
Digital Data Management System (DDMS)

Project Action Plan

Prepared for

Nuclear Regulatory Commission

Washington, D.C. 20555-001

Under Contract Number

GS-35F-4366G / NRC-33-01-183

Prepared by

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Version 3

October 27, 2003

Revision Number	Description	Date
1.0	Initial Submission of DDMS Project Action Plan	9/12/2002
1.1	Updated Based on initial review to tailor document to specific NRC Guidance on Level of Detail	10/9/2002
2.0	Final Baseline that includes updates based on NRC comments on Draft	11/21/2002
3.0	Updated for Task 3	10/27/2003

Table of Contents

SECTION I - INTRODUCTION.....	1
1.1 BACKGROUND.....	1
1.2 OBJECTIVES	3
1.3 SCOPE	3
1.4 ASSUMPTIONS.....	6
1.5 APPLICABLE REFERENCES.....	6
1.6 DOCUMENT ORGANIZATION	7
1.7 DEFINITION OF TERMS	7
SECTION 2 - PROJECT MANAGEMENT PLAN	9
2.1 PROJECT DEFINITION	9
2.1.1 <i>Project Deliverables</i>	9
2.1.2 <i>Management Approach</i>	9
2.1.3 <i>Monthly Reports</i>	11
2.1.4 <i>Technical Approach</i>	11
2.2 PROJECT MANAGEMENT PLAN.....	14
2.2.1 <i>Task 3 Work Breakdown</i>	14
2.2.2 <i>Project Schedule</i>	20
2.2.3 <i>Project Team and Skills</i>	20
2.2.4 <i>Project Interfaces</i>	23
2.3 RISK MANAGEMENT	24
2.3.1 <i>Risk Description</i>	24
2.3.2 <i>Risk Management Process</i>	24
2.3.3 <i>Problem Resolution</i>	25
2.4 QUALITY ASSURANCE.....	26
2.4.1 <i>Quality Assurance</i>	26
2.4.2 <i>Configuration Management</i>	27
2.4.3 <i>Data Management</i>	28
2.4.4 <i>Records Management</i>	28
2.5 SDLCM METHODOLOGY TAILORING.....	29
2.6 REPORTS	29
2.7 MEETINGS.....	31
2.8 POINTS OF CONTACT	32
2.9 SUBCONTRACTOR MANAGEMENT	33
2.10 SECURITY CLEARANCES	34
2.11 EQUIPMENT ACQUISITION	34
SECTION 3 SOFTWARE DEVELOPMENT PLAN	35
3.1 OVERVIEW OF SOFTWARE DEVELOPMENT AND INTEGRATION ACTIVITIES	35
3.2 SOFTWARE DEVELOPMENT ORGANIZATION AND RESPONSIBILITIES	35
3.2.1 <i>Integration and Development Team Personnel</i>	35
3.2.2 <i>Interfacing Groups</i>	37
3.3 SOFTWARE DEVELOPMENT TECHNICAL APPROACH.....	37

3.3.1	<i>Activities, Tools, and Products</i>	37
3.3.2	<i>Implementation</i>	38
3.3.3	<i>Testing</i>	38
3.4	SOFTWARE DEVELOPMENT MANAGEMENT APPROACH	39
3.4.1	<i>Software Development Resource Requirements</i>	40
3.4.2	<i>Software Development Milestones and Schedules</i>	40
3.4.3	<i>Software Development Measures</i>	40
APPENDIX A - SCHEDULE AND COST PROJECTIONS		1
APPENDIX B - DDMS PROJECT TEAM CONTACT LIST		1
APPENDIX C - DDMS TASK 1 WORK BREAKDOWN STRUCTURE (WBS)		1

SECTION I - INTRODUCTION

The Nuclear Regulatory Commission (NRC) has defined requirements reflecting 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 the Digital Data Management System (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 DDMS equipped courtroom whose technology is simple to operate, reliable and fast. The remainder of this document describes, in detail, the planned project management approach for meeting the needs outlined above.

1.1 Background

The 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 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 DOE's application for construction authorization for a 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 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 dictated 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 this high profile HLW repository licensing hearing. The DDMS through its use of critical document and multimedia management functions eases the management of 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 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 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 facilitate savings of time spent conducting hearings. DDMS will enable authorized users to rapidly and easily access information on demand.

DDMS initially delivered functionality for a feasibility proof of concept (POC) Pilot system (see Exhibit 1-1) rather than full Production Pilot capabilities. In completing Task 1, however, PEC, addressed the design of the overall, fully operational Rockville component. The Task 1 POC Rockville component equipment will be used in implementing the full Production Pilot in Task 3 in order to meet the tight time constraints driven by the projected filing of the DOE license in early 2005. Exhibit 1-2 illustrates the projected Production System architecture.

The planned methodology for the Production System continues to focus on the use of rapid prototyping to validate the system's operational implementation and the finalized 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 terms of implementation, the planned approach centers on the use of COTS products, including 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.

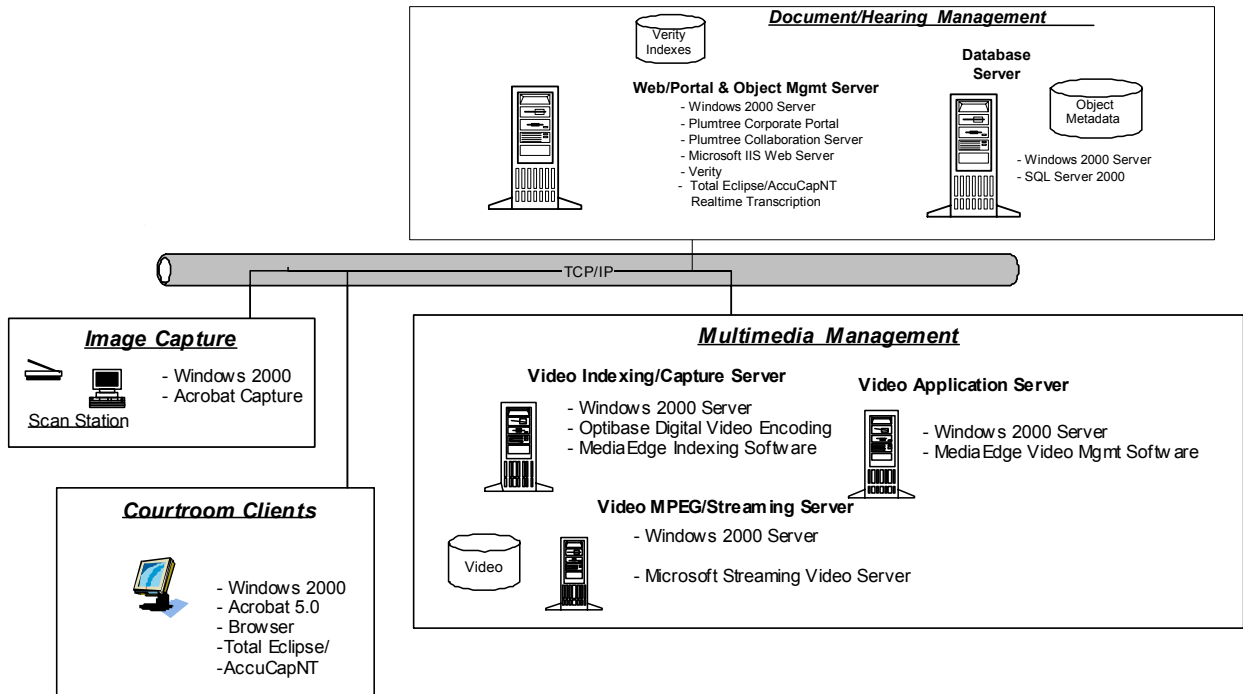


Exhibit 1-1: DDMS Architecture for the POC System

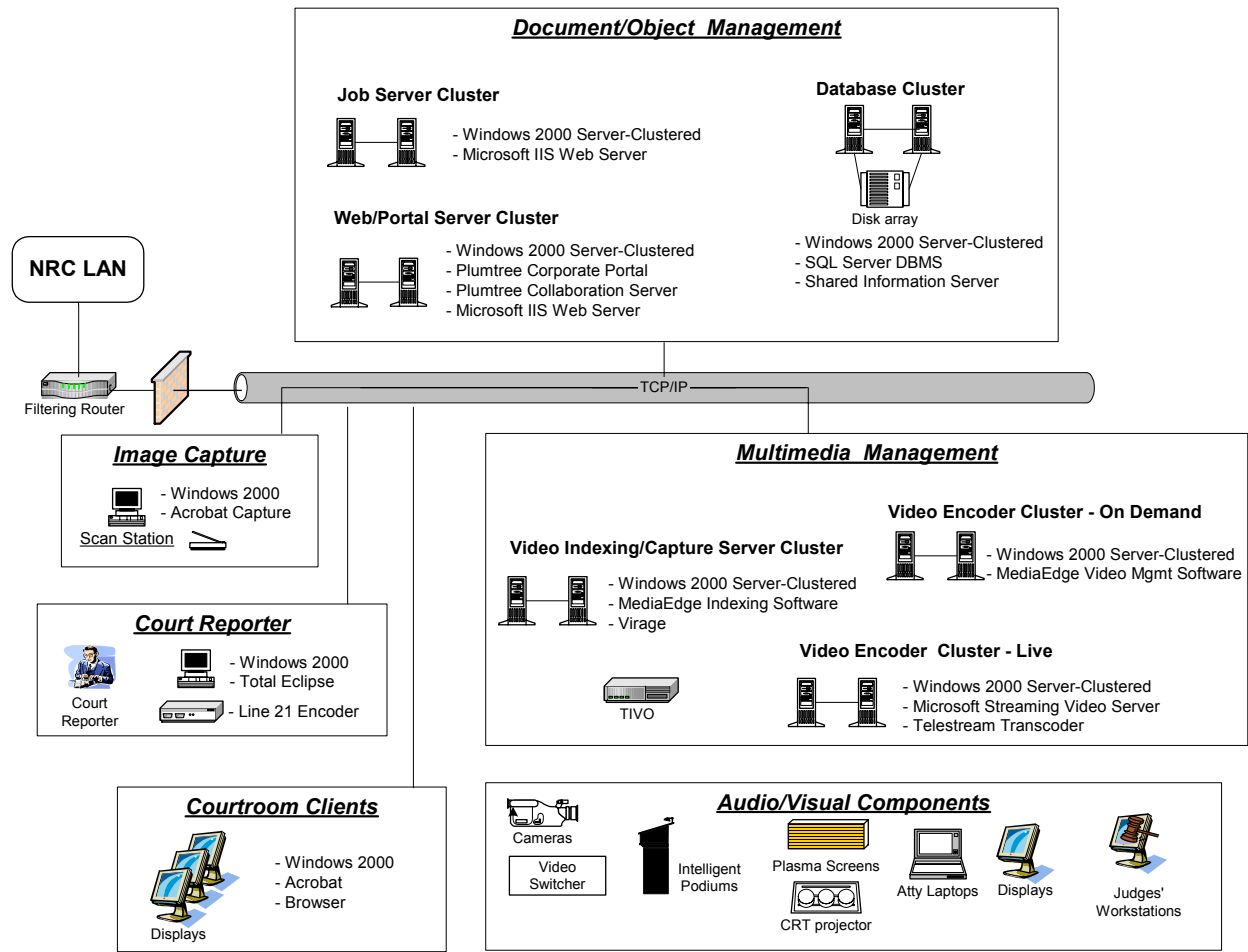


Exhibit 1-2 DDMS Architecture for the Production System

1.4 Assumptions

- Requirements collection meetings and interviews will be conducted on-site at NRC Rockville facilities.
- Initial integration and development of the Production system will be performed at PEC facilities. At the conclusion of internal testing, the Production system will be configured at NRC in Rockville, tested and readied for evaluation testing.
- All meetings will be held at NRC or PEC team facilities.
- The DDMS will capture information from HLW-EHD and distribute information to ADAMS via the Data Processing Center (DPC). The reliability and availability of DDMS is thus dependent on the continuing availability and stability of the interfaces with these systems.

1.5 Applicable References

- Technical Documents, Plans, and Standards:
- 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 (in effect at the time of contract award)
- “Nuclear Regulatory Commission Hearing Room Digital Data Management System Study, Aspen Systems, July 26, 2001.
- Digital Data Management System Statement of Work dated March 15, 2002 and amended April 12, 2002.
- PEC “Digital Data Management System (DDMS) Updated Technical Proposal” dated June 18, 2002.
- PEC’s Digital Data Management System Project Action Plan Version 3 dated October 2003.
- PEC’s Digital Data Management System (DDMS) Security Plan dated May 30, 2003.
- PEC’s Digital Data Management System (DDMS) Production Design Document dated June 27, 2003.
- PEC’s Digital Data Management System (DDMS) Proof of Concept Evaluation and Test Report dated September 19, 2003.

1.6 Document Organization

Section 1 serves as the introduction to this Project Action Plan (PAP) describing the problem to be solved, the objectives of the DDMS and a brief overview of the proposed solution.

Section 2 contains the detail of the Program Management Plan including the planned work breakdown structure (WBS), detailed plans for subtasks and activities, the proposed schedule, team organization and DDMS interfaces to external systems. In addition, this section describes the plans for risk management and quality assurance activities such as reviews and configuration management. Finally, it discusses the project controls that will be used to manage the labor effort levels and costs along with plans for meetings and communications.

Section 3 contains the Software Development Plan.

This document will be maintained through monthly updates, as required, as described in Section 2.6.

1.7 Definition of Terms

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/Internet Protocol
WBS	Work Breakdown Structure
WWW	World Wide Web or the Web
XML	Extensible Markup Language

SECTION 2 - PROJECT MANAGEMENT PLAN

2.1 Project Definition

2.1.1 Project Deliverables

The proposed Project Deliverables will meet the requirements of the life cycle development guidelines contained in NRC's SDLCM. Exhibit 2-1 lists the deliverables and the preliminary baseline scheduled delivery dates as required in the Task 3 Statement of Work.

WBS	Deliverable	Date.
1.3	Deliver PDAD Update to NRC for Review-#1	10/27/03
1.7	Deliver PAP Update to NRC for Review-#2	10/27/03
3.1.2	Deliver Risk Assessment Update to NRC for Review-#3	11/25/03
3.1.10	Deliver Security Plan Update to NRC for Review-#4	11/25/03
3.1.6	Deliver Contingency Plan Update to NRC for Review-#5	11/25/03
3.2.8	Deliver Updated Design Document to NRC for review-#6, 7,8	1/8/04
3.2.9	Hold "Mini" Detailed Design Review-#9	1/23/04
4.7	Deliver Production DDMS Test Plan to NRC for Review-#10	6/23/04
4.11	Deliver Transition/Rollout Plan to NRC for Review-#11	6/25/04
5.1	Pre-final and Final Test of Requirements-#12	7/30/04
6.2	Deliver Training Plan to NRC for Review-#13	6/15/04
6.6	Deliver Tutorials to NRC for Review-#14	7/14/04
7.2	Deliver Software Engr Notebook-#15	8/11/04
5.2	Deliver Operational Production DDMS Ready for Mock Trial- #16	8/13/04
6.9	Conduct Training-#17	9/30/04
5.3	Conduct "Mock" HLW Hearing-#18	10/12/04
7.18	Deliver DDMS Comprehensive Software & System Test Results to NRC for Review-#19	10/12/04
7.14	Deliver DDMS Operational Support Guide-#20	9/13/04
7.6	Deliver User Guide to NRC for Comments-#21	9/14/04
7.10	Deliver O&M Admin Guide-#22	9/14/04
8	Subtask 8- Support for DDMS through pre-operational Hearing-#23	10/12/04

Exhibit 2-1: List Task 3 DDMS Deliverables

2.1.2 Management Approach

The project management methodology to be used on the DDMS project is based on five fundamental tenets to ensure that the project objectives are achieved on-schedule and within budget, as follows.

-
- **Single Point of Accountability.** Richard Schutz, the PEC DDMS Project Manager, will manage all aspects of the project. He will be the single point of contact for the government for all project activities. The single-point accountability of the Project Manager is an important component of the management approach and will ensure that PEC applies a consistent set of management practices across the DDMS Project. Mr. Schutz and Mr. Roy Carter, ESD Vice President, will have the authority to make the resource commitments necessary to complete all work. PEC executive management and staff will support Mr. Schutz.
 - **Frequent and Open Communication.** PEC will establish and maintain open and frequent coordination with the NRC. The DDMS Project Manager, Dan Graser, will facilitate examination of business, technical, and management issues, and anticipate needs as they relate to the DDMS Project. PEC will provide Activity Reports at the weekly Project Status Meetings, as well as monthly status reports, which are detailed in Section 2.6 of this document. Our proactive approach to communication and coordination will provide the lead-time necessary to coordinate the efforts of NRC and PEC project staffs.
 - **Frequent Internal Reviews.** PEC will conduct periodic internal reviews to assess status and progress, develop solutions to problems as they occur, and attempt to eliminate or minimize the impact of anticipated future problems. Senior management will actively participate in the review of on-going projects activities and provide valuable insight and guidance to project team. The PEC Project Manager has at his disposal a cadre of experienced managers and technical experts with specific focused knowledge who can provide assistance and ensure timely delivery of all contract items.
 - **Detailed Project Planning and Execution.** PEC will ensure timely completion of deliverable items by understanding requirements completely, planning the work activities and duration of each, assigning the appropriate mix of personnel with the required skills, and obtaining the personal commitment of each individual on the task.
 - **Project Monitoring and Tracking.** PEC will follow the NRC's SDLCM while developing the DDMS. PEC will utilize Microsoft Project as the major planning and scheduling tool. The detailed plan identifies all planned activities and the target delivery dates of interim as well as final deliverables for use in tracking project progress. PEC will use an earned value methodology for evaluating progress and for reporting project status. The criteria are 0% prior to the start of an activity, 50% once a task has begun and 100% when the activity is completed.

2.1.3 Monthly Reports

PEC will create and deliver to the NRC monthly reports summarizing the project status. These reports will focus on describing the progress of the project in terms of work accomplished against the planned efforts to date. In addition, we will report on the labor hour expenditures in relation to the budgeted labor hours to date. This will also include the actual expenditures as compared to budgeted expenditures. We will report these project metrics on a month-by-month basis as well as on a cumulative basis. In addition, the monthly report will contain a summary of work performed during the period, statistics and plans for the next reporting period, a discussion of current operational considerations, and the status of expenditures.

PEC will update the Project Management Plan on a monthly basis, as necessary. This will include such items as updates to the Work Breakdown Structure, Project Schedule, and financial metrics.

2.1.4 Technical Approach

The DDMS approach is built around four core COTS products that meet the diverse set of DDMS functional requirements:

- Plumtree[®] Collaboration Server - document/object collaboration.
- Plumtree[®] Corporate Portal - user interface management and document/object management.
- Microsoft SQL Server[®] - relational database management system.

These tools, in turn, are the cornerstones of the four functional blocks in the DDMS: document, multimedia, court case, and hearing management. PEC will also integrate other industry accepted mainstream tools into the DDMS solution:

- Adobe Acrobat[®] display functionality including annotation definition and display capability.
- MediaEdge Video Indexing software to create video metadata
- MediaEdge Video Application Server to manage the video metadata.
- Plumtree[®]'s Search Engine and Spider for indexing DDMS documents and objects.
- Microsoft's Streaming Video Server for reliable streaming video delivery.
- Advantage Software's Total Eclipse[®] with AccuCapNT[®] Real-time Transcription software for court reporting in the hearing room. And Telestream real time transcript display software
- Crystal Reports[®] for simple ad hoc reporting.

The roles of these COTS products and other software elements are described below:

Primary Software Packages

- *Collaboration Server*. The Collaboration Server from Plumtree Software, Inc. allows DDMS users to collaborate on projects setting schedules, sharing "documents" (including via check in/checkout), and exchanging ideas. Designed for large law firms, the product integrates with the Plumtree[®] Corporate Portal to manage documents (including objects such as images, videos and audio files) of all kinds, organizing them into projects that can be controlled at the document, object, user, and group levels. Collaboration Server tracks revisions to documents and provides the ability to "rollback" to an earlier version. Additional capabilities include threaded discussions, "to do" lists, and associating schedules with each document. These information objects (threaded discussions, etc.) remain with the document.
- *Corporate Portal*. This Plumtree Software, Inc. product provides the underlying functionality needed to meet the document management and multimedia management requirements of DDMS, including full text search and retrieval. The portal integrates documents and objects into a simple, intuitive user interface. For example, the portal's search functions allow DDMS users to search hearing transcripts for specific words and play back the corresponding courtroom videos from the point where those words occur. The user interface will be designed to minimize the efforts of users to pull up documents of interest. Corporate Portal's integrated security features provide the overall security framework (user IDs and passwords in accordance with the NRC Directive 12.5) for controlling access within the DDMS. Many of the Hearing Management functions will be implemented within the Corporate Portal Server environment.
- *Microsoft SQL Server*[®]. The DDMS will be built around this widely used relational database management system. Collaboration Server and Corporate Portal will use SQL Server to manage documents and objects, along with additional information ("metadata") required to store and retrieve video and audio files.

Additional DDMS Tools

- *Adobe Acrobat*[®] *6.0*. This package, running on all hearing room workstations, will allow all authorized parties to access previously stored documents. Acrobat provides a full range of image display and manipulation features including resizing, rotation, thumbnails, bookmarking, and annotation. Acrobat can define and enforce the functions allowed on each document. For example, the ability for users to make annotations on a particular document can be disabled. Acrobat 5.0 also supports the ability to digitally sign documents, if appropriate.

- MediaEdge Video Indexing Software. This software synchronizes the video from the hearing room with the transcript from the court reporter. It also creates "keyframes" that allow users to view individual video frames, select a particular scene and then begin streaming the courtroom video from that point.
- MediaEdge Video Application Server. The video application server contains the metadata about the video (i.e., time code, keyframes, date, hearing, etc), the time synchronized transcript and synchronized links to all evidence submitted during the hearing. The video application server appears as a portlet (a small application) within the Plumtree portal. This provides a simple interface for users to easily query the multimedia court record.
- Plumtree's Imbedded Search Engine and Spider. This product "crawls" through the information managed by the Plumtree[®] Collaboration Server and Corporate Portal and then creates searchable indexes for these products. This product works with any indexable document format, including Microsoft Office[®], Adobe[®] PDF, XML, Wordperfect[®] and HTML documents.
- Advantage Software's Total Eclipse with AccuCapNT Real-time Transcription Software. This package provides an easy to use interface that enables users to receive transcript text directly from a court reporter in real time, whether in the hearing room or remotely via the internet/intranet. The resulting real time transcript will be synchronized and merged with the live video from the hearing room to form the official record of the proceeding. This product is currently being enhanced to provide web based transcript control that will allow any user, through the use of a browser to view the real time transcript stream. PEC is proposing to include this functionality in the Production DDMS Pilot delivered under Task 3. In addition, AccuCapNT delivers closed caption functionality.
- Advantage Software's Telestream. This software converts ("transcodes") video "on the fly" to a low resolution format for viewing in a web browser. The use of transcoding frees the video server from storing multiple copies of the video files, each in a different streaming video format and quality.
- Microsoft Streaming Video Server. The streaming video server ensures reliable delivery of streaming video to the user. The streaming video server receives the transcoded video from the video server and provides reliable delivery to the user.
- Seagate Crystal Reports. Crystal Reports will allow DDMS users to create complex customized reports, both ad hoc and predefined, which pull together data stored in DDMS databases. This supports general reporting requirements for those reports not already available via the DDMS user interface.

2.2 Project Management Plan

The overall DDMS project consists of three Tasks implementing a phased approach that utilizes gating between the phases - that is, a “GO” decision is required at the conclusion of each Task before PEC will be authorized to proceed to the next task.

Task 1 has been completed. This task produced an overall DDMS Production System design that addresses not only the Rockville Hearing room but also the requirements of a future Las Vegas Hearing Room. In addition, Task 1 produced a POC design, development, and implementation of that design. This culminated in the demonstration of a POC Pilot system that met the detailed requirements of the POC system. In parallel to this POC system development, PEC completed the requirements definition and design of the total Production DDMS System.

Task 2 offers activities that include the component engineering, installation and testing of new audio/visual components in the Rockville Hearing room. These activities will culminate in the Operations Assessment Demonstration that verifies that the provided audio/visual components meet the requirements as defined in the SOW. This task began on September 29, 2003 and is progressing in parallel with Task 3.

Task 3, which began on September 29, 2003 will build upon the feasibility POC developed in Task 1 and incorporate the lessons learned from Task 1 and Task 2 to develop a totally integrated DDMS. These activities will culminate in the successful completion of the Mock HLW hearing. This is intended to verify the effectiveness of the completed integrated DDMS in addressing ASLBP’s goals of reducing the time and burden of conducting hearings. Task 3 will focus on designing and developing the final production system and moving the POC to a full-scale production system.

The following program management plan addresses the activities for the awarded contract that encompasses Task 3 only.

2.2.1 Task 3 Work Breakdown

The DDMS project for Task 3 will be managed according to the detailed schedule in Appendix A and the detailed work breakdown structure (WBS) contained in Appendix C. The following paragraphs define the methodology we will follow during the course of the specific activities listed in the schedule and culminating in the deliverables shown in the schedule.

Subtask 1 – Kickoff Meeting and Project Management Planning

The initial subtask begins with a kickoff meeting with the NRC DDMS project team. PEC will describe the project schedule and technical approach to ensure a mutual understanding of the project methodology and critical success factors. In this meeting PEC will introduce our proposed key staff, review the objectives of the project, the assumptions made, and summarize our planned approach. PEC then will solicit NRC’s comments and suggestions in identifying any revision that should be made to our basic plans.

Based on the results of the kickoff meeting, PEC will prepare a Project Action Plan (PAP). In this plan, PEC will document our updated plans based on feedback from NRC at the kickoff meeting. These include a detailed master project schedule and a detailed description of each of the activities to be performed. In addition PEC will include, among other topics, a list of key DDMS project personnel (both the PEC team and NRC team) a detailed staffing description and overall project chain of reporting and scheme that includes PEC and NRC points of coordination. PEC will also produce a Project Definition and Analysis Document (PDAD) that describes the topics indicated in the SDLCM. This includes the listing of the basic system and data requirements, an analysis of alternative system architectures and a brief description of the systems operations concept.

Each Tuesday PEC will provide weekly Activity Reports to NRC summarizing the activities and status of the project. These will be used as the basis for discussions at the weekly Wednesday status review meetings. In addition, PEC will develop and provide Project Management Plan updates, as required to reflect on-going changes to the project identified during the course of our weekly status meetings.

The deliverables created during the performance of this subtask are as follows:

- DDMS Project Kickoff Briefing
- Weekly Activity Report
- Project Action Plan (PAP)
- Project Definition and Analysis Document (PDAD)
- Monthly Program Management Plan updates.

For all document deliverables, PEC will work closely with the appropriate NRC staff at the outset of our tasks to identify and review the form and content of our deliverables. PEC will continue to conduct subsequent interim discussions about the document content and document preparation status. PEC will attempt to meet with NRC prior to the deliverable due date to verbally preview the document and to collect any comments on the document at that point in time.

Subtask 2 - Requirements Finalization

Following the completion of the Kickoff and Project Management Plan subtask, PEC will begin the planning for activities leading to the validation and finalization of the Productions System Requirements. To accomplish this, we will hold a series of Facilitated Operational Design Assessment (FODA) sessions with the major user groups (Judges, Clerks, Parties and IT Administrators). In these sessions the attendees will be encouraged to indicate how they plan to use the automation support provided by the POC DDMS in accomplishing their jobs during the course of the licensing proceedings. This will enable PEC to gather an updated indication of how the system might be reconfigured or tailored to each user groups needs in order to enable NRC to meet the Congressionally mandated hearing completion timeframe.

PEC will coordinate with ASLBP to schedule FODA sessions with the appropriate players in the ASLBP hearing process. These players include NRC judges, support staff, attorneys, and other external constituents. The sessions will be structured to help resolve the following critical issues:

1. Validate the existing POC operation.
2. Identify, capture, and refine the most effective use and/or reconfiguration of user interface controls and mechanisms communicated by the most critical DDMS users.
3. Define the use of the provided data elements to include the what, where, and how of information flow, and how often the elements are being used in the DDMS. These are essential building blocks for an effective and secure information system.

When the FODA sessions are complete, PEC will summarize our findings, present an updated and refined definition of system operations during the proceedings to NRC. PEC will then brief the NRC on the finalized operational definition. Upon final revision of these operational needs, PEC will deliver a copy of the updated Requirements Matrix (part of the Production Design Document) for NRC staff sign-off and approval. This will establish the final Production System requirements baseline and signal the beginning of the Production System design phase.

Subtask 3 – Design Updates

In parallel with the development of the final POC Requirements Matrix, PEC will conduct interviews and gather the information necessary to produce updated Security and Risk Assessment Plans along with an updated Contingency Plan. These documents will be submitted to the NRC for review and, once comments are received, will be revised and delivered to the NRC as final plans.

PEC designers will continue to use our Requirements Traceability Matrix tool (used in Task 1) and will review all technical aspects of the design with the functional and business analysts who gathered the updated requirements, to ensure inclusion of all requirements in the design. The analysts will maintain the requirements traceability database and update it with design information to ensure all requirements trace to specific features of the design. Subsequently, PEC will review these design recommendations with ASLBP project personnel to ensure concurrence.

The requirements traceability matrix provides four important services to the project and forms a foundation for implementing configuration management:

- It provides a mechanism for developing real-time consensus of functional and data requirements, their content, and their relative importance.
- It maintains continuity in the requirements development process.

-
- It allows the project team to identify needed business process changes, thereby identifying where requirements cannot be met with current procedures.
 - It allows requirements captured during the initial discussion of operational issues to be used later in the project to validate system processing during acceptance testing.

Based on the operational requirements identified in Subtask 2, PEC will begin updating the design of the DDMS subsystems and components. This task will consist of the definition of specific components and their configurations required to meet the updated operational requirements to include the availability and performance requirements.

PEC will update the design of the POC multimedia components. This will include the design of the video capture components in conjunction with the integration of the real time transcript capture components.

PEC will update the design to address the method of capturing additional data sources to include Video and Evidence Camera Image Capture as well as annotated video objects.

At the conclusion of the multimedia components integration design task, NRC will be presented with updated screen mockups for the Panel Judge the Clerk and the Party interfaces. The NRC will have an opportunity to provide input and suggested modifications to the screen interface design.

Parallel to the integration of the multimedia components design, PEC will begin updates to the portal and web server design. This entails the design of components relating to the web portal interface and functionality required to facilitate updates in the following functional areas:

- Witness Management
- Scheduling and Calendaring
- Access Controls/Security
- Search Functionality
- Business Rules
- 508 Accessibility
- Exhibit Handling

As part of this subtask PEC will prepare an updated Production System Design Document. This document describes the basic technical architecture to be used. It includes a mapping of functional requirements to components, data flows and database design, and all other elements required by the SDLCM. This document will be submitted to the NRC for review in preparation for the design review. The design review will be conducted, and, based on discussion at this review, the Production Design Document will be finalized and delivered to the NRC.

The deliverables created during the performance of the POC Requirements and Design subtasks are as follows:

- POC Requirements Matrix
- Security and Risk Assessment Plans
- Contingency Plan
- Updated Production Design Document
- Production “Mini” Design Review

Subtask 4 – DDMS Integration

Based on the requirements and design produced in Subtask 2 and 3 and approved at the “Mini” Design Review, we will configure, integrate, and develop the necessary code to implement the POC Pilot System. This will initially include hardware and software component acquisition, setup, and system configuration. An important integration area is the creation and testing of the server clusters including the Database cluster.

PEC will implement the DDMS database using an updated DDMS data model from our POC efforts that will be finalized in Subtask 3. This database will contain data elements required by EHD for an exhibit/document’s bibliographic header along with data elements specific to DDMS.

We will then perform customization to bring up the portal interface to meet the user interface requirements defined in Subtasks 2 and 3. PEC will update the systems in all areas to include:

- Witness Management
- Scheduling and Calendaring
- Access Controls/Security
- Search Functionality
- Business Rules
- 508 Accessibility
- Exhibit Handling.

Once the majority of the integration work has been completed in this subtask, PEC will develop a POC Evaluation Test Plan incorporating specific test scenarios identified to validate the successful implementation of the overall Requirements defined in the Production System Requirements Matrix. PEC will deliver a draft of this test plan for review by the NRC. Once comments are received, changes will be incorporated as agreed and the Production DDMS Test Plan will be delivered prior to the start of Production System Pre-final and Final Testing by NRC. Similarly, PEC will prepare and deliver to NRC for review a Production DDMS Rollout Plan describing the proposed approach for bring DDMS on-line as a live production system in the NRC environment.

The deliverables created during the performance of the DDMS Integration subtask are as follows:

- Production DDMS Test Plan
- DDMS Rollout Plan

Subtask 5 – DDMS Production System Testing

Following the completion of Task 2's audio/video component integration, PEC will begin a testing period that will last approximately one month. During this time, the DDMS Production system will be thoroughly tested. PEC expects to allow ASLBP testing to occur during this period in parallel to PEC testing. This will allow a long and thorough testing period for ASLBP personnel as recommended in the POC Evaluation Test Report. During this testing period, PEC will track change requests using our PVCS tracking system in order to manage and track the fixes made to the system based on testing results. Following the completion of this testing period, PEC help the NRC conduct a Pre-final and Final Test of the system against the DDMS Production requirements. At the completion of these tests, the system will be turned over to the NRC for use in Mock Trial HLW hearings.

The deliverables created during the performance of the Production System Testing subtask are as follows:

- Completion of Pre-final and Final Test of Requirements
- Production DDMS Ready to support Mock Hearings

Subtask 6 – DDMS Training

Following the completion of updates to the POC system to meet all Production System Requirements, PEC will begin creation of a training plan for DDMS. PEC will deliver this to NRC for comments. Following receipt of these comments, PEC will update the DDMS Training Plan and deliver the final document to NRC. In parallel with the training plan efforts, PEC will create tutorials for use as part of the help portion of the DDMS system. These tutorials will be used in user training. Finally, as agreed upon in the final DDMS Training Plan, PEC will conduct training in the use and administration of the Production DDMS.

The deliverables created during the performance of the Evaluation subtask are as follows:

- DDMS Training Plan
- DDMS Tutorials

Subtask 7 – DDMS Documentation Development

This subtask will address the efforts required to complete the documentation of the Production DDMS. Following the completion of testing in Subtask 4, PEC will begin developing a Production DDMS Software Engineering Notebook according to the NRC's SDLCM's guidelines. A draft version of the document will be delivered to NRC for review. Once NRC's comments are returned, PEC will produce the final updated documents accordingly. In conjunction with the development of the Software Engineering Notebook, PEC will develop both

a Production DDMS User’s Guide and both Operations and Maintenance and Operational Support Guides. The draft version of this document will be delivered to NRC for review. Once NRC's comments are returned, PEC will produce the final updated documents accordingly. Finally, as a summary of comments, suggestions and recommendations gathered during the testing phase of the Production DDMS, PEC will create a DDMS Comprehensive Software & System Test Results Report. The draft version of the document will be delivered to NRC for review. Once NRC's comments are returned, PEC will produce the final updated documents accordingly

The deliverables created during the performance of the Evaluation subtask are as follows:

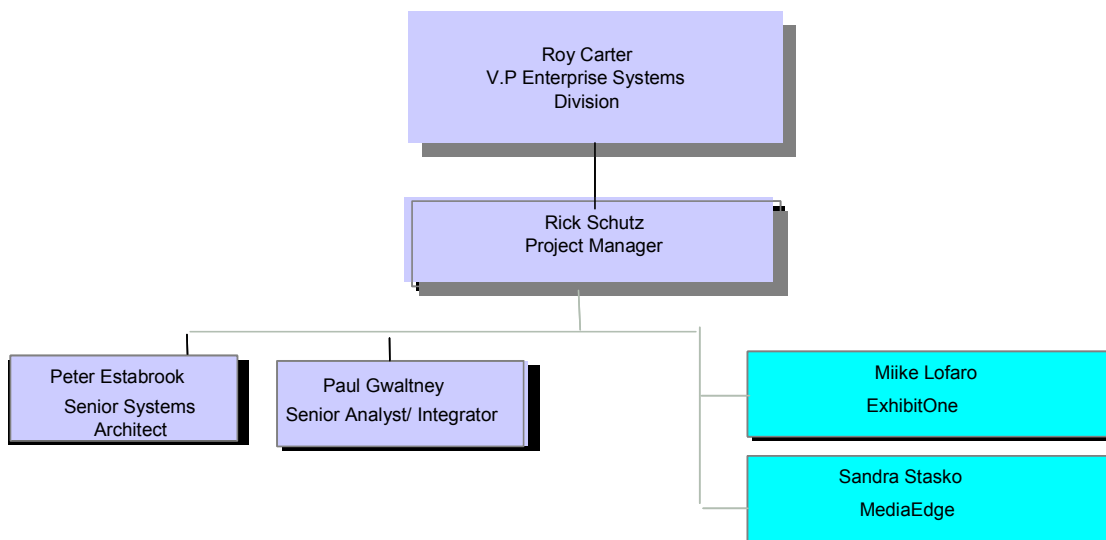
- Production DDMS Software Engineering Notebook
- Production DDMS User’s Guide
- Production DDMS Operations and Maintenance Guide
- Production DDMS Operational Support Guide
- Production DDMS Comprehensive Software & System Test Results Report

2.2.2 Project Schedule

The Task 3 project schedule is shown in Appendix A. This schedule indicates the timeframes planned for each of the subtasks discussed above and addresses the underlying activities identified in the WBS. Exhibit 2-2 depicts the PEC project team for DDMS.

2.2.3 Project Team and Skills

Our strategy in developing this team was to assign responsibility for critical functionality to the



organization strongest in that skill area and to identify the lead analyst or manager as key. This provides the NRC greater visibility into the functional areas of the project and helps ensure

stability on the development team. All key personnel report directly to Mr. Rick Schutz, our Project Manager. Exhibit 2-3 depicts the skill breakdown across PEC and our teammates.

Figure 2-3 DDMS Project Team

<i>Skills Areas</i>	<i>PEC</i>	<i>MediaEdge</i>	<i>ExhibitOne</i>
Project Management (PM)	✓		
Document Management (DM)	✓	✓	
Hearing Management (HM)	✓	✓	
Multimedia (MM)		✓	
Audio/Visual Components (A/V)		✓	✓
Courtroom Infrastructure Design/Implementation (CI)	✓		✓
Security (Sec)	✓	✓	
Web Functionality (WF)	✓	✓	

Exhibit 2-3: PEC Team Areas of Responsibility

Exhibit 2-4 depicts skill areas of key personnel. The headings in the columns are abbreviations of the headings in Exhibit 2-3 above.

<i>Key Employee</i>	<i>PM</i>	<i>DM</i>	<i>HM</i>	<i>MM</i>	<i>A/V</i>	<i>CI</i>	<i>Sec.</i>	<i>WF</i>
Rick Schutz	✓	✓					✓	✓
Peter Estabrook	✓	✓	✓				✓	✓
Paul Gwaltney		✓					✓	✓
Sandra Stasko	✓	✓	✓	✓	✓		✓	✓
Mike Lofaro	✓		✓	✓	✓	✓		

Exhibit 2-4: Key Personnel Skill Sets

Mr. Rick Schutz will serve as the PEC Project Manager. Rick has led successful requirements, software development, and architecture projects at PEC for more than twelve years. He was project manager for the DDMS Task 1 efforts over the past year. In recent years he also managed the Fairfax County Land Records Project, in which the County's land records were converted from paper to a fully automated, web based imaging system. His successful track record, commitment to our clients, ability to work effectively on a day-to-day basis with his Government counterparts, and his practitioner's understanding of the business process and technical issues in industrial strength software development projects make him our logical choice to lead this effort.

Mr. Peter Estabrook has extensive experience in the development and management of web based and client server based systems. His application development experience includes, but is not limited to, SQL, PowerBuilder, C++, Crystal Reports, Microsoft IIS, and WebLogic web servers. His database management experience includes Microsoft SQL Server, Oracle, Informix, and Sybase SQL Anywhere in a variety of Unix/NT/Windows 2000 environments. The application functionality includes case management systems, patent and trademark docketing and imaging systems, and firearm tracing systems.

Mr. Paul Gwaltney has over fifteen years experience in the IT industry. He has served as a computer analyst in numerous operating environments. For over five years, he has been a senior systems analyst supporting Federal Government clients in their developing of complex information systems. He has extensive experience in requirements analysis as well as business process improvement.

Mr. Mike Lofaro is currently Manager of Engineering at ExhibitOne Corporation in Chandler, AZ. He has been with ExhibitOne since September 2000, and has managed and directed the engineering, design, and installation of over 100 AV systems for courtrooms nationwide.

Ms. Sandra Stasko is the Vice President of a multimedia division of MediaEdge, responsible for growing multimedia related business areas. She has developed prototypes and demos of a distance learning system, and of a corporate portal using Plumtree, Virage, RealNetworks, and XML. The interfaces are written in VB/ASP, JavaScript, JAVA, PERL, and C++. She has established formal technical/development partnerships with Virage, Real Networks, and Plumtree. She is currently the lead software engineer on the NSAToday corporate portal.

The planned labor hours for the above personnel for the DDMS subtasks is indicated in Exhibit 2-5 below.

Person	Subtask 1 Project Management	Subtask 2 Requirement s Finalization	Subtask 3 DDMS Design Updates	Subtask 4 DDMS Integration	Subtask 5 Testing	Subtask 6- Training	Subtask 7- Document atoin Developme nt
Rick Schutz	120	220	200	80	100	40	140
Peter Estabrook		80	190	250	140	20	20
Paul Gwaltney	8	280	120	80	80	100	100
Sandy Stasko/	20	100	100	20	20	30	10
Mike Lofaro		16	8	16			

Exhibit 2-5: Summary of People By Subtask

2.2.4 Project Interfaces

The interfaces between the PEC DDMS team and NRC personnel on the project are both formal and informal. This communication flow is bi-directional. It consists of formal regularly scheduled meetings, reports and ad hoc meetings and communications such as phone conversations and email message exchanges. The details of these interactions are discussed in more detail in Section 2.6, and 2.8.

2.3 Risk Management

2.3.1 Risk Description

As with all projects, especially those that are large and/or complex, there are inherent risks. PEC has identified some initial potential risk areas for the DDMS in Exhibit 2-6. The chart is a tool used to document risk assessment. The risk areas are organized into risk factors that are rated as high, medium, or low.

2.3.2 Risk Management Process

PEC will define and manage the initial set of risks, review them on a regular basis, and, in conjunction with the NRC, update, delete, or add to them as appropriate. Every month, at one of the weekly status meetings, a project risk review will be conducted. PEC will discuss mitigation approaches that have been identified and work closely with the NRC DDMS team members to further refine and select the best mitigation approaches for each risk. An updated risk assessment in the form of a living Risk Report will be prepared based on this ongoing review of the risks by PEC and the NRC. In preparation for the risk review, the PEC liaison office will solicit input and status from appropriate parties and update the chart. Follow-up actions will be recorded and tracked, as either assignments or issues. Exhibit 2-6 is a sample of the type of risk identification and tracking table PEC will utilize.

Risk No.	Risk	Description	Expectation of Occurrence	Impact	Status	Comments
1	Difficulties in defining and interfacing to NRC Systems (EHD and ADAMS)	Changing and unstable operation of interfaces don't provide adequate support to identified DDMS Operation	Moderate	High	Mitigation defined	Continue to Work directly with ASLBP, OCIO, SECY and DPC personnel and take interface definitions directly from existing systems; continue to test the document input process flow
2	Requirements do not stabilize before development	Will increase cost and complexity	Moderate	High	Addressed using FRM	All parties must control requirements creep.
3	Limiting concurrent use of advanced technologies	Not all technology features can necessarily be used concurrently	High	High	Open	Users must agree to tailor the use of technology within user interface constraints

Exhibit 2-6: Sample of Potential Risk Area

2.3.3 *Problem Resolution*

PEC's approach to problem solving recognizes that problems are a natural part of the project life cycle. Although PEC can anticipate some problems and, with proper planning avoid or minimize them, it is usually those we cannot anticipate that have the most impact. Responding to unanticipated problems requires preparation from the start to respond quickly and decisively.

To address this issue PEC has assigned a senior team of talented personnel who have proven themselves in previous assignments. These individuals have the experience to anticipate and avoid problems, and they have the confidence to make decisions based on informed qualitative judgments. In addition, PEC will also use several key management techniques to identify and resolve problems during performance of the DDMS program, including:

- **Work planning using automated project planning tools to identify potential problems early in the project.** PEC has prepared a detailed internal project plan using Microsoft Project. Critical project elements are represented and activity completion monitoring will be continually used to assess project progress and to identify completion projection trends. The project plan will become the baseline plan. We have also created a week-by-week labor tracking tool using Microsoft Excel to compare actual vs. budgeted resource consumption rates. Monthly reviews of progress against project milestones and expended resources in the work plan will provide early indication of potential problems.
- **Timely financial and resource reporting using PEC's Project Management System to compare objective progress against resources expended.** PEC's Project Management System will provide the Project Manager the information necessary to measure progress. PEC's project managers will receive Project Management System reports key elements in our overall project management approach within five days of the close of our accounting cycle.
- **Adherence to our contract quality assurance program and process for continuous feedback.** Regular internal project management reviews. PEC managers meet regularly to review progress status and problems. They will track actions they assigned as a result of these meetings at the corporate level until they are completed.
- **Close liaison with the DDMS project staff including weekly and monthly status, progress, and problem reporting.** PEC will work closely with DDMS project staff to understand the government's technical and management concerns and priorities.

2.4 Quality Assurance

This section details our approach to be used in providing a DDMS solution that is designed, developed, integrated and deployed with quality management throughout the program, system, and data lifecycle.

2.4.1 *Quality Assurance*

Quality Assurance (QA) is a planned and systematic set of activities, that is an integral part of PEC's project management approach, which will provide management both client and PEC with a view of high quality products being produced. PEC DDMS project management will rely on these activities to produce high quality products throughout the DDMS life cycle and to assure client satisfaction. These activities will include but are not limited to:

- Inspecting, reviewing, and auditing the DDMS activities and products to verify that they comply with the published SDLCM procedures, standards, and requirements.
- Informing management, groups, and individuals of the results of the quality assurance inspections, reviews, and audits.
- Ensuring senior/program management addresses noncompliance issues that cannot be resolved within the DDMS project.
- Measuring the completion of milestones compared to the project schedule.

These quality assurance activities will occur throughout the DDMS life cycle and will be communicated to all levels of project operation through continuous feedback processes to assure that management and project personnel are provided with the visibility needed to ensure adherence to established plans, procedures, standards, and requirements.

The DDMS project will comply with the QA procedures, standards, and forms contained in the SDLCM. The team's QA members work as key members of the team. They will review all deliverables and will participate directly in the development process by auditing the development teams outputs and attending design and development reviews.

The DDMS project will use the SDLCM quality assurance processes and procedures to implement an internal Quality Assurance Plan (QAP). This plan will identify the project team members responsible for performing quality assurance and maintaining the relationships between QA and other parts of the organization (i.e., program management, configuration management, system design and development personnel). The QAP will also describe the project management organization, tasks and responsibilities, reviews and audits; and address problem reporting and corrective action; tools, techniques, and methodologies.

2.4.2 *Configuration Management*

Configuration Management (CM) is the discipline of applying management, administrative, and technical procedures throughout the DDMS life cycle to:

- Identify, define, and baseline software, hardware, and associated DDMS documentation.
- Control modifications to, emergency fixes and releases of, the DDMS baseline.
- Record, manage, and report the status of the baselines and modification requests.
- Ensure baseline completeness, consistency, and correctness while assuring quality and secure product delivery.
- Control storage, handling, and delivery.

In managing, designing, developing and integrating the DDMS products PEC will conduct the following CM activities:

- CM Process implementation, definition, and documentation of the configuration management activities.
- Configuration identification, definition, and identification of items subject to configuration control.
- Configuration control, evaluation, coordination, review and document approval or disapproval of proposed changes to controlled items.
- Configuration status accounting recording, monitoring, and managing of changes to controlled items.
- Configuration evaluation, verification, and validation that controlled items meet their assigned requirements and are accurately documented.

The DDMS project will comply with the CM procedures, standards, requirements, and forms contained in the NRC SDLCM. All DDMS deliverables (software patches, updates, enhancements, fixes), hardware, and documentation will be under CM control throughout the DDMS life cycle. CM will be responsible for the control and promotion of software from development to unit and system testing, to acceptance testing, and to the production environment. CM will control changes to the production environment by promoting only those changes reviewed, approved, and tested by the DDMS Change Control Board (CCB). Once CM and appropriate personnel test and accept the change, CM will document and record the approved change and submit to appropriate personnel the change for promotion to the production environment.

PEC will maintain a central repository of the documentation produced and accepted for the DDMS project using Merant's PVCS. Within the repository a separate folder will be produced and maintained for each deliverable. PEC will also create and securely archive the repository to maintain a backup of the deliverables in the event that a disaster or corruption of the main repository should occur.

2.4.3 *Data Management*

PEC Data Management processes and procedures, which are tightly integrated with its CM Program, will include monitoring, administering, maintaining, and managing changes to project documentation and data resources including official project correspondences.

2.4.4 *Records Management*

PEC Solutions Records Management (RM) processes are established and controlled by senior management and managed within our policies and procedures associated with reporting and record keeping. This section addresses the following RM processes that will be applied to the DDMS Project.

- NRC DDMS components inventory
- Contract Reporting
- Contract Records (i.e., deliverables, reviews, inspections, design, development, and security)
- Time and Expense Reporting (Monthly reports)
- Invoices.
- Monthly Status Reports (as described in Section 2.1).
- Problem Notification Reports (as described in Section 2.6).
- Fund Expenditure Reports (as described in Section 2.6).
- Deliverables and SDLC Documentation will be submitted throughout the DDMS project life cycle in accordance with the project schedule. PEC will maintain all documentation, software and hardware components within a central repository and will deliver the repository at the completion of the DDMS project.
- Meeting Minutes will be documented in accordance with the SDLCM.

PEC will comply with the SDLCM standards, procedures, forms, and requirements for all DDMS records and will ensure that all DDMS deliverable milestones are met in accordance with the project schedule.

PEC will manage and maintain a repository of all DDMS records it generates throughout the project lifecycle.

In addition to project records, PEC will manage and record its time (labor) and expense reporting based on the task worked. Employees will record direct contract labor against the appropriate task or subtask every two weeks. Expense reports will be submitted on the same schedule. PEC will submit invoices detailing our time (labor) and expenses to the NRC on a monthly basis and will maintain all time reporting and invoicing records within the NRC DDMS repository.

2.5 SDLCM Methodology Tailoring

The DDMS Project Team will follow the NRC SDLCM Methodology accommodating tailoring of the system where it is in the best interest of the NRC. PEC will implement the Incremental Development Life-cycle Model since the integration of the technology to be used in the DDMS system in the electronic courtroom requires that NRC be able to incorporate refinements to the system based on iterative evaluation by Judges and court administration participants. Based on the results of this evaluation testing, PEC will refine the requirements and the detailed design for the full production DDMS system. This approach reduces risk of schedule slips, requirements changes, and acceptance problems. In addition, this SDLCM approach allows the system users a chance for early operational training, the ability to validate the DDMS as it is being developed, and the ability for the team to defer development of less well understood and new technologies to a later time after issues have been resolved.

2.6 Reports

The PEC DDMS Project Team will submit a set of reports to the NRC on a periodic basis. Summary information about each type of status report appears in Exhibit 2-7 below. Detailed information appears in the following paragraphs.

Report Type	When Due	Author
Weekly Activity	Every Tuesday at COB	Project Manager/ Technical Director
Problem Notification Report	As required	Project Manager/ Technical Director
Monthly Project Status Reports	Monthly, by the 15 th of each month	Project Manager/ Technical Director

Exhibit 2-7: Report Types

Weekly Activity Reports: PEC will submit a report weekly to the NRC Project Managers and their designees by COB the Tuesday following the close of a reporting period. These activity reports will include a proposed agenda for the Wednesday Project Meeting, describe the previous period's activities, including work progress in the key project areas; and management and technical issues that may impact schedule, cost, or technical risk. They also include a forecast of activities for the next reporting period.

Problem Notification Reports: Within 24 hours after identification of the problem and upon determination that the problem cannot be resolved below the PM level, PEC will submit to the NRC Project Managers, a report of any problem we anticipate that may affect the project. PEC will submit this report electronically.

Monthly Project Status Report: PEC will update the Project Management Plan on a monthly basis, as required, and submit a Monthly Status Report to the NRC Project Officer and the Contracting Officer by the 15th of each month. The plan updates may include such items as the Project Schedule, Work Breakdown Structure and budget information. The status report will include a summary of work performed during the period, statistics and plans for the next reporting period, and a discussion of any current operational considerations.

In addition, PEC will provide NRC with project tracking information that indicates monthly expenditures against budgeted expenditures. This will utilize the information reported in our monthly internal Program Management Reports (PMRs) results and the spending budget that PEC will keep on an on-going basis throughout the project. PEC will also report the earned value of the project to date.

2.7 Meetings

PEC will conduct meetings in accordance with Exhibit 2-8 below.

Meeting Type	When Held	Output
Weekly Project	Weekly, every Wednesday	Discussion of Weekly Activity Reports and management and technical issues
Internal PEC DDMS Team Reviews	Weekly	Decisions, assignments, information, and project review
Ad Hoc Meetings	As needed	Technical and management issues, decisions, assignments, and information

Exhibit 2-8: Meeting Types

Weekly Project Meetings - PEC will meet weekly with the NRC DDMS Project Team every Wednesday. Discussions will include the content of the Weekly Activity Reports, current management and technical issues that may impact schedule, cost, or technical risk, and plans for the upcoming period.

Internal PEC DDMS Team Reviews - The PEC Project Manager will conference via telephone with each teammate on at least a weekly basis. Decisions, assignments, project information, and project status will be discussed. The open and frequent communication among the PEC DDMS team will ensure timely and quality products.

Ad Hoc Meetings - Once the project begins PEC will most likely need to set up one or more additional periodic, informal meetings. These could include Requirement and Design Review meetings, scope change meetings, and configuration review meetings. PEC will document the results of each meeting to further support communications between the contractor and the NRC teams.

2.8 Points of Contact

Exhibit 2-9 shows PEC's points of contact with the Government and the ways in which PEC's personnel and functions will match the Government's. Well-defined points of contact enable unambiguous lines of communication, an important element of contract and project management. Clear lines of communication are important in all system development and integration contracts, especially as their complexity increases. This section identifies PEC's points of contact for DDMS Project contract performance. In addition, Appendix B contains the initial DDMS Project Team Contact List.

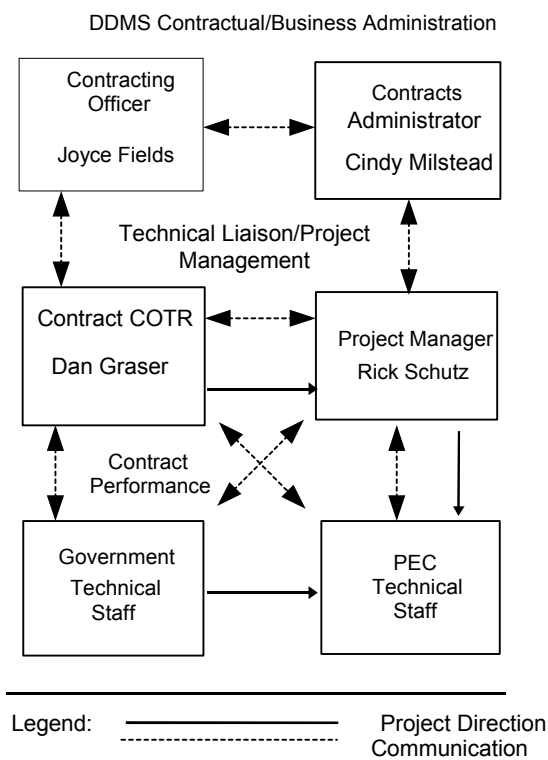


Exhibit 2 - 9: Summary of Points of Contact

Cindy Milstead, a Contracts Administrator, will be assigned as the PEC contract administrator for the DDMS contract. Ms. Milstead will be the point of contact for all formal contractual communications between PEC and the Government. Ms. Milstead will receive all formal communications and coordinate PEC's formal response to the Government.

Communication will be both formal and informal and will include at least these levels:

- **Contractual/Business Communications.** These communications will occur between the Government Contracting Officer (CO) and PEC's contract administrator, Ms. Milstead. Communication in this area typically includes formal submission of proposals, project deliverables, contract administration matters, and correspondence that identifies and resolves problems.
- **Technical Liaison/Project Management Communications.** This level of communication will take place between Dan Graser, NRC's DDMS Project Manager and our Project Manager, Rick Schutz. This level of communication will relate to overall project technical direction and issues as well as progress towards meeting project objectives.
- **Contract Performance Communications.** This level of communication will take place between the Government's technical or project staff and PEC's technical staff reporting to PEC's Project Manager. Communications at this level will include day-to-day technical interchange and make up the bulk of communication between PEC and NRC because they involve daily task work activities.

2.9 Subcontractor Management

This section addresses how PEC will manage our subcontractors and select additional subcontractors if necessary.

For the DDMS project, PEC will use its subcontractor management procedures to ensure a consistent approach to selecting and managing subcontractors. Our objective will be to ensure we obtain quality work from our subcontractor resources by achieving these individual goals:

- Ensure PEC and subcontractors agree to commitments to each other.
- Ensure PEC and subcontractors maintain ongoing communication.
- Track subcontractor's actual results and performance against commitments.

As the foundation of our subcontracting approach, PEC will use Statements of Work (SOW) as the basis for managing each subcontract. The SOW establishes the technical and non-technical requirements, the subcontractor work required, and the plans for the work. PEC will flow down to subcontractors any NRC-specific requirements and standards that are appropriate for the work scope and complexity of the effort. The subcontractor will perform planning, tracking, and

oversight activities for subcontracted work. PEC will perform planning, tracking, and oversight activities and ensure that the subcontractor end item products satisfy PEC and the NRC acceptance criteria as specified in the SOW. PEC will work with the subcontractor to manage their product and process interfaces. This subcontract will also include the reporting and meeting mechanisms in detailed in Sections 2.6 and 2.8 of this document, respectively.

Subsequent to establishing this foundation, PEC will use the following approach to monitor the progress and quality of subcontractors under this contract:

- Monitor subcontractor progress versus schedule
- Conduct management/technical reviews
- Monitor subcontractor adherence to the statement of work
- Manage and control requirements
- Evaluate deliverable products
- Assess subcontractor performance.

2.10 Security Clearances

The PEC DDMS team will apply for and obtain NRC security clearances at the IT 1 level. This will enable the team personnel to gain unescorted access to NRC facilities for attendance at meetings. This will also allow PEC team member to work on the DDMS system once the POC system is installed at the NRC.

2.11 Equipment Acquisition

PEC will provide all components as specified in our proposal. The, NRC will provide required printers and scanners to be used 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 the NRC enabling PEC to order parts from the GSA schedule. Equipment will be ordered once approval of the Production design is given at the completion of the “Mini” Detailed Design Review. The project schedule has allocated lead time between when the parts are ordered and when they are incorporated and configured into an initial system. Once received, PEC will notify NRC of the receipt of the components so they can be tagged and inventoried in accordance with NRC procedures.

Section 3 Software Development Plan

3.1 Overview of Software Development and Integration Activities

The DDMS Integration Team will utilize NRC's SDLCM Methodology standards and procedures for all development with minor tailoring to support an Incremental Development Life-cycle Model. An essential step in successful software development is a walk-through of the planned design. Based on the baseline schedule the DDMS Design Review for the POC system will be conducted the middle of January 2004. Deliverable products will be subject to several levels of internal management and technical reviews prior to release. The technical leader for the deliverable is responsible for performing a formal review of the technical accuracy and suitability of the product against requirements and for seeking independent peer review of the product. Efficient use of COTS tools and applications by the development and integration team will greatly reduce the need to develop custom code. Any custom code created will be checked into our PVCS configuration management (CM) tools and maintained under CM control. This will ensure the integrity of the software baseline. Peer Reviews will be conducted to evaluate the system design and any custom code that is developed. These evaluations, together with unit, integration and system testing, will ensure that the code implements the design and more importantly the requirements of the system specified in the requirement cross reference matrix.

3.2 Software Development Organization and Responsibilities

3.2.1 Integration and Development Team Personnel

The **Program Manager (PM)** is responsible for:

- Planning and scheduling of Project activities;
- Allocating and directing staff to accomplish tasks;
- Removing obstacles to project success;
- Monitoring and coordination of all Project activities;
- Reporting of Project Status to customer and PEC management;
- Staffing activities required to complete all deliverables defined in the SOW;
- Coaching and developing team members;
- Coordinating and developing the business and technical aspects of the program;
- Delivering quality products throughout the project; and
- Monitoring and controlling of the Project Budget.

The **Senior Integrator** is responsible for:

- Technical project coordination and all related technology aspects of the project;
- Overall Systems Design
- Managing all technical development of the system;

-
- Possessing high-level knowledge of technology, tools and methodology used in the project as well as a sound understanding of the goals, objectives and requirements of the system being created;
 - Hardware integration;
 - Performance analysis;
 - Developing prototypes;
 - Building the application;
 - Directing the integration and development team;
 - Directing staff and contractors involved in the integration and development aspects of the project;
 - Refining the design;
 - Working closely with the Program Manager to create the system;
 - System administration;
 - Controlling the development schedule; and
 - Stepping in to be the Program Manager in his absence.

The **Requirements analysts** are responsible for:

- System requirements definition;
- High Level system design;
- Gathering technical alternatives;
- Testing against user and technical requirements;
- Documenting the requirements, design, software, and operational and maintenance processes;
- Developing and obtaining approval for all project products; and
- Following SDLCM Methodology guidance.
- System testing of hardware and COTS software;
- System testing of custom, non-COTS software;
- Preparing test reports;
- Coordinating delivery activities between Configuration Management and the government;
- Testing the application;
- Initial user test planning, coordination, and feedback;
- Assisting NRC with acceptance test
- Preparing end-user and tutorial training materials, and
- Preparing operational support guide materials.

Quality Assurance (QA) is responsible for:

- Ensuring that all deliverables comply with SDLCM Methodology procedures, standards, and forms;
- Performing audits of deliverables to ensure that they satisfy required functions; and
- Conducting project audits at the end of each life-cycle phase.

Configuration Management (CM) is responsible for:

- Ensuring that Project CM capabilities comply with the SDLCM Methodology procedures, standards and forms;
- Providing configuration control of all deliverables;
- Promotion of software from development, to unit test, to system integration test, to government acceptance test, and to production; and
- Configuration Control Board activities.

3.2.2 *Interfacing Groups*

The Interfacing Groups are documented in Section 2.8, of this document.

3.3 Software Development Technical Approach

The software development technical approach that will be followed throughout the project is described in the following subsections.

3.3.1 *Activities, Tools, and Products*

The life cycle phases to be performed during the performance period of the entire DDMS contract are identified on the project schedule shown in Appendix A. These phases include: project management; POC requirements analysis and design; POC development; Production System requirements analysis and design and POC Evaluation. The tool(s) to be used during each life cycle phase are identified in the following table:

Tool	Project Management	Analysis	Design	Development	Internal Testing	User Testing	NRC Acceptance Testing
Adobe Acrobat 6.0/Capture				x	x		
Advantage Software's Total Eclipse with AccuCapNT				x	x		x
Erwin			x				
JAVA (JDK 2.1 environment)				x	x		
MediaEdge Video Application Server				x	x		
MediaEdge Video Indexing Software				x	x		

Tool	Project Management	Analysis	Design	Development	Internal Testing	User Testing	NRC Acceptance Testing
Microsoft Streaming Video Server				x	x		
MS Excel	x		x	x	x		
MS PowerPoint	x						
MS Project	x						
MS Word	x	x	x				
MS Visio	x	x	x	x	x		
PEC Requirements Traceability Tool		x		x	x		
Plumtree Collaboration Server				x	x	x	x
Plumtree Corporate Portal Server				x	x	x	x
MS SQL Server			x	x	x	x	
Seagate Crystal Reports				x	x		
WordPerfect	x		x				

All written project documentation will be provided to the government in PDF and MS Word format, as desired.

3.3.2 *Implementation*

The planned use of COTS software packages will provide approximately 80 percent of the DDMS functionality. The DDMS Team will create a Graphical User Interface (GUI) that presents a uniform and intuitive look and feel. This will be done using Plumtree's Corporate Portal product. Screen layouts, including icons, pull down menus, keys, and tool bars will be in compliance with Section 508 Guidelines.

3.3.3 *Testing*

The PEC DDMS Project Team will conduct unit, integration, and system testing of all integrated software. The Production system testing will include functional and full performance and availability testing. Final testing of the Production releases will be conducted at the NRC by the PEC DDMS team with members of the NRC DDMS team witnessing the testing. After completion of system testing, PEC DDMS testing personnel will support the NRC in Production evaluation/acceptance testing. Acceptance testing is performed to validate the system against the original requirements. Acceptance testing begins after completion of system testing. Acceptance

testing will be performed in accordance with the Government approved test plans. A draft Production Test Plan will be provided to NRC in June 2004, with the final POC test plan to be delivered the latter part of July 2004.

3.4 Software Development Management Approach

The Project Manager will employ a variety of management tools to manage all aspects of the DDMS project during the software development life cycle phases. These tools include:

The project documentation, including:

- Project Action Plan (PAP) that also includes the Project Management Plan. This contains sections addressing Schedule, Work Products List,
- Project Definition and Analysis Document (PDAD)
- DDMS Production Design Document that includes sections covering both Logical and Physical Design descriptions
- Monthly and Cumulative Financial Charts, Organization Chart
- Risk Report that includes the identification and mitigation plans
- Metrics that include assessment type information from peer reviews, change requests, Configuration Control Board meetings, quality assurance activities, configuration management activities and requirements management activities.

Weekly and monthly meetings between NRC and PEC are scheduled to review the project activities that have been accomplished and prepare for upcoming project milestones. The monthly status meeting will be conducted on the 15th of each month in order to allow PEC's Finance Department adequate time to prepare data to be input to the monthly financial charts. Monthly labor costs, cumulative labor costs to date and earned value number presented at these meetings will be documented in the monthly status reports and will then used by the Project Manager to track task completion.

3.4.1 *Software Development Resource Requirements*

The following table indicates the staff effort required to design, develop, and deploy the DDMS system, together with the estimated number of hours for each labor category.

Task Areas	Hours
Task Three – Produce Integrated Full DDMS Capability	6100
Project Management Plan	600
Production Requirements and Design Definition	1000
Production DDMS Integration	3000
Production System Testing and Evaluation	1500

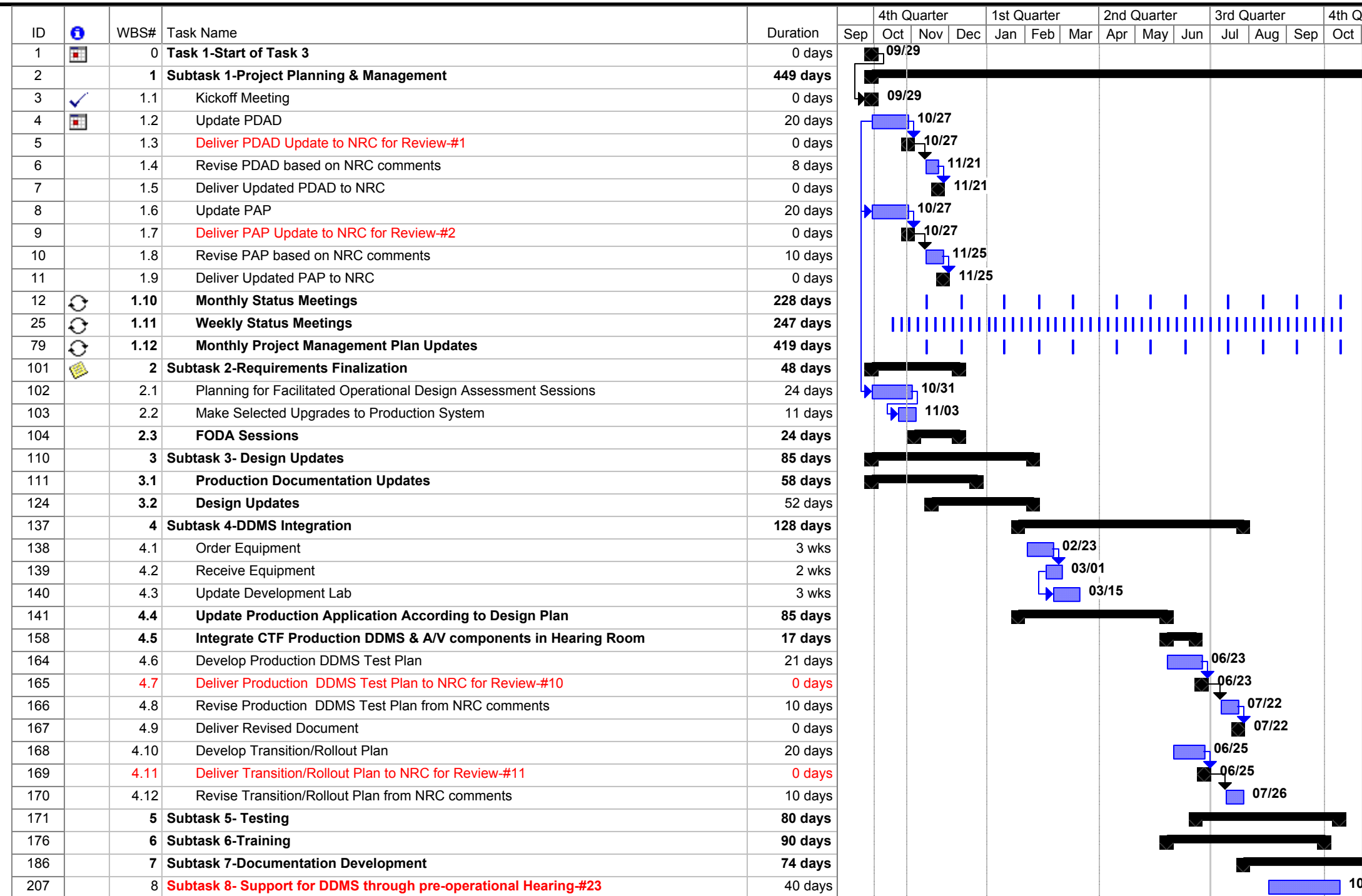
3.4.2 *Software Development Milestones and Schedules*

See Appendix A.

3.4.3 *Software Development Measures*

The PEC DDMS Team will use an earned value system to monitor the development of the DDMS. Activities will be defined for tangible interim products. Staffing for each activity will be identified, and a staffing profile for the project will be prepared. Microsoft Project will be used to schedule and report on development progress. Earned Value Management System (EVMS) will be tracked using 0% (work has not begun), 50% (work started), and 100% (work completed and deliverables delivered to the government). Additionally, at the monthly status meetings PEC will provide the government an updated copy of the Project Schedule, as necessary, and a spreadsheet indicating financial information for the past month.

Appendix A - Schedule and Cost Projections



DDMS Task 3 Project Schedule

Month	Budgeted Monthly Spending
Oct-03	\$ 19,000
Nov-03	\$ 54,300
Dec-03	\$ 73,900
Jan-04	\$ 65,500
Feb-04**	\$ 325,600
Mar-04	\$ 60,000
Apr-04	\$ 43,000
May-04	\$ 38,400
Jun-04	\$ 69,000
Jul-04	\$ 63,200
Aug-43	\$ 57,700
Sept 04	\$ 43,400
Oct 04	\$ 35,200
Total Labor	\$ 668,000
**Assumes Components billed in Feb 04	\$280,200
Total	\$ 948,200

Exhibit A-2: Task 3 Production DDMS Projected Monthly Spending Plan

Month	Cumulative Budgeted Total Spending
Oct-03	\$19,000
Nov-03	\$73,300
Dec-03	\$147,200
Jan-04	\$212,700
Feb-04**	\$538,300
Mar-04	\$598,300
Apr-04	\$641,300
May-04	\$679,700
Jun-04	\$748,700
Jul-04	\$811,900
Aug-43	\$869,600
Sept 04	\$913,000
Oct 04	\$948,200
**Assumes Components billed in Feb 04	

Exhibit A-3: Task 3 Production DDMS Projected Cumulative Spending Plan

Appendix B - DDMS Project Team Contact List

DDMS Project Contact List**PEC**

Organization	First Name	Last Name	Phone No.	email adder.	fax no.
PEC	Rick	Schutz	703-679-4806	rschutz@pec.com	703-633-7800
PEC	Reed	Hyde	703-633-7827	wyang@pec.com	703-633-7800
PEC	Roy	Carter	703-633-7888	rcarter@pec.com	703-633-7800
PEC	Peter	Estabrook	703-633-7872	pestabrook@pec.com	703-633-7800
PEC	Michael	Parchen	703-679-3010	mparchen@pec.com	703-633-7800
PEC	Paul	Gwaltney	703-633-7839	pgwaltney@pec.com	703-633-7800
PEC	Scott	Miller	703-633-7877	smiller@pec.com	703-633-7800
PEC	Paul	Mychalus	703-633-7882	pmychalus@pec.com	703-633-7800
PEC	Cindy	Milstead	703-679-3080	cmilstead@pec.com	703-679-4901
PEC	Susan	Warren	703-679-1992	swarren@pec.com	703-679-4901
PEC	Bob	Bukoski	703-633-7876	rbukoski@pec.com	703-633-7800
Media Edge	Tony	Mangerie	410-694-0670	tmangerie@media-edge.com	410-694-0245
Media Edge	Randy	Ambuel	410-694-0670 x21	rambhul@media-edge.com	410-694-0245
Media Edge	Sandy	Stasko	410-694-0670 x22	sstasko@media-edge.com	410-694-0245
ExhibitOne	Mike	Lofaro	480-763-1002 x12	mlofaro@Exhibitone.com	480-763-1003
ExhibitOne	Clay	Boothe	480-763-1002 x17	cboothe@Exhibitone.com	480-763-1003
ExhibitOne	Kevin	Sandler	480-763-1002 x11	ksandler@ExhibitOne.com	480-763-1004

NRC

OCIO	Beth	DeWoody	301-415-5785		
ASLBP	Dan	Graser	301-415-7401	djg2@nrc.gov	
ASLBP	Joe	Turner	301-415-7410	jxt1@nrc.gov	
SECY	Andy	Bates	301-415-1963	alb@nrc.gov	
SECY	Emile	Julian	301-415-????		
ASLBP	Matt	Schmidt	301-415-7469	mrs3@nrc.gov	
ASLBP	Judge G. Paul	Bollwerk, III	301-415-7454	gpb@nrc.gov	
ASLBP	Judge Thomas	Moore	301-415-7465	twm2@nrc.gov	
DC	Joyce	Fields	(301)415-6564	jaf1@nrc.gov	
ASLBP	Margie	Janney	301-415-7245	maj@nrc.gov	
SECY	Emile	Julian	301-415-1966	elj@nrc.gov	
NSA	Grant	Allred	410-854-4662	gcallre@missi.ncsc.mil	410-854-6386
NSA	Terrie	Peterson	410-854-4662	tdpeter@missi.ncsc.mil	410-854-6386
NSA	Mike	Boyle	410-854-6888	mboyle@restarea.ncsc.mil	
NSA	Chris	Salter			

Exhibit B-1: DDMS Project Team Contact Information

Appendix C - DDMS Task 1 Work Breakdown Structure (WBS)

WBS No.	WBS Element
1	Subtask 1-Project Planning & Management
1.1	Kickoff Meeting
1.2	Update PDAD
1.3	Deliver PDAD Update to NRC for Review-#1
1.4	Revise PDAD based on NRC comments
1.5	Deliver Updated PDAD to NRC
1.6	Update PAP
1.7	Deliver PAP Update to NRC for Review-#2
1.8	Revise PAP based on NRC comments
1.9	Deliver Updated PAP to NRC
1.10	Monthly Status Meetings
1.11	Weekly Status Meetings
1.12	Monthly Project Management Plan Updates
2	Subtask 2-Requirements Finalization
2.1	Planning for Facilitated Operational Design Assessment Sessions
2.2	Make Selected Upgrades to Production System
2.3	FODA Sessions
2.3.1	Hold Facilitated FODA with Judges
2.3.2	Hold Facilitated FODA with Clerk's)
2.3.3	Hold Facilitated FODA with Parties
2.3.4	Hold Facilitated FODA with IT Admin
2.3.6	Summarize FODA inputs and revise requirements/design
3	Subtask 3- Design Updates
3.1	Production System Documentation Updates
3.1.1	Update Risk Assessment
3.1.2	Deliver Risk Assessment Update to NRC for Review-#3
3.1.3	Revise Risk Assessment based on NRC comments
3.1.4	Deliver Updated Risk Assessment to NRC
3.1.5	Update Contingency Plan
3.1.6	Deliver Contingency Plan Update to NRC for Review-#5
3.1.7	Revise Contingency Plan based on NRC comments
3.1.8	Deliver Updated Contingency Plan to NRC
3.1.9	Update System Security Plan (SSP)
3.1.10	Deliver Security Plan Update to NRC for Review-#4
3.1.11	Revise Security Plan based on NRC comments
3.1.12	Deliver Updated Security Plan to NRC
3.2	Design Updates
3.2.1	Update Process Flows, Data Flows, Data Dictionary--PEC
3.2.2	Update Interface Definitions (EHD/ADAMS, Web User I/F including 508 compliance Web aspect)--PEC

WBS No.	WBS Element
3.2.3	Develop final user interface controls/screens & hold final feedback session with Judges, Court Admin personnel
3.2.4	Finalize Logical Design Document (LDD)
3.2.5	Finalize Physical Design Document (PDD)
3.2.6	Update Tactical Integration Plan (TIP)
3.2.7	Update Design Document incorporating LDD, PDD and TIP
3.2.8	Deliver Updated Design Document to NRC for review-#6, 7,8
3.2.9	Hold "Mini" Detailed Design Review-#9
3.2.10	Revise Design Document based on NRC feedback
3.2.11	Deliver Revised Design Document
3.2.12	Receive "GO" Decision
4	Subtask 4-DDMS Integration
4.1	Order Equipment
4.2	Receive Equipment
4.3	Update Development Lab
4.4	Update Production Application According to Design Plan
5.4.1	Configure Portal and Video Clustered Servers
5.4.2	Configure Clustered DB Servers
4.4.1	Update Gadgets & Portal Functionality
5.4.3.1	Update Witness Mgmt
5.4.3.2	Update Scheduling & Calendaring
5.4.3.3	Update Access Controls/Security
5.4.3.4	Update Search Functionality
5.4.3.5	Implement Business Rules
5.4.3.6	Implement 508 Features
5.4.3.7	Update Exhibit Handling
4.4.2	Update Multimedia Subsystem
5.4.4.1	Updated Video Capture
5.4.4.2	Updated Video Transcript Function
4.4.3	Test of Upgraded Production System at PEC
4.4.4	Install Production System in NRC CTF
4.4.5	Re-Test of Production DDMS in CTF
4.5	Integrate CTF Production DDMS & A/V components in Hearing Room
5.1.	Integrate Switched Video Feed
4.5.2	Integrate Intelligent Podium
4.5.3	Integrate Evidence Capture
4.5.4	Integrate Simulation Capture
4.5.5	Conduct Internal Testing of integrated system
4.6	Develop Production DDMS Test Plan
4.7	Deliver Production DDMS Test Plan to NRC for Review-#10
4.8	Revise Production DDMS Test Plan from NRC comments
4.9	Deliver Revised Document
4.10	Develop Transition/Rollout Plan

WBS No.	WBS Element
4.11	Deliver Transition/Rollout Plan to NRC for Review-#11
4.12	Revise Transition/Rollout Plan from NRC comments
5	Subtask 5- Testing
6.1	System Testing and Fixes (PEC and ASLBP)
5.1	Pre-final and Final Test of Requirements-#12
5.2	Deliver Operational Production DDMS Ready for Mock Trial-#16
5.3	Conduct "Mock" HLW Hearing-#18
6	Subtask 6-Training
6.1	Develop Training Plan
6.2	Deliver Training Plan to NRC for Review-#13
6.3	Revise Training Plan Based on NRC Feedback
6.4	Deliver Revised Document
6.5	Develop Tutorials
6.6	Subtask 8-Support for DDMS through pre-operational Hearing-#23
6.7	Revise Tutorials Based on NRC Feedback
6.8	Deliver Revised Tutorial Materials
6.9	Conduct Training-#17
7	Subtask 7-Documentation Development
7.1	Update Software Engr Notebook
7.2	Deliver Software Engr Notebook-#15
7.3	Revise Software Engr Notebook Based on NRC Comments
7.4	Deliver Revised Document
7.5	Create User Guide
7.6	Deliver User Guide to NRC for Comments-#21
7.7	Revise User Guide Based on NRC Comments
7.8	Deliver Revised Document
7.9	Create O&M Admin Guide
7.10	Deliver O&M Admin Guide-#22
7.11	Revise O&M Guide Based on NRC Comments
7.12	Deliver Revised Document
7.13	Create DDMS Operational Support Guide
7.14	Deliver DDMS Operational Support Guide-#20
7.15	Revise DDMS Operational Support Guide Based on NRC Comments
7.16	Deliver Revised Document
7.17	Update DDMS Comprehensive Software & System Test Results
7.18	Deliver DDMS Comprehensive Software & System Test Results to NRC for Review-#19
7.19	Revise DDMS Comprehensive Software & System Test Results Based on NRC Feedback
7.20	Deliver Revised Document
8	Subtask 8- Support for DDMS through pre-operational Hearing-#23

