEC will develop and maintain, as part of our configuration management efforts described above, a complete inventory of NRC components purchased during the POC DDMS implementation.

SECTION 3 SYSTEM REQUIREMENTS SPECIFICATIONS (SRS)

As previously indicated in Section 1, the DDMS will be developed in two parts using a Rapid Application Development (RAD) approach. A POC system will be developed that meets 48 of the 148 total production system functional and technical requirements. The creation and evaluation of the POC system will serve to validate the technical feasibility of the DDMS approach by providing a large number of the architecture, security, interoperability, and basic functions of the full production system.

Following the implementation and evaluation testing of the POC, PEC will develop a full-scale production system that will include the other 100 requirements. The resulting production system will be used first for a set of mock hearings and ultimately for the HLW hearings. The production system will be functionally equivalent to the POC, but with some enhanced functionality and additional performance and redundancy features that meet the full set of functional and technical requirements for the DDMS. The following subsections describe in more detail the requirements for each phase of the DDMS development.

3.1 Proof-of-Concept (POC) Requirements

All major functions of the full production DDMS will be included in the POC. The POC will not have any performance or redundancy features. The POC requirements originate from two main sources: the Statement Of Work for the DDMS project and interviews with ASLBP staff. The POC requirements are organized into multiple categories. The categories are:

- **Requirement Type**: This segregates the requirement into one of the following classes:
  - Functional—A set of related activities
  - Technical—Data and database related
  - Security—Related to confidentiality, integrity, availability
  - Performance—Quantifiable and measurable output
  - Legal/Regulatory—required by law
  - Physical—Describes hardware/software attributes

- **Major Functional Category**: This identifies the major DDMS functions supported by each requirement. The categories are:

  - Hearing Management—Hearing management processes such as transcript production, exhibit management, scheduling, calendaring, and witness list management that support both pre-hearing and hearing room requirements
  - Multimedia Management—Audio-video processing and management functions

  - Document Management—Those requirements related specifically to document handling including but not limited to security controls for all information objects.
  - Administration—Requirements for administration of system and courtroom duties
  - Data Management—System and database management duties

- **Qualification**: This category identifies the method required to test a system against the baseline requirement. The qualification categories are:
  - Analysis—Technical or mathematical validation of a requirement.
  - Test—Verifying the requirement by measuring, recording, and evaluating qualitative and quantitative data obtained during controlled test conditions using real and/or simulated data.

In the requirements and design stages of the project, the baseline requirement will be described in more detail, if necessary, using business rules. The business rules generally describe and highlight the requirement's procedural, operating parameters, and design features as they are identified during the interview process. The list containing the 48 POC requirements are contained in the full list attached in Appendix A. The POC requirements are marked with an "X" in the POC Requirements column to distinguish them from the overall 148 Production System requirements.

3.2 Production Requirements

The fully functional DDMS system will incorporate all of the 48 requirements of the POC, along with the remaining 100 requirements. The key focus of the production DDMS will be enhancement to support the performance and availability requirements. Again, the full list of the DDMS production requirements are attached in Appendix A.

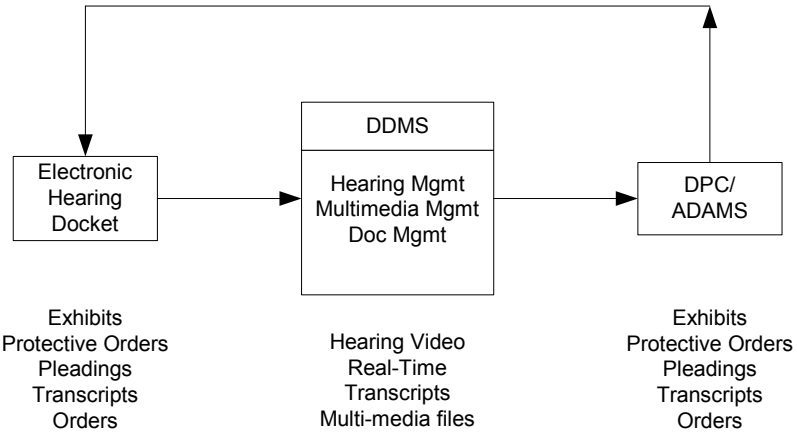
SECTION 4 DATA REQUIREMENTS

4.1 Entity List and Definitions

At this stage of the DDMS project (Task 1), the required entity list and definitions are evolving. Appendix C contains an initial list of the required DDMS data elements (from ADAMS, to EHD, to DDMS).

4.2 System Context Diagram

At this stage of the DDMS project, the context level diagram provides only a basic picture of the DDMS environment. The DDMS will interface with EHD and ADAMS. The DDMS will store and manipulate pre-filed documents related to the hearing, create and manage multi-media files generated during the hearing, and send selected data elements from the hearing files to ADAMS (via the Document Processing Center or DPC) daily to update the official hearing docket in EHD. Figure 4.1 shows the high level context diagram.



Note: External data stores not under DDMS control are not shown

Figure 4.1: Context Level Diagram

SECTION 5 ASSESSMENT OF CURRENT SYSTEM

The DDMS is a new system, and is not replacing or superseding an existing system.

The current NRC Hearing process is a manual, paper-intensive environment. The DDMS will provide a fully electronic hearing management process, providing court users the means to electronically search and access documents, exhibits and transcripts in fulfillment of 10 C.F.R. Part 2, Subpart J (a). In addition, the DDMS will offer enhanced capabilities to capture, manage, and synchronize audio and video recordings with hearing transcripts.

SECTION 6 ANALYSIS OF ALTERNATIVES

Section 3 of the *NRC Hearing Room DDMS Study*, prepared by Aspen Systems Corporation, dated March 27, 2001, identifies four alternative approaches for the DDMS.

6.1 Alternatives Considered

The DDMS alternatives considered were:

- Status Quo – using existing capabilities with an enhanced EHD to conduct agency adjudications.
- Distributed Database – provide for required system functions via distributed server environment.
- Centralized Database – provide for required system functions using a single server configuration, access via high-speed connections to other hearing locations.
- Centralized Database with Distributed Documents – centralized data management functions within a single server, with several document servers for a distributed document management environment.

6.2 Advantages and Disadvantages of Feasible Alternatives

Reference the *NRC Hearing Room DDMS Study* for a full description of each alternative's advantages and disadvantages.

6.3 Selection of the Most Advantageous Alternative

The selected alternative recommended in the *NRC Hearing Room DDMS Study* is a centralized database, with web portal capabilities, and separate document servers distributed to Las Vegas and Rockville. In implementing this architecture, the Office of the Chief Information Officer (OCIO) requested a "Pilot" system approach. Through the use of a performance-based contract awarded after a successful acquisition process, the NRC has chosen an optimal "Pilot" system implementation of the selected architecture using a Web Portal approach.

6.4 Design Alternatives

In defining a high level design that implements the architecture selected by NRC and defined in the Aspen Study, PEC considered several approaches:

- Client/Server
- Basic Web Architecture using Browser/Server Approach
- Portal-based Web Architecture

Based on the supportability and Industry trend, the viability of a client/server approach was viewed as low. The use of a fat client would introduce maintenance and configuration management complications resulting in increased staffing workloads and potentially higher costs in order to support future expandability and scalability.

A classic web based solution offers a mainstream approach that reduces maintenance and configuration management costs while also providing a much more open and secure solution with a growing list of products based on the Industry trend of delivering web-based solutions. The classic web-based solution supports the DDMS' need to provide an easy to use and well understood browser-based user interface. However, the DDMS hearing management environment requires a specific segmentation of functionality across groups of users involved in the hearing process. The implementation of such a concept is what Portal-based Web Architectures are designed to efficiently handle. Therefore, PEC has selected a design approach based on the use of a Web Portal philosophy and product set.

SECTION 7 SYSTEM OPERATIONS CONCEPT (SOC)

7.1 System Description

This section describes, at a high level, the DDMS's operational and functional capabilities.

7.1.1 Top-Level View

Figure 7-1 presents a top-level view of the proposed DDMS, noting both the internal (hearing room), and external users and interfaces.

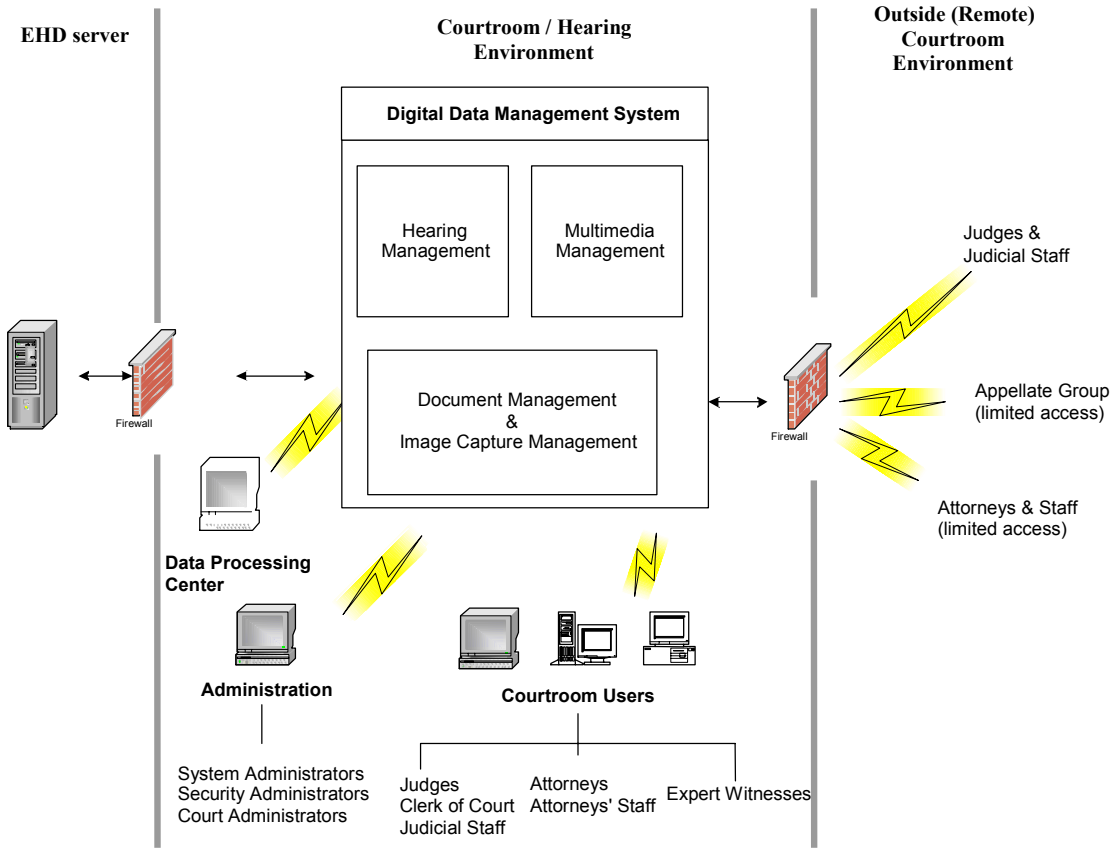


Figure 7-1: The DDMS high-level functional overview

7.1.2 Functional and Operational Capabilities

The Problem

DDMS addresses the *current hearing and adjudication process*, for which the requisite information is not timely, integrated, or easily disseminated to parties, interested others, or the general public. Prior to the hearings, voluminous documentation is submitted, little of which is in electronic format. Assembling and organizing this mass of documentation into a manageable resource poses a challenge to parties and hearing support staff. The HLW hearings must follow the process and procedures described in 10 C.F.R Subpart J that dictate the capabilities to receive and manage all information required during the course of the hearing in the mandated electronic formats.

The Solution

To address these difficulties, during the course of the HLW hearing and adjudication process the DDMS will manage the electronic hearing record, including Electronic Hearing Docket (EHD), audio and video recordings of the proceedings, exhibits and presentations maintained in electronic format, and real-time transcription as a low-impact adjunct to the traditional process, without disruption or undue burden. The system will allow technologically based artifacts to be integrated with traditional forms of evidence and case management that currently compose the record of the proceedings. The DDMS will allow judges and court administration personnel to easily and rapidly access the docket and control the presentation and flow of information during the hearing process.

The DDMS will allow judges and ASLBP administrative personnel to control the proceedings by disseminating and managing the contents of the official record from EHD in a manner specifically tailored to meet the needs of a hearing room environment. Judges and/or the Clerk will manage the flow of evidence by selecting the documents, witnesses, exhibits, and other items that are presented and the sequence in which they are introduced, including control of audio and video inputs, and suppression of any source of input. This evidence flow and input control will be implemented via a carefully defined, refined and tested user interface that provides the most often utilized elements in a manner that specifically caters to rapid access with minimal effort. Rulings during the hearing will be supported through the use of access to the contemporaneous record, e.g., review of testimony, exhibits, and other hearing artifacts, as well as retrieval of pre-filed submissions from the bench.

The integrated record also supports the parties by availing them of a single, comprehensive source of all relevant evidentiary material from the official record. The system further benefits the parties by providing a robust search and retrieval capability that will offer any combination of full text and bibliographic data search capabilities. By including native support for presentations, simulations, audio, video, and graphical evidence, the hearing's technological environment will be conducive to the most informative and sophisticated media appropriate to the category of evidence. Integrated support for such distance-mediating technologies as video teleconferencing will avail parties and witnesses participating at a distance with the same visibility to the materials and occurrences in the hearing room as though they were present.

7.1.3 System Characteristics

The DDMS will provide the following NRC required system characteristics:

NRC REQUIRED	THE DDMS CHARACTERISTIC
Simplicity – The judge presiding over the HLW hearing must run the hearing while adjudicating legal and procedural issues.	Employ easy-to-use technologies such as: ▪ Touch-sensitive flat panel screens. ▪ Simple graphical interfaces. ▪ A user interface metaphor that organizes and prioritizes what judges and other DDMS users see.
Reliability – The HLW hearing involves potentially millions of pages of documents, images, videos, and sound clips.	Build upon proven technologies such as: ▪ Industry-standard database management systems. ▪ Document management systems built to handle millions of objects. ▪ Built-in redundancy at key points.
Speed – Participants in the HLW hearing will potentially litigate up to 300 issues simultaneously or between three and five issues daily. Court proceedings cannot wait while the DDMS delivers documents.	Ensure quick systems response through use of: ▪ High speed communications lines. ▪ Server computers running multiple fast processors coupled with ample memory. ▪ Work distribution ("load balancing") systems at key points in the DDMS.

7.1.4 Reference Architecture

The POC designed and developed within Task 1 will be fielded at NRC Headquarters in Rockville, Maryland. Figure 7-2 details the proposed DDMS POC's architecture infrastructure. Figure 7-3 illustrates the projected configuration of the Production DDMS to be provided under Task 3 at a later date.

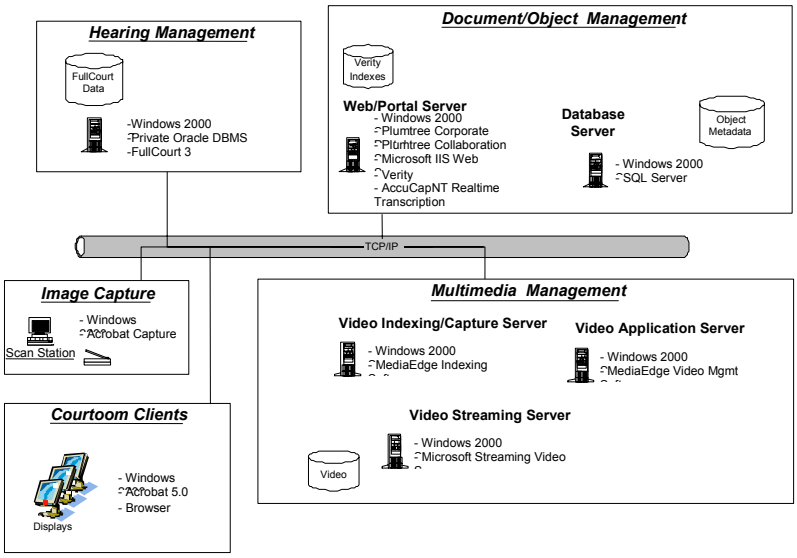


Figure 7-2: The DDMS Architecture for the POC System

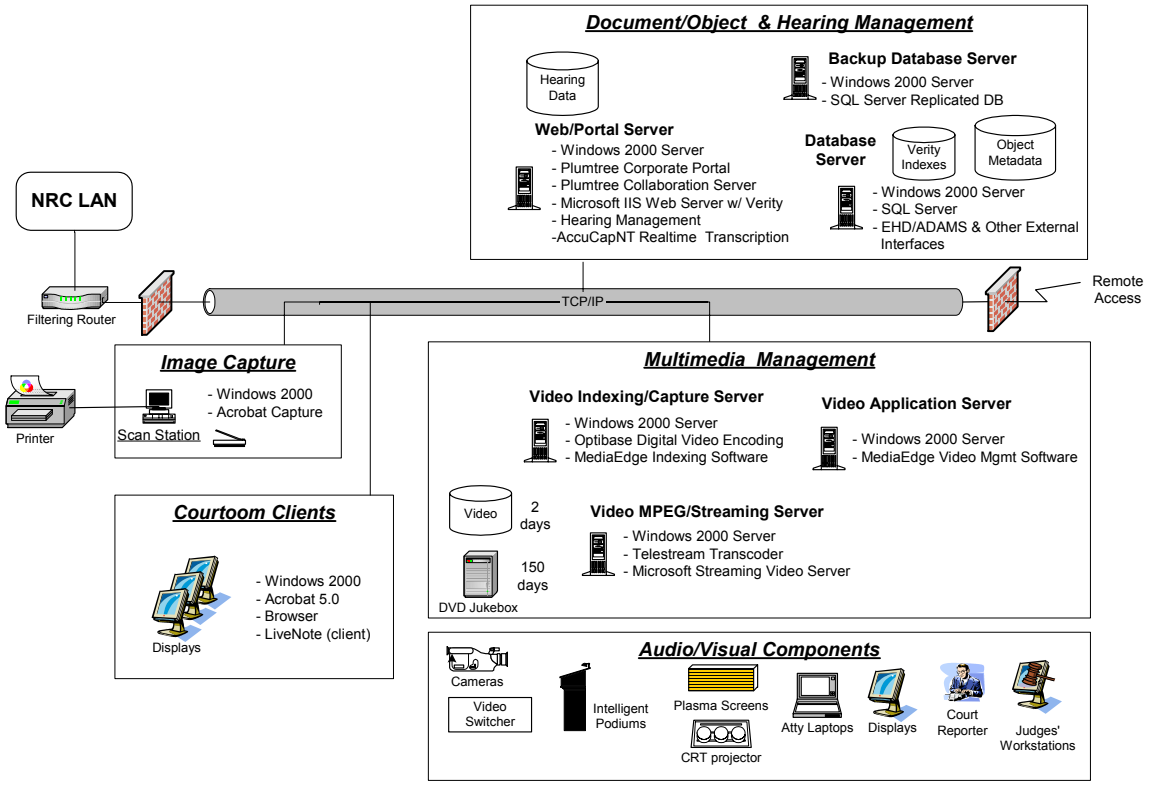


Figure 7-3: Projected DDMS Architecture for the Full Production System

7.1.5 System Interfaces

The DDMS will interface with the following external (outside the closed DDMS operating environment) systems/organizations:

- EHD – the interface will provide for daily updating of DDMS records, by loading EHD records. This interface requires access across the NRC firewall.
- Document Processing Center – the interface will provide for the DDMS to, on a daily basis, upload the day's hearing records, documents, exhibits, and other court-related material to the DPC for further processing and quality control checking prior to being entered into ADAMS.
- Subscription access to legal research databases via controlled access to specifically named Internet sites

7.2 System Environment

The planned DDMS system environment comprises the major software applications described below.

A potential candidate package currently under assessment, the *Fullcourt* software package from Justice Systems, Inc. provides most of the docket and case management functions required by the DDMS. *FullCourt* follows a table-driven design that will allow

PEC to configure the software to adapt to NRC procedures without requiring large-scale software development. *FullCourt* provides the operational capabilities to track and link issues, exhibits, evidence, participants, counsel, witnesses, filings, orders and issuances, schedules and due dates, transcripts and all other case related events and documentary materials.

The Plumtree Software Corporation's Corporate Portal Server software provides the functionality needed to support the user interface and hearing management organization needs of the DDMS.

The Plumtree Software Corporation's Collaboration Server allows DDMS users to collaborate on projects—setting schedules, sharing documents, and exchanging ideas. It also supports the document management and multi-media management requirements.

7.2.1 Organizational Environment

The Atomic Safety and Licensing Board Panel (ASLBP) is the business sponsor of the DDMS. The DDMS will be defined, designed, developed, system and acceptance tested, and maintained by both the NRC and the contractor development staff, as detailed in the *DDMS Project Action Plan (PAP)*, November 2002.

7.2.2 Operational Environment

The DDMS POC operational environment is comprised of the following major functional areas:

1. Multimedia Management
2. Hearing Management
3. Document/Object Management

The following subsections will address each of these functional areas in terms of system architecture.

7.2.2.1 Multimedia Management

The DDMS will have the hearing's live video feed fed into a video switcher. The switcher will be sound activated to provide automatic camera switching to capture the current speaker. In the event that a court clerk needs to manually switch camera views, override ability will be provided to allow for manual camera switching. The system will also be configured so that the audio can be either automatically or manually switched with a manual override/muting capability. The switched video feed will become the official court record and provide synchronization of the official hearing transcript as well as all evidence to the switched video feed.

The output of the switched video feed is fed into the indexing and encoding subsystem. The switched video feed from the video switcher is fed into the video indexing subsystem where it is synchronized with the text transcript feed from the court reporter position. Following indexing, the DDMS encoding feature converts the composite video feeds to digital video for storage in the video server and storage subsystems.

The digital video is stored in the video server and storage subsystem. The video server and storage subsystem also contains a transcoding system and streaming media server(s) to allow for low-resolution viewing of video to both internal (hearing room) users and, as permitted, external users (non-public remote users) via the computer desktop.

7.2.2.2 Hearing Management

The DDMS Hearing Management subsystem administers, at a high level, the information associated with the hearing itself. This includes calendaring, scheduling, report generators, authoring tools, and other functions related to hearing management. Other functions are capturing dispositional information, along with managing and linking lists and other information about witnesses, depositions, exhibits, and issues. Finally, the hearing management software will securely manage protective orders in such a way as to prevent tampering and unauthorized disclosure.

7.2.2.3 Document/Object Management

The DDMS Document/Object Management subsystem will be implemented using the Plumtree Collaboration Server, in conjunction with the Corporate Portal products. These products, in turn, use Microsoft SQL Server to manage the documents and objects within the DDMS. Through the DDMS portal – which provides the primary user interface – users will locate any document within the DDMS according to their access permissions. In the same vein, the DDMS will store authorized changes to documents. The Document/Object Management subsystem also maintains (as a series of project files) the record of each day's proceeding. This record includes the objects (exhibits) references, the official transcript, the video file, and any other documents pertaining to the hearing.

The Web/Portal Server (running Plumtree software and supporting the Document/Object Management subsystem) will host the interfaces between the DDMS and the rest of the NRC. These include an interface with the Office of the Secretary (for the Electronic Hearing Docket or EHD) and ADAMS (via the DPC). The former will allow the DDMS to receive on-going (as opposed to pre-filed) materials submitted to ADAMS via the NRC's Electronic Information Exchange (EIE) server. The latter will function as the route for updating the EHD. This server will also provide the interface to external information providers such as Lexis/Nexis, Westlaw, and Premise. Through this interface point, internal DDMS users will be allowed access only these pre-defined services in a secure environment that constrains the specific sites that users can utilize. . These latter functions while characterized as Document/Object Management also support Hearing Management environment

7.2.3 User Environment

Appendix B contains a table detailing DDMS users, and an initial projection of their access privilege rights.

In addition to this Appendix's defined user groups, the DDMS will provide an administration user environment for the following administration roles and activities:

- System administrator:
  1. Install or remove software;

2. Monitor, manage and tune system performance and usage;
3. Review audit records;
4. Terminate an individual's system session;
5. Perform modifications, additions, and deletions to the system databases, files, and tables;
6. Perform system and database recovery activities;
7. Perform database queries; and
8. Reorganize database structure and schema.

- System Security Administrator:
  1. Create, delete, and modify security audit parameters and data;
  2. Create, modify, or delete individual accounts and access privileges;
  3. Audit database / file initialization and deletion;
  4. Assign or revoke individual identifiers and passwords; and
  5. Establish user roles and groups.
  6. Maintain security software residing on servers

- The DDMS Court Administrator:
  1. Assign user ids and/or user groups to specific documents and exhibits;
  2. Maintain witness lists;
  3. Maintain the hearing video, audio, and transcript files;
  4. Initiate the daily update process to the Document Processing Center/ADAMS; and
  5. Initiate the daily downloads from EHD.

The DDMS will be accessible to the visually impaired and otherwise disabled individuals. The proposed user interface will be Section 508 compliant.

7.2.4 Development Environment

For the DDMS Development Environment, PEC will configure, integrate, and develop the necessary functionality to implement the fully functional POC system. This will initially include hardware and software component acquisition, setup, and system configuration for the POC components implemented in Task 1. This initially consists of 6 mid-level PCs to be used as servers in the POC development environment and the software suite of products previously mentioned. The required development environment for Task 3 will be addressed in a subsequent update to this document.

7.2.5 Project Management

Please reference the *Digital Data Management System Project Action Plan (PAP)*, Section 2.2, November 2002 for a description of PEC's project management plan.

7.3 System Operations

This section addresses the DDMS operational environment, to include requirements, interfaces, and contracted personnel.

7.3.1 Operational Description

Appendix A contains a listing of all DDMS functional (operational) requirements.

7.3.2 Significant Operational Requirements

The POC system will not be subject to performance and availability requirements. However, the final operational DDMS system will be available to users during the scheduled hours of availability, which are: 21 hours a day from 6:00 a.m. through 3:00 a.m. of the following day (Eastern time), seven days a week, 365 days a year. The operational system will be available 99% of the scheduled time during any calendar month. In addition, in no event may the operational system be unavailable for more than four access hours of any scheduled availability day, excluding the 3 hours available for daily maintenance activities, as such an event would force the NRC to forfeit the entire hearing day, according to the Rules governing these proceedings.

Interfaces with EHD and DPC will be available subject to the EHD and DPC service level agreements. To ensure timeliness of information, the interface to DPC will be available six days per week (to exclude scheduled periods when ADAMS is undergoing maintenance). The DDMS will canvass the EHD collection for updates not less than once every 24 hours (during periods of scheduled EHD availability). EHD will be available 18 hours a day, seven days a week except for scheduled maintenance. Scheduled maintenance is performed daily between 11:00 p.m. and 5:00 a.m. Eastern Standard Time or Eastern Daylight-Savings Time with the exception of Friday. On Friday, scheduled maintenance will be performed between 6:00 p.m. and 11:00 p.m.

7.3.3 Operational Interfaces

PEC will develop a simple graphical interface construct that organizes and prioritizes what judges and other users see when they operate the DDMS in the hearing room. By simplifying the choices at any one point in time, screen real estate will be minimized, allowing display icons to be enlarged to facilitate the use of touch screen inputs. We will tailor interfaces to support both touch screen and non-touch screen environments depending on the type of user being supported (e.g.. judges within the hearing room versus remote users outside the hearing room) and accommodate the requirements for Section 508 as they pertain to the NRC environment..

7.3.4 Operational Scenarios

Developed under Task 1, the POC will serve to prove the technical feasibility of the DDMS approach, including the architecture, security, interoperability, and basic functions of the full production system. The POC operational scenario includes all baseline functionality used within the hearing room, for all key user groups. The POC will utilize the existing audio and video system as inputs to the DDMS. The key users, including judicial staff, NRC staff, and party attorneys, will have full access to the required functions within DDMS.

Following the implementation and testing of the POC, and the authorization by NRC to proceed, PEC will develop a full-scale production system to implement for the HLW hearings. The production system will be functionally similar to the POC, with some enhanced functionality and additional performance and redundancy features. The production system's operational capabilities will add to the POC capabilities in several critical areas. The production system will be capable of operating from multiple hearing

locations simultaneously. System performance will become critical to ensure rapid access to DDMS documents and video transcripts. Users may also remotely access the production system, requiring secure connections and adequate bandwidth to handle multi-media files.

7.3.5 Personnel Requirements

7.3.5.1 Contractor Staff

The *Projection Action Plan (PAP)* defines the contractor staff positions and responsibilities.

7.3.5.2 NRC Personnel

The *Projection Action Plan (PAP)* defines the DDMS NRC positions and responsibilities.

SECTION 8 ACRONYMS AND ABBREVIATIONS

ADAMS	Agency-wide Documents Access Management System
ASLBP	Atomic Safety and Licensing Board Panel
ASP	Active Server Pages
C.F.R.	Code of Federal Regulations
CD	Computer Disk
CM	Configuration Management
COTS	Commercial off-the-shelf
DOE	Department of Energy
DPC	Data Processing Center
EHD	Electronic Hearing Docket
EIE	Electronic Information Exchange
FIPS	Federal Information Processing System
GOTS	Government Off-The-Shelf
HLW	High Level Waste
HTML	Hyper Text Markup Language
HTTP	Hyper Text Transfer Protocol
IP	Internet Protocol
MTA	Mail Transfer Agents
MUA	Mail User Agents
NOC	Network Operations Center
NRC	Nuclear Regulatory Commission
OCIO	Office of the Chief Information Officer
OGC	Office of General Counsel
PAP	Project Action Plan
PDAD	Project Definition and Analysis Document
PDF	Portable Document Format
PMR	Program Management Report
POC	Proof of Concept
QA	Quality Assurance
RAD	Rapid Application Development
SDLCM	System Development and Life-Cycle Management
SECY	Secretary of the NRC
SMTP	Simple Mail Transport Protocol
SOC	System Operations Concept
SOW	Statement of Work
SQL	Structured Query Language
SRS	System Requirements Specification
TCP/IP	Transmission Control Protocol/Intenet Protocol
WBS	Work Breakdown Structure
WWW	World Wide Web or the Web
XML	Extensible Markup Language

SECTION 9 REFERENCES

9.1 Statutes and Regulations

•Workforce Investment Act of 1998, Rehabilitation Action Amendments of 1998, Section 508, Implementation.

•10 C.F.R. Part 2, Subpart J, Procedures Applicable to Proceedings for the Issuance of Licenses for the Receipt of High-Level Radioactive Waste at a Geologic Repository.

•Computer Security Act of 1987.

9.2 Technical Documents / Plans / Standards

•System Development and Life-Cycle Management Methodology (SDLCM), Handbook, Version 2.2, December 1999.

•Nuclear Regulatory Commission Hearing Room Digital Data Management System Study (Redacted)", Aspen Systems, July 26, 2001.

•Digital Data Management System Statement of Work originally dated March 15, 2002 and amended on April 12, 2002.

•PEC's Digital Data Management System (DDMS) Updated Technical Proposal dated June 18, 2002.

•PEC's Digital Data Management System Project Action Plan dated November 2002.

•NRC Personnel Security Program Handbook 12.5, Revised November 17 1999.

•NRC Toolkit List, October 2002

•Technical Reference Model, Draft, September 9, 2002, U.S. Nuclear Regulatory Commission, Office of the Chief Information Officer.

Appendix A—DDMS Functional Requirements

Req #	SOW Functional Requirements	POC Require-ments	Major Functional Category
1.13	The DDMS shall accommodate input information needed to support the presiding officer in administering the hearing, including such items as:		Administrative
1.13a	Rules		Administrative
1.13b	Procedures		Administrative
1.13c	Policies		Administrative
1.13d	Pleadings		Administrative
1.13e	Evidence		Administrative
1.13f	Parties		Administrative
1.13g	Witness List		Administrative
1.13h	Precedents		Administrative
1.13j	Schedule		Administrative
1.13k	Transcripts		Administrative
1.14	The DDMS shall accommodate output information needed to support the presiding officer in administering the hearing, including such items as:		Administrative
1.14a	Instructions		Administrative
1.14b	Schedules		Administrative
1.14c	Computer generated reports		Administrative
1.14d	Process flows		Administrative
1.14e	Selected portions of transcripts		Administrative
1.14f	Public announcements		Administrative
1.144	The DDMS shall support the creation of various levels of user privileges to access or manage information in the DDMS.		Administrative
1.145	The DDMS shall provide a capability to restrict some users from accessing specific information stored in the DDMS, e.g., a Protective Order File.		Administrative
1.146	The DDMS shall restrict all users, except the System Administrator, from deleting information stored in the DDMS.	X	Administrative
1.147	The DDMS shall allow only authorized users, like the Court Clerk, to update or modify information stored in the DDMS system.		Administrative
1.29	The DDMS shall accommodate input information needed to support the presiding officer in administering the pre-hearing conferences and evidentiary hearings, including such items as:		Administrative
1.29a	Motions		Administrative
1.29b	Briefs		Administrative
1.29c	Petitions		Administrative
1.29d	Electronic Records (e.g., LSN, EHD)		Administrative
1.29e	Testimony		Administrative
1.29f	Witness Lists		Administrative
1.29g	Exhibits		Administrative
1.29h	References to models, video, and other information		Administrative
1.29j	Responses		Administrative
1.29k	Contentions		Administrative
1.30	The DDMS shall accommodate output information needed to support the presiding officer in administering the pre-hearing conferences and evidentiary hearings, including such items as:		Administrative
1.30a	Computer generated reports		Administrative
1.30b	Acknowledgments		Administrative
1.30c	Issuances		Administrative
1.34	The DDMS shall support the retention of the access control privileges originally assigned by the EHD for using documents by authorized personnel.		Administrative
1.118	The DDMS shall provide capacity to store 10% of the high-end estimates for HLW repository document storage in the LSN:		Architecture

Req #	SOW Functional Requirements	POC Require-ments	Major Functional Category
1.118a	The LSN is estimated to store a total of 15,766,000 pages by 2004, the expected time frame for the HLW repository proceeding.		Architecture
1.118b	At 50 KB/page, this results in approximately 79 GB to store electronic images in the DDMS at its inception.		Architecture
1.118c	Full text of the images (at 5 KB/page) requires an additional 8 GB of storage.		Architecture
1.118d	Metadata storage is estimated to require an additional 4 GB of storage based on an average of 10 pages/document and 2.5 KB of metadata information/document.		System
1.122	The DDMS shall utilize an open architecture that will accommodate integration with legacy systems (ADAMS).	X	Architecture
1.124	The DDMS shall use product components that are based on industry accepted standards. This shall include but not be limited to hardware interfaces, Application Programming Interface (API), Relational Database technology, Communications Protocol, and Operating Systems technology.	X	Architecture
1.126	The DDMS shall use tailored user interfaces that are consistent with industry standards for information presentation.	X	Architecture
1.133	The DDMS shall use accepted industry icons to represent the format of the information being reviewed, i.e., audio, video, image, Word, etc.	X	Architecture
1.135	The DDMS shall integrate with the existing NRC enterprise infrastructure.		Architecture
1.136	The DDMS shall make optimal use of existing communications infrastructure including but not limited to the LANs, WAN and telecommunications.		Architecture
1.137	The DDMS shall use existing client desktop computers, enhancing the technology to meet requirements not currently supported.		Architecture
1.138	The DDMS shall use, as far as possible, server technology that is consistent with NRC procurement standards for similar technology including but not limited to hardware vendor, machine type, and operating systems.		Architecture
1.140	The DDMS shall be capable of supporting multiple concurrent hearings conducted at multiple locations and in multiple time zones.		Architecture
1.141	The DDMS shall support intercommunications with the EHD in Rockville, Maryland to obtain EHD updates and to transfer hearing record updates to the SECY organization. This interface shall be available 5 days per week, for a minimum of 1 hour each day.		Architecture
1.100	The DDMS shall support local and remote access to DDMS data for a scheduled 21 hours per day, 7 days per week.		Data Mgmt.
1.115	The DDMS record forwarded to SECY shall be retrievable from remote locations including:		Data Mgmt.
1.115a	Litigant Offices		Data Mgmt.
1.115b	Sites with Web access		Data Mgmt.
1.47	The DDMS shall support the capability to update information previously stored in the record.	X	Data Mgmt.
1.59	The DDMS shall provide access to the record from the judges' chambers.		Data Mgmt.
1.95	The DDMS shall support the retrieval of the DDMS record from an internet based user using a web browser.		Data Mgmt.
1.99	The DDMS shall support retrieval of the DDMS record from:		Data Mgmt.
1.99a	Judge's bench		Data Mgmt.
1.99b	Litigant desk locations		Data Mgmt.
1.99c	Clerk of Court		Data Mgmt.
1.99d	Court Reporter		Data Mgmt.
1.99e	Judge's chambers		Data Mgmt.
1.99f	Judge's conference room(s)		Data Mgmt.
1.99g	Litigant support conference rooms at the hearing		Data Mgmt.
1.101	The DDMS shall accommodate input information needed to assist with interactive search and retrieval of record information, including such items as:		Document Mgmt.
1.101a	Request from Judges		Document Mgmt.
1.101b	Request from Parties		Document Mgmt.

Req #	SOW Functional Requirements	POC Require-ments	Major Functional Category
1.101c	Request from Court Reporter		Document Mgmt.
1.102	The DDMS shall accommodate output information needed to assist with interactive search and retrieval of record information, including such items as:		Document Mgmt.
1.102a	Results from Judges		Document Mgmt.
1.102b	Results from Parties		Document Mgmt.
1.102c	Results from Court Reporter		Document Mgmt.
1.102d	Removable media		Document Mgmt.
1.109	The DDMS shall accommodate output information needed to capture and retrieve transcribed testimony, including such items as:		Document Mgmt.
1.109a	Searchable Text		Document Mgmt.
1.109b	Linked transcripts and associated exhibits		Document Mgmt.
1.110	The DDMS shall support the identification of DDMS records that need to be filed as a part of the official record with SECY.		Document Mgmt.
1.128	The DDMS shall provide a capability to easily highlight subsections of the document or information being presented, for emphasis or focus.		Document Mgmt.
1.129	The DDMS shall provide pre-defined search methods; tailored for the DDMS user to mitigate the need to enter many keystrokes when searching for information.		Document Mgmt.
1.15	The DDMS shall retrieve pre-filed documents from information filed with SECY.	X	Document Mgmt.
1.16	The DDMS shall support capturing pre-filed documents from electronic and paper formats.	X	Document Mgmt.
1.20	The DDMS shall support the retrieval and display or printing of all pre-filed electronic information.	X	Document Mgmt.
1.21	The DDMS shall support the selective retrieval and capture of electronic pleading(s) from the EHD.	X	Document Mgmt.
1.22	The DDMS shall support the electronic document formats supported by the EHD.	X	Document Mgmt.
1.24	The DDMS shall support the generation of a full-text index for each pre-filed document.	X	Document Mgmt.
1.25	The DDMS shall support the tracking and identification of multiple versions or revisions of pre-filed documents. The latest version of a pre-filed document shall be presented when a retrieval request is issued.	X	Document Mgmt.
1.26	The DDMS shall support the retrieval and display of pre-filed documents, retaining the original presentation fidelity of the information.	X	Document Mgmt.
1.27	The DDMS shall support the printing of pre-filed documents to selectable page sizes specified by the user, including but not limited to 8 ½" x 11" and legal size paper.		Document Mgmt.
1.39	The DDMS shall provide a capability to highlight or annotate, and then optionally capture and store, specific portions of displayed still images presented on monitor or workstations, in order to provide clarity or emphasis.		Document Mgmt.
1.48	The DDMS shall support the capability to insert or append information into the record, e.g., mark evidence as accepted, rejected, or withdrawn.	X	Document Mgmt.
1.49	The DDMS shall support the deletion of electronic information or references to exhibits from the record.	X	Document Mgmt.
1.50	The DDMS shall support modifying existing portions of the record as directed by the judge(s).	X	Document Mgmt.
1.51	The DDMS shall support the creation and capture of documents used to promulgate orders, directives, etc., to SECY and other parties.	X	Document Mgmt.
1.52	Issuance documents shall be stored in their native formats.		Document Mgmt.
1.53	The DDMS shall support scanning and conversion of paper documents, e.g., to capture required written signature pages.	X	Document Mgmt.
1.54	The DDMS shall support the physical marking of electronic documents with a user selectable/customizable electronic marker, e.g., an image stamp.	X	Document Mgmt.

Req #	SOW Functional Requirements	POC Require-ments	Major Functional Category
1.55	The DDMS shall accommodate input information needed to support records management at pre-hearing conferences and hearings, including such items as:		Document Mgmt.
1.55a	Record		Document Mgmt.
1.55b	Judge Instructions		Document Mgmt.
1.55c	Requests from Litigants		Document Mgmt.
1.56	The DDMS shall accommodate output information needed to support records management at pre-hearing conferences and hearings, including such items as:		Document Mgmt.
1.56a	Reports		Document Mgmt.
1.56b	Insertion of information		Document Mgmt.
1.56c	Update of information		Document Mgmt.
1.56d	Index		Document Mgmt.
1.60	The DDMS shall support integration with Open Document Management Architecture (ODMA) compliant products such as Word, Excel, and WordPerfect. This integration is required to allow issuance documents to incorporate text information from the existing record without retyping the existing information.	X	Document Mgmt.
1.66	The DDMS shall support the capture of documents used to promulgate orders, directives, etc., to SECY and other parties.		Document Mgmt.
1.67	Issuance documents shall be stored in their native format		Document Mgmt.
1.68	The DDMS shall support scanning and conversion of paper documents, e.g., to capture required written signature pages		Document Mgmt.
1.69	The DDMS shall accommodate input information needed to assist judges with the generation and storage of orders, directives, etc., promulgated by the presiding officer, including such items as:		Document Mgmt.
1.69.1	Decision		Document Mgmt.
1.7	The DDMS shall support the electronic marking of evidence/exhibits to be presented. The system shall be capable of marking evidence such as Identified, Received, Rejected, Withdrawn, etc.	X	Document Mgmt.
1.70	The DDMS shall accommodate output information needed to assist judges with the generation and storage of orders, directives, etc., promulgated by the presiding officer, including such items as:		Document Mgmt.
1.70a	Orders		Document Mgmt.
1.70b	Notices		Document Mgmt.
1.79	The DDMS shall accommodate input information needed to assist with the capturing of all information presented and discussed during a hearing, including such items as:		Document Mgmt.
1.79a	Evidence		Document Mgmt.
1.79b	Decision		Document Mgmt.
1.79c	Administrative Management information		Document Mgmt.
1.79d	Pleadings		Document Mgmt.
1.83	The DDMS shall provide for the creation of an index (metadata) for each piece of information or each exhibit that is part of the record.		Document Mgmt.
1.86	The DDMS shall maintain an index that includes the unique LSN identifier for each entity (document, files, etc.) originally stored in the LSN.	X	Document Mgmt.
1.89	The DDMS shall support the creation of an electronic document from a paper document accepted into evidence during the hearing; to be stored as a part of the record.		Document Mgmt.
1.90	The DDMS shall accommodate input information needed to assist with the creation of the hearing record, including such items as:		Document Mgmt.
1.90a	Evidence electronic and physical)		Document Mgmt.
1.90b	Decision		Document Mgmt.
1.90c	Pre-filed Testimony		Document Mgmt.
1.90d	Pleadings		Document Mgmt.

Req #	SOW Functional Requirements	POC Require-ments	Major Functional Category
1.90e	Transcription		Document Mgmt.
1.91	The DDMS shall accommodate output information needed to assist with the creation of the hearing record, including such items as:		Document Mgmt.
1.91a	Metadata		Document Mgmt.
1.91b	Electronic Information		Document Mgmt.
1.91c	Links or references		Document Mgmt.
1.91d	Physical Evidence		Document Mgmt.
1.91e	CD/DVD		Document Mgmt.
1.92	The DDMS shall support searching of the DDMS record using one or more metadata fields.		Document Mgmt.
1.93	The DDMS shall support the searching of the DDMS record using a full-text index.		Document Mgmt.
1.94	The DDMS shall support the searching of the DDMS record using a combination of metadata and full-text searches.		Document Mgmt.
1.96	The DDMS shall support the display of metadata or a profile for each entity stored in the DDMS record.		Document Mgmt.
1.98	The DDMS shall support the production of a result list for information matching the specified search criteria.		Document Mgmt.
1.1	The DDMS shall provide access to electronically available copies of the rules, policies, and procedures that govern the hearing.	X	Hearing Mgmt.
1.10	The DDMS shall support the management of multiple hearings, in one or more locations. This management shall include a capability to uniquely identify and correlate information captured and presented at each hearing.		Hearing Mgmt.
1.104	The DDMS shall support a real-time transcription of pre-hearing conferences and hearings.		Hearing Mgmt.
1.105	The DDMS shall support the active linking of transcribed information with electronic information referenced by the transcript.	X	Hearing Mgmt.
1.106	The DDMS shall support the capture and storage of transcribed textual information.	X	Hearing Mgmt.
1.107	The DDMS shall support the indexing of the transcribed record with metadata and a full-text index.		Hearing Mgmt.
1.108	The DDMS shall accommodate input information needed to capture and retrieve transcribed testimony, including such items as:		Hearing Mgmt.
1.108a	Audio Tape		Hearing Mgmt.
1.108b	Video Tape		Hearing Mgmt.
1.108c	Arguments		Hearing Mgmt.
1.11	The DDMS shall support the aggregation of information across multiple hearings, allowing search and retrieval across all hearing information with a single request.		Hearing Mgmt.
1.111	The DDMS shall identify DDMS hearing records to be filed with SECY on a daily basis.	X	Hearing Mgmt.
1.112	The DDMS shall identify those DDMS records required to be filed with SECY at the end of the hearing, including any records of related hearings.		Hearing Mgmt.
1.113	The DDMS shall support the packaging and export of records to be stored on the ADAMS systems with SECY. The exported records shall include the electronic documents and related metadata required for indexing the records and referencing physical evidence.		Hearing Mgmt.
1.116	The DDMS shall accommodate input information needed to support the transmission of all record information to SECY, including such items as:		Hearing Mgmt.
1.116a	Record		Hearing Mgmt.
1.116b	Index		Hearing Mgmt.
1.116c	Proceeding Information		Hearing Mgmt.
1.117	The DDMS shall accommodate output information needed to support the transmission of all record information to SECY, including such items as:		Hearing Mgmt.
1.117a	Metadata		Hearing Mgmt.
1.117b	Electronic Documents		Hearing Mgmt.

Req #	SOW Functional Requirements	POC Require-ments	Major Functional Category
1.117c	Physical Evidence		Hearing Mgmt.
1.12	The DDMS shall support electronic notifications or instructions to participating hearing personnel, e.g., judges and court reporter.		Hearing Mgmt.
1.127	The DDMS shall provide an interface that allows the professional user (e.g., judge, attorneys) to easily search, retrieve and display information. A seamless interface shall be provided to allow the professional user to focus on the hearing and not the DDMS system, i.e., do not detract from the operations of the hearing.	X	Hearing Mgmt.
1.134	The DDMS shall provide a basic entry level manual as a training and reference tool.		Hearing Mgmt.
1.17	The DDMS shall support storing references to non-electronic exhibits as descriptive profile information.	X	Hearing Mgmt.
1.19	The DDMS shall support the searching of pre-filed electronic and non-electronic information using the metadata or full-text index information.	X	Hearing Mgmt.
1.2	The DDMS shall provide a chronological listing of all FRNs, pleadings, and pre-filed information that support the hearing.	X	Hearing Mgmt.
1.23	The DDMS shall support the indexing of pre-filed documents with metadata (descriptive information), including descriptive information used in the EHD such as docket number, accession number, etc.	X	Hearing Mgmt.
1.28	The DDMS shall support the retention of the access control privileges originally assigned by the EHD for using the pre-filed documents by NRC personnel.	X	Hearing Mgmt.
1.3	The DDMS shall provide access to the EHD to support review of the current electronic docket.	X	Hearing Mgmt.
1.31	The DDMS shall provide direct access to external databases and subscription services for the purpose of providing research support to the ASLBP:	X	Hearing Mgmt.
1.31a	Electronic Records (e.g., LSN, EHD)		Hearing Mgmt.
1.31b	LEXIS™		Hearing Mgmt.
1.31c	Westlaw™		Hearing Mgmt.
1.31d	Premise™		Hearing Mgmt.
1.32	The DDMS shall provide web access to research tools to support litigant research.		Hearing Mgmt.
1.33	The DDMS shall allow research participants to use the native search and retrieval capabilities to request information from the identified repositories.	X	Hearing Mgmt.
1.37	The DDMS shall support the presentation of physical evidence or exhibits to monitors or workstations inside and outside the hearing room. A variable zoom capability shall be provided to selectively view specific details of the information being examined.		Hearing Mgmt.
1.38	The DDMS shall support the presentation of hearing information to remote locations via video conference.		Hearing Mgmt.
1.4	The DDMS shall support the generation of an ordered list of witnesses (witness list) that are scheduled to support the hearing.	X	Hearing Mgmt.
1.40	The DDMS shall provide a capability to support the Americans with Disabilities Act requirements as applicable. This shall include a capability to provide enhancements for the hearing impaired and closed caption or real-time reporting for the deaf.		Hearing Mgmt.
1.41	The DDMS shall support the translation of languages to and from U.S. English for non-English speaking participants.		Hearing Mgmt.
1.45	The DDMS shall accommodate input information needed to support evidence and argument presentation at pre-hearing conferences and hearings, including such items as:		Hearing Mgmt.
1.45a	Documents (images, text, paper, etc.)		Hearing Mgmt.
1.45b	Video Clips		Hearing Mgmt.
1.45c	Laptops/computer inputs		Hearing Mgmt.
1.45d	Computer Models		Hearing Mgmt.
1.45e	Physical Evidence		Hearing Mgmt.

Req #	SOW Functional Requirements	POC Require-ments	Major Functional Category
1.45f	Oral presentation/report/testimony		Hearing Mgmt.
1.45g	Depositions		Hearing Mgmt.
1.45h	Video Conference		Hearing Mgmt.
1.45j	CD/DVD		Hearing Mgmt.
1.45k	Reference to Pre-filed court information		Hearing Mgmt.
1.45l	Projectors		Hearing Mgmt.
1.46	The DDMS shall accommodate output information needed to support evidence and argument presentation at pre-hearing conferences and hearings, including such items as:		Hearing Mgmt.
1.46a	Screens or display units		Hearing Mgmt.
1.46c	Reports		Hearing Mgmt.
1.46d	Hearing record		Hearing Mgmt.
1.46e	Remote hearing site - video conference		Hearing Mgmt.
1.46v	Printers		Hearing Mgmt.
1.5	The DDMS shall support the management of the witness list and support changes to the witness list.	X	Hearing Mgmt.
1.57	The DDMS shall support the integration of evidentiary, transcription, and research information to assist the judges in making a decision. This includes synchronizing transcripts with video proceedings and links to electronic documents.	X	Hearing Mgmt.
1.58	The DDMS shall support advanced search methods to assist judges in finding evidentiary information.	X	Hearing Mgmt.
1.6	The DDMS shall support the control of evidence presentation during the hearing. This shall include the capability to control the display and presentation of information to specific monitor(s), microphones or any input or output source.		Hearing Mgmt.
1.62	The DDMS shall support the creation of customized or ad hoc reports to assist the judges in reviewing the record captured during the hearing.		Hearing Mgmt.
1.63	The DDMS shall support the capture of any decision issued by a licensing board at or after each pre-hearing conference or hearing.	X	Hearing Mgmt.
1.64	The DDMS shall accommodate input information needed to assist judges with developing and documenting decisions, including such items as record, Other Proceeding Information, Research		Hearing Mgmt.
1.65	The DDMS shall accommodate output information needed to assist judges with developing and documenting decisions, including such items as issuances		Hearing Mgmt.
1.8	The DDMS shall support sealing portions of the record, temporarily stored on the DDMS.	X	Hearing Mgmt.
1.80	The DDMS shall accommodate output information needed to assist with the capturing of all information presented and discussed during a hearing, including such items as:		Hearing Mgmt.
1.80a	Metadata		Hearing Mgmt.
1.80b	Electronic Information		Hearing Mgmt.
1.80c	DVD/CD records		Hearing Mgmt.
1.81	The DDMS shall support the real-time creation of a record of pre-hearing conferences and hearings.		Hearing Mgmt.
1.82	The DDMS shall include all pleadings, orders, transcripts of pre-hearing conferences and hearings, pre-filed testimony, and exhibits as a part of the record.		Hearing Mgmt.
1.84	The DDMS shall store all electronic documents or multimedia files to be included in the record.		Hearing Mgmt.
1.85	The DDMS shall maintain a reference to physical items that need to be included in the record.		Hearing Mgmt.
1.87	The DDMS shall provide a capability to seal a portion of the record.		Hearing Mgmt.
1.9	The DDMS shall support independent or private retrieving and viewing of hearing or record information by the judges.	X	Hearing Mgmt.

Req #	SOW Functional Requirements	POC Require-ments	Major Functional Category
1.97	The DDMS shall support the display of each type of electronic information stored in the record, including documents, video files, images, etc.		Hearing Mgmt.
165.1	Issuances		Hearing Mgmt.
	Other Proceeding Information		Hearing Mgmt.
	Research		Hearing Mgmt.
1.103	The DDMS shall support the generation of a time-sequenced audio and/or video record of pre-hearing conferences and hearings.		Multi-Media Mgmt.
1.114	The DDMS shall support the generation of CD or DVD media with the exported data.		Multi-Media Mgmt.
1.18	The DDMS shall support capturing multimedia electronic information in their original format.	X	Multi-media Mgmt.
1.35	The DDMS shall support the display of all evidence in electronic form on display monitors or workstations distributed inside and outside of the hearing room.		Multi-media Mgmt.
1.36	The DDMS shall support the display presentation of litigator case information from:	X	Multi-media Mgmt.
1.36a	Laptops		Multi-media Mgmt.
1.36b	CD or DVD		Multi-media Mgmt.
1.36c	Video		Multi-media Mgmt.
1.36d	Audio		Multi-media Mgmt.
1.42	The DDMS shall provide a capability to play back selected portions of the testimony presented. This shall include the audio, video, and any transcript created during the hearing.	X	Multi-media Mgmt.
1.43	The DDMS shall support the selective display of information from all input sources in the hearing room, including computers, projectors, cameras, etc.		Multi-media Mgmt.
1.44	The DDMS shall support the simultaneous display of information from multiple input sources in multiple windows or viewing partitions on monitors or workstations.		Multi-media Mgmt.
1.61	The DDMS shall support the indexing of the video records to assist in the review of video information.		Multi-media Mgmt.
1.71	The DDMS shall support the capture of a video and audio record of specific activities and information presented in the hearing.		Multi-Media Mgmt.
1.72	The DDMS shall automate the capture process using a voice-activated mechanism to trigger the recording process, subject to over-ride by the clerk or presiding officer.		Multi-Media Mgmt.
1.73	The DDMS shall capture the presentation of information at local and remote sites when video conferencing technology is used.		Multi-Media Mgmt.
1.74	The DDMS shall support playback of selected portions or time slots of the proceeding recording.		Multi-Media Mgmt.
1.75	The DDMS shall support video capture for the judges, litigants, and individuals at the witness box.		Multi-Media Mgmt.
1.76	The DDMS shall support playback of proceeding recordings.		Multi-Media Mgmt.
1.77	The DDMS shall record evidence presented during the hearing that is displayed on projectors or other monitors in the hearing room.		Multi-Media Mgmt.
1.78	The DDMS shall provide a capability for the proceeding recording to be indexed and linked with relevant hearing transcripts.		Multi-Media Mgmt.
1.79e	Transcription		Multi-Media Mgmt.
1.79f	Video		Multi-Media Mgmt.
1.88	The DDMS shall provide a capability to correlate types of multimedia information, to facilitate an easy retrieval process.		Multi-media Mgmt.
1.119	The DDMS shall provide a capacity to store video and other forms of multimedia data, based on the following criteria:		System
1.119a	Hearing proceedings will be digitized and compressed for storage and distribution via video streaming technologies.		System
1.119b	Hearing video will be retained online for 2 days, and stored on removable media (near-line) for future retrieval.		System

Req #	SOW Functional Requirements	POC Require-ments	Major Functional Category
1.119c	Analog video clips or recordings presented as exhibits in the hearing will be digitized and compressed for storage in a digital format. This digitized information will be stored online in the DDMS database.		System
1.119d	Video recordings are estimated to be stored in a MPEG format at 1.5 Mbps. For the total of 150 days, the total estimated recording requirement is 1215 GB.		System
1.120	The DDMS shall provide a capability to display evidence on each monitor or display in the hearing room, within 10 seconds of the request to display the document, for 90% of all requests.		System
1.121	The DDMS shall display a result list within 10 seconds of the search request to find the information, for 90% of all requests.		System
1.123	The DDMS shall support the migration to newer information and A/V technologies.		System
1.125	The DDMS shall support the hearing room environments for Rockville, a remote location in the Las Vegas area, as well as other sites in remote locations.		System
1.130	The DDMS shall support the casual, infrequent user that needs to search and retrieve information from the DDMS.		System
1.131	The DDMS shall support the technically proficient user that needs to use advanced tools to find and manipulate information in the DDMS.		System
1.132	The DDMS shall use touch sensitive or equivalent data entry devices to assist in the control and manipulation of the DDMS systems by the Judge and Clerk of Court.		System
1.139	The DDMS shall be scheduled to be available to support conducting the HLW repository hearing 21 hours per day, 7 days per week.		System
1.142	The DDMS shall be available 7 days per week, a minimum of 1 hour each day, to support ongoing or required maintenance activities.		System
1.143	The Mean Time to Repair (MTTR) the DDMS shall be no more than 1 hour, during the 7 day/week operating time frame.		System
1.148	The DDMS shall support the display of more than one output simultaneously.		System

Appendix B—User Access Rights Requirements

	View latest version of Pre-Filed documents and exhibits	Submit Exhibits, including physical evidence.	Perform Searches for Exhibits and pre-filed documents	Grant and revoke access privileges to hearing documents, exhibits, video, transcripts, and legal research services. (To include Protective Orders)	Create, Store, and Retrieve hearing documentation	Collaboration	Create Store, and Retrieve Private Notes	Review Proceedings (video and transcript of hearing)	Mark Exhibits as Accepted, Rejected, Withdrawn, and Stricken	Access to legal research using Lexis, Westlaw, Premise (internal/ external)	View Sensitive, Copyright, Proprietary, Client/Attorney Privilege, or Privacy Act information as authorized	Seal Records	Access rules, policies, and procedures	Witness List management	Start and Stop all or portions of DDMS
Administrator (System)				√								√		√	√
Attorneys (Parties)	√	√	√		√		√	√		√	√	√	√		
Attorney Staff	√	√	√		√		√	√		√	√	√			
Clerk of Court	√	√	√	√	√		√	√	√			√	√	√	√
Judge	√		√	√	√	√*	√	√		√	√	√	√	√	
Judicial Staff	√		√		√	√*	√	√		√		√	√	√	
NRC Staff	√	√	√		√		√	√		√	√	√	√		
Expert Witnesses	√		√		√			√			√	√			
Un-represented Parties	√	√	√		√		√	√		√	√	√	√		
Appellate Group	√		√					√			√	√			

**Enhanced requirement*

APPENDIX C— DDMS Data Elements

Data Element	Description
Accession Number	The Accession Number is a combination of the ID property and a preceding alpha code that designates the ADAMS library into which the document was first entered. The alpha code **ML** designates the ADAMS **M**ain **L**ibrary.
Addressee Affiliation (MV)	Organizational affiliation of internal pleading recipient
Addressee Name (MV)	Internal pleading recipient (**In ADAMS this field is used for Panel Judge names**)
Attachment (MV)	References to accession numbers of docs attached to pleadings. Contains reference numbers or other information on the attachment previously entered in ADAMS
Author Affiliation (MV)	Organizational affiliation of author. (Drop down in ADAMS Values include: Univ, Co, Corp, Hosp, etc.)
Author Name (MV)	Name of author (**In ADAMS this field is used for Panel Judge names**)
Availability	Availability of official agency records to public(Public, Non Public, Embargo)
Case/Reference Number (MV)	Pick up the proceeding number as it appears on the document. This number may include an extension such as" ML, OLA or LT". Pick up the ASLBP number if it is on the transcript. Also add RAS document ID number. (**In ADAMS contains the Proceeding #, RAS #, & ASLBP #**)
Comment	Brief description of attachments to the document. If an attachment contains an ADAMS Main or Legacy Library accession number, enter this information in addition to the attachment description.
Contact Person	Contact person usually SECY person who declares the document OAR
Cross Reference	Of value if compound documents are used and accession number for other segments are known
Date Docketed	Date document was docketed
Date to be Released	Release date for an embargoed item. Release three working days after added to ADAMS Main Library.
DDMS Accession Number	Used to identify where a BLOB is stored in DDMS that may not be stored within ADAMS
Docket Number (MV)	An NRC-assigned number that uniquely identifies facility, license, or activity. The first three digits represent the associated part if the 10 CFR. The (Drop down in ADAMS)
Document Date	Document Date Received (equates to Transcript Date)
Document Sensitivity	Sensitivity of information. (Drop down in ADAMS)
Document Status	Indicate the witness whose name appears on the Exhibit stamp. Indicate the date from the Exhibit stamp when the document was received in evidence. State for this field "Received in evidence on (enter date)". If the exhibit was rejected state "Rejected on (enter date).
Document Type (MV)	Type of document i.e. Legal, Exhibit. (equates to Transcript Type) The document type is select from a drop down list and the appropriate document type is not currently included the user must choose either 1) New Document Type Needed or 2) No Document Type Applies.
Document/Report Number (MV)	Direct Definition Reference Identifier
Estimated Page Count	Estimated number of pages. This value is used to determine if the end user receives a prompt to suggest that the print request be directed to the NRC HQ Copy Center's Docutech printer.
Exhibit number (MV) (S)	Exhibit Number
Exhibit owner	Exhibit owner's name
Exhibit status indicator	Contains indicator of whether this exhibit was accepted or rejected into evidence

Data Element	Description
Exhibit/Transcript locator	Whatever mechanism DDMS will use to link electronic transcripts associated with files that are exhibits, and form the electronic exhibits to link back with the associated transcript location where introduced. Video timestamp marks where a doc was introduced within a transcript.
Hearing session identifiers	Daily session numbers, page ranges. Must be unique number
Issues	Mark issue or topic
Item ID	
Keyword (MV)	Put in the name of a plant for a nuclear power plant. Put in the name of a material or byproduct licensee. This information is located on the transcript. Also enter the word "transcript".
License Number (MV)	An NRC or State assigned number that uniquely identifies an NRC or an Agreement state License Number or permit holder.
LSN Accession Number	LSN Accession Number
Media Type	The material/Environment on which the information is inscribed. Default is "Electronic".
Official Record	Status of documents as official records. System generated.
Package Number	Indicates the Accession Number of the ADAMS package in which the document is contained.
Panel Judges (MV)	Panel(Judges) associated with transcript or associated with pleadings/issuances
Panel Notes	Comments added by an ASLBP panel member. Restricted access field.
Physical File Location	Location of document or item indexed. Default is "ADAMS"
Replicated	
Text Source Flag	Pick from drop-down list. If the document is scanned, select: OCRed from scanned image-no-corrections made. If received electronically, select: "Native Application".
Title	Enter title appearing on transcript. Should include proceeding information and any dates that the transcript covers. (equates to Transcript Session/Location)
Transcript page range	Number of pages in a paper version of a transcript. Helps distinguish morning from afternoon sessions.
Transcript status indicator	Contains indicator of whether this version of a transcript is initial or certified
Witness Affiliation (MV)	Organization affiliation of witness
Witnesses (MV)	Witnesses cited in transcript or associated with document/exhibit