

US EPA ARCHIVE DOCUMENT

# **NASA White Sands Test Facility**

## **Las Cruces, New Mexico**

Project XL Reinvention Proposal

**Internet-Based Regulatory Reporting and Information Management System**

September 1, 1999

## Executive Summary

The NASA White Sands Test Facility (WSTF) proposes a Project XL reinvention initiative to implement an extensive Internet (web)-based information management and regulatory reporting system. This innovative solution to extensive paper reporting deliverables would provide the U.S. Environmental Protection Agency (EPA) and multiple New Mexico Environment Department (NMED) Bureaus with real-time access to regulatory reports, historical site information including groundwater database archives, graphical interpretations of site conditions, and cross-media environmental compliance information and reports. This web-based system would also include an extensive public access area to encourage public participation with environmental compliance initiatives at a Federal facility. The public access area will provide information on current environmental conditions and projects, and communication regarding recycling programs, waste minimization activities, community-right-to-know issues, ISO 14001 certification efforts, and NEPA projects.

This innovative solution to written deliverables would require specific regulatory relief from the written reporting and signatory requirements of 40 CFR §270.11. The project would also require flexibility from agency-mandated reporting requirements specified in site-specific regulatory documentation and permits. This would not require specific regulatory relief, only concurrence and document modifications from NMED. NASA proposes that this project will still meet all current regulatory requirements; only the format, delivery method, and data archival procedures will be modified. The regulatory reporting and information management system will be extensively cross-media: encompassing reporting requirements from NMED's Air Quality, Groundwater, Surface Water, Hazardous and Radioactive Materials, and Solid Waste Bureaus. This cross-media information will enhance inter-Bureau and inter-agency communication by offering real-time desktop access to WSTF-specific air quality, groundwater, hazardous waste, surface water, and solid waste data, reports, graphical representations, and associated compliance information.

This project proposes a phased approach to simplify and streamline the environmental compliance information management and regulatory reporting requirements. These phases will include obtaining specific regulatory relief from 40 CFR §270.11, obtaining approval for reporting flexibility from NMED, initial web-based system set-up and testing including the preliminary use of recordable CD-ROMs for some deliverables, a media-specific (by NMED Bureau) roll-out, system upgrades with public access information and graphical interface support, and initiation of an electronic data archival program. After completion, the system will enhance reporting requirements by providing information above and beyond that required by current permits and other regulatory documentation. This enhanced reporting will offer superior environmental performance to current reporting procedures and minimize resource allocation; specifically, personnel resources, white paper usage, and triplicate reproduction requirements. The proposed system will also enhance public awareness of environmental operations at a

Federal facility, is extensively cross-media, and the technology is easily transferable to other Federal facilities and private sector sites across the United States.

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## Acronyms and Abbreviations

BMP	Best Management Practices
CD-ROM	Compact Disk-Read Only Memory
CFR	Code of Federal Regulations
CPG	Certified Professional Geologist
DP	Discharge Plan
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
FTE	Full Time Employee
GIS	Geographic Information System
HRMB	Hazardous and Radioactive Materials Bureau
HSWA	Hazardous and Solid Waste Amendments
ISO	International Standards Organization
ISS	Information Support Section
MS	Microsoft
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act
NM	New Mexico
NMED	New Mexico Environment Department
NOI	Notice of Intent
NOD	Notice of Deficiency
NPDES	National Pollutant Discharge Elimination System
PCC	Post-Closure Care
PKI	Public Key Infrastructure
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RSI	Request for Supplemental Information
SARA	Superfund Amendments and Reauthorization Act
SWMU	Solid Waste Management Unit
TRI	Toxic Release Inventory
TX	Texas
URL	Uniform Resource Locator (Internet page address)
WSTF	White Sands Test Facility



## 1.01 INTRODUCTION

The NASA White Sands Test Facility (WSTF) proposes a Project XL reinvention initiative to implement an extensive Internet (web)-based information management and regulatory reporting system. NASA proposes that the extensive paper reporting deliverable requirements of multiple Bureaus of the New Mexico Environment Department (NMED) can be simplified and streamlined by consolidation into a single web-based system. This system would provide regulatory agencies with real-time desktop access to site-specific environmental compliance information and save resources including document preparation time, white paper usage, and triplicate reproduction requirements. In addition, information and resource sharing would enhance inter-Bureau communication and benefit the regulatory agencies by providing graphical illustrations of current conditions, real-time updates of plume-front remediation efforts, access to the groundwater monitoring database system, and electronic archival of historical documentation. The web-based system would also encourage public participation in Federal facility compliance initiatives by providing access to information on current environmental conditions and miscellaneous projects including remediation operations, waste minimization, recycling, ISO 14001, community-right-to-know, and NEPA.

### 1.1 Facility Description

WSTF is located approximately 18 miles northeast of Las Cruces, New Mexico, and operates as a field test installation under the NASA Lyndon B. Johnson Space Center, Houston, Texas (TX). The facility's primary purpose is to provide testing services to NASA for the United States space program. However, it also provides test service and support for the Department of Defense, Department of Energy, private industry, and foreign government agencies. The primary WSTF mission is to develop, qualify, and test the limits of spacecraft propulsion systems and subsystems. The installation also operates several laboratory facilities that conduct compatibility and material test protocols.

Environmental compliance activities at WSTF are extensive and encompass all media; inclusive of air, groundwater, hazardous waste, surface water, and solid waste (landfill). Historical operations at WSTF have resulted in an extensive groundwater contamination plume. NASA is currently implementing investigation activities and interim corrective actions, including the design and construction of a plume-front containment pump and treat remediation system. There are currently more than 215 groundwater monitoring wells and multi-port zones in operation at the facility; with seven hazardous waste compliance technicians performing daily sampling operations.

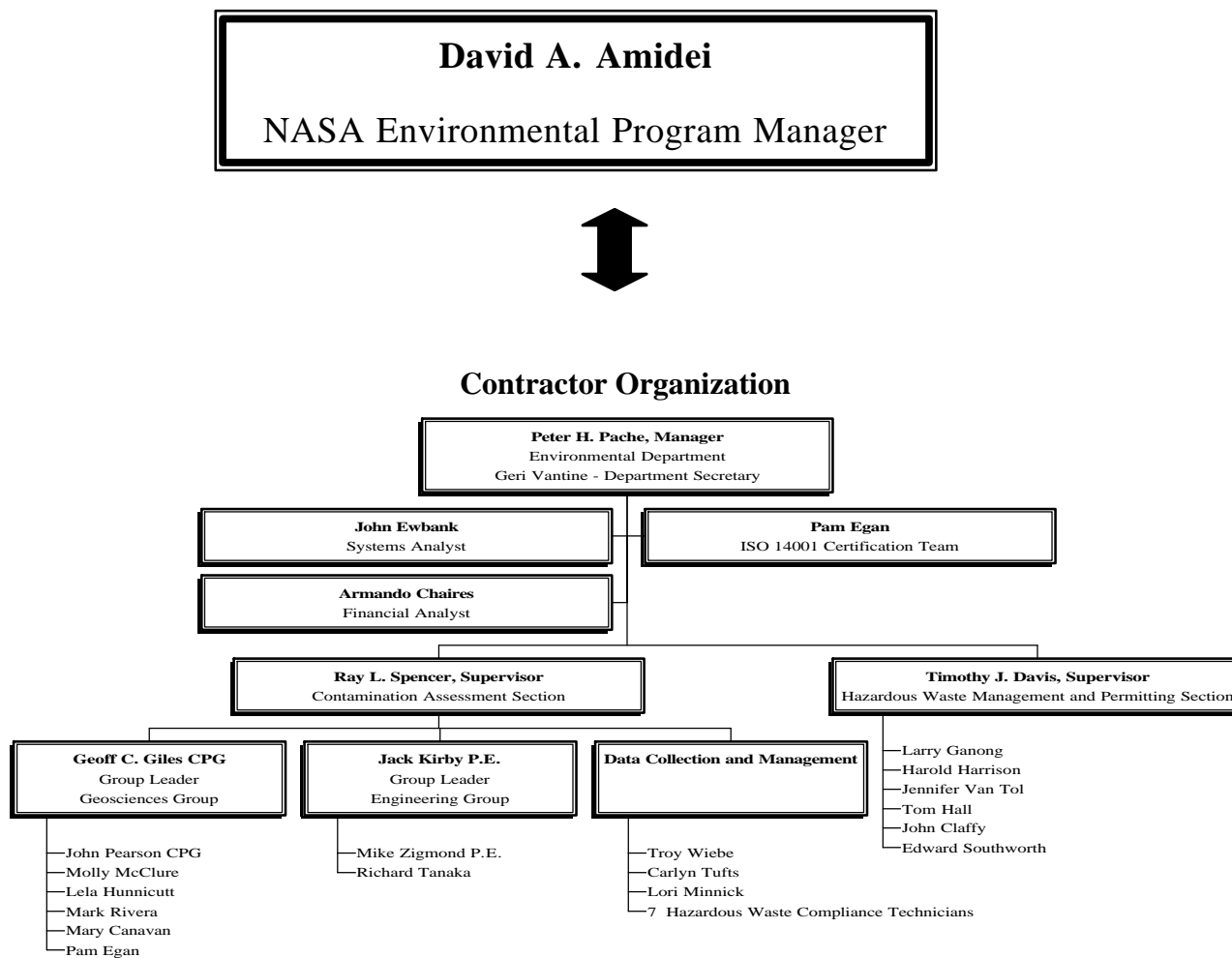
In addition to the extensive groundwater monitoring program, NASA has four permitted operating units regulated by a RCRA Part B Hazardous Waste Operating Permit (No. 8800019434-1), five post-closure care hazardous waste management units regulated by a Post-Closure Care Permit (No. 8800019434-2), extensive air quality permit requirements, landfill post-closure care groundwater monitoring and plume investigation activities, and several groundwater discharge plans. The site's RCRA Facility Investigation (RFI) and corrective action initiatives are also regulated by NMED oversight of the requirements of a §3008(h) Administrative Order on Consent (Consent Order) and a Hazardous and Solid Waste Amendments (HSWA) Permit. These environmental operations and permit requirements mandate extensive paper reporting deliverables, quality assurance and quality control procedures, and data manipulation and formatting. NASA estimates that approximately 10 full time employees (FTEs) per year are required to prepare the necessary cross-media compliance documentation and regulatory reports.

The NASA Environmental Program Manager oversees all contractor Environmental Department operations. The contractor Environmental Department is currently staffed with more than 30 engineers, scientists, geologists, technicians, and management personnel. These personnel are divided into the Contamination Assessment Section and the Hazardous Waste Management and Permitting Section. Figure 1.1 provides an organizational chart of current personnel.

## 1.2 Contact Information

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# Figure 1.1 NASA White Sands Test Facility Environmental Compliance



## 1.02 PROJECT DESCRIPTION

### 2.1 Project Summary

NASA proposes to consolidate, streamline, and simplify the collection, management, reporting, and archival of extensive regulatory agency-required and NMED multi-Bureau environmental compliance data. This proposal will include the construction, implementation, testing, and operation of an EPA and NMED Bureau-wide reporting system that will provide regulatory reports and supplemental information on a web-based information management and regulatory reporting system. The web-based system will include public information access areas and specific web locations (links) for each NMED Bureau. The specific web locations will include reporting links and ancillary information including graphical interpretations of current conditions and data archival of historical information by providing groundwater database access. This information will be easily managed, available on a real-time desktop basis, and will eliminate the extensive paper and personnel resource requirements for the preparation of written report deliverables.

This proposal will also provide supplemental environmental information that is not specifically required by documentation or permits. For example, the groundwater monitoring archived data and sampling schedules from the current searchable database system will be available. This will allow site-specific environmental research and inter-Bureau communication by the regulatory entities. In addition, the web-based system will eventually provide graphical information, including plume diagrams, vertical profiles, groundwater flow directions and gradients, time-concentration plots, well location maps, and other site diagrams that will enhance regulatory agency data interpretations and visualization of site-specific conditions. The public access area will provide site-specific environmental compliance information and project progress reports; in addition to ISO certification, recycling, waste minimization, NEPA, community-right-to-know, and other associated compliance information.

The proposed project will require specific regulatory relief from the reporting and signatory requirements of 40 CFR §270.11, in addition to reporting flexibility from several NMED Bureaus. The web-based system will not eliminate any regulatory reporting requirement; only modify the current format, delivery method, and archival procedures. The regulatory flexibility issues requested in this proposal do not require specific regulatory relief and will be obtained through permit modifications, NMED Bureau-initiated changes, and/or mutually agreeable changes to current practices. NASA proposes to request the following regulatory relief from the EPA (regulatory citations in bold-request for regulatory relief in italics):

**§270.11 Signatories to permit applications and reports.**

- (a) **Applications.** All permit applications shall be signed as follows:
- (b) **Reports.** All reports required by permits and other information requested by the Director shall be signed by a person described in paragraph (a) of this section, or by a duly authorized representative of that person. A person is a duly authorized representative if:
- (d) **Certification.** Any person signing a document under paragraph (a) or (b) of this section shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

*NASA proposes that this regulation be modified to provide a legal mechanism for the submittal of the applications, reports, and the certification requirements utilizing electronic deliverables and a secure digital signature procedure. The NASA proposal for web-based electronic deliverables and digital signatures is provided in Section 3.4.4.*

*NASA also proposes that this regulatory relief be expanded to include all regulatory reporting requirements agency-wide. A cross-media regulatory rulemaking that finalizes an electronic deliverable and secure digital signature system would provide all affected EPA sections with the flexibility to legally receive electronic deliverables with digital signatures for all aspects of environmental compliance initiatives.*

Regulatory flexibility, not specific relief, will also be required from EPA and NMED to implement this proposal. Regulatory flexibility will be determined through stakeholder meetings with affected NMED Bureaus, permit modification requests, Bureau-initiated reporting and recordkeeping changes, and/or mutually agreeable changes to current NMED requested procedures that are not specifically detailed in discharge plans, air permits, 3008(h) consent order requirements, and post-closure care requirements. The flexibility requests are described as follows:

NASA proposes to submit Class I permit modification requests in electronic deliverable format. This will require flexibility from the EPA and NMED concerning the Director notification requirements of 40 CFR §270.42 (a)(i). Currently, the submittal procedure consists of a hard copy deliverable sent by certified mail with a return receipt requested. NASA proposes that the regulatory language of “certified mail *or other means*” is sufficient for NASA to submit Class I permit modifications

electronically. This regulatory flexibility is detailed as follows (regulatory citation in bold-NASA proposal in italics):

**§270.42 Permit modifications at the request of the permittee.**

- (a) ***Class I modifications.*** (1) **Except as provided in paragraph (a)(2) of this section, the permittee may put into effect Class I modifications listed in appendix I of this section under the following conditions:**
- (i) **The permitted must notify the Director concerning the modification by certified mail or other means that establish proof of delivery within 7 calendar days after the change is put into effect. This notice must specify the changes being made to permit conditions or supporting documents referenced by the permit and must explain why they are necessary. Along with the notice, the permittee must provide the applicable information required by §§270.13 through 270.21, 270.62, and 270.63.**

*NASA proposes that Class I permit modifications can be submitted electronically to the Director, and suggests that the language “certified mail or by other means” can include electronic delivery and electronic return receipt without requiring specific regulatory relief. The electronic return receipt will be provided using an electronic mail notification that is time/date stamped when it is received and opened. This information can also be provided by an Internet web page; the NASA server has the capability to time/date stamp the reporting link when it is opened by Bureau personnel. This will provide two separate notifications to NASA that proof of delivery has been established.*

This project will also require specific regulatory flexibility from NMED Bureaus to allow the electronic submission of multi-media compliance reports and supporting documentation. These changes to current practices do not require specific relief; only changes to current permit language, compliance documents, and/or Bureau-initiated modifications to current practices. The following details the requested regulatory flexibility:

- Allow the electronic submission of the §3008(h) Consent Order’s regulatory requirement for written monthly status reports (either web-based or recordable CD-ROM format);
- Allow the electronic submission of the annual Post-Closure Care written reporting requirements as specified in Post-Closure Care Permit No. 8800019434-2;
- Allow the electronic submission of quarterly and semi-annual reports as specified by NMED Groundwater Bureau Discharge Plans DP-392, DP-697, DP-584, DP-1170, and any future Notices of Intent to Discharge (NOIs);

- Allow the electronic submission of regulatory reports and associated information as specified by the NMED-issued Air Quality Control Permit No. 629 (new source permit, i.e., new source review and NSPS). This includes, as necessary, 300 Area, 400 Area, 700 Area, and Test Cell 844 information and/or emissions calculations;
- Allow the electronic transfer of groundwater monitoring data and status reports from the 700 Area Landfill as required by the Closure and Post-Closure Care Plan issued by the NMED Solid Waste Bureau;
- Allow the electronic transfer of progress reports, analytical data, and supplemental discharge plan reports and information regarding the proposed plume-front remediation system to NMED's Groundwater Bureau and Hazardous and Radioactive Materials Bureau; and
- Minimize the hard copy archival requirements of the §3008(h) Consent Order, the Post-Closure Care Permit, and the RCRA Hazardous Waste Operating Permit by allowing recordable CD-ROM storage of archived data and regulatory reports.

#### 7.1 Technology and Security

The NASA web-based system will utilize cryptographic techniques and digital certificates (digital IDs) as part of a public key infrastructure (PKI) solution to ensure Internet site security, protect documents from modifications, and provide a legally defensible digital signature procedure. This PKI solution uses digital certificates to provide security and access control to the web-based system. NASA will become the certificate authority and issue digital certificates to the regulatory agency personnel. These digital certificates will provide the agencies with secure access to the regulatory links. These digital "IDs" will also provide an encrypted procedure for authenticating the electronic signatures of individuals submitting documents and reports electronically. This cryptographic procedure will be coupled with secure server technology using existing firewalls and NASA web site security procedures. Section 3.4.4 provides a detailed description of the enterprise PKI solution and digital certificate process.

#### 7.2 Project Elements

NASA proposes a phased approach to achieving this regulatory reporting and information management innovative solution. The specific elements of these phases include the following:

- **Element No. 1** – Regulatory Relief and Flexibility;

- **Element No. 2** – CD-ROMs and Web Page Construction;
- **Element No. 3** – Public Access Section;
- **Element No. 4** – Testing and Technical Training; and
- **Element No. 5** – Graphics Interface and Archival Abilities.

#### 1.2.1 Element No. 1 – Regulatory Relief and Flexibility

NASA will request regulatory relief from the EPA and flexibility from multiple NMED Bureaus to initiate a web-based information management and reporting system. This request will also include a request to the EPA for specific regulatory relief regarding the electronic submission of 40 CFR §270.11 signatory to permit applications and reports requirements. Regulatory flexibility will be requested from NMED for specific non-statutory permit requirements. This flexibility will also request a modification to the data archival procedures regarding recordable CD-ROM data and report storage. This element will require NMED Bureau-wide concurrence that the proposed project will meet the requirements of each reporting deliverable specific to each permit and/or document requirement. The following NMED Bureaus will need to approve this project and provide the previously mentioned regulatory flexibility:

- Hazardous and Radioactive Materials Bureau (HRMB);
- Groundwater Bureau;
- Surface Water Bureau;
- Solid Waste Bureau; and
- Air Quality Bureau.

NASA has contacted the NMED Secretary, Mr. Peter Maggiore, to discuss the proposed project and NMED involvement. On June 29, 1999, the NASA Environmental Program Manager and WSTF contractor personnel met with Mr. Peter Maggiore in Santa Fe to discuss the proposed project. Also attending this meeting were the EPA Region 6 Reinvention Coordinator, Ms. Adele Cardenas, and the HRMB and Water Quality Bureau Chiefs, Mr. James Bearzi and Ms. Marcy Leavitt, respectively. The proposal was discussed and a consensus was reached concerning the applicability and viability of the project. A letter of support for the project is currently being drafted for signature by Mr. Maggiore. This letter is being submitted directly to the EPA Region 6 Deputy Associate Administrator, with a courtesy copy to NASA, and is anticipated to be received by September 1999. After completion of the final proposal, NASA will schedule a second meeting with each NMED Bureau Chief, or their designee, to discuss the proposed project, obtain feedback on specific regulatory reporting, data archival, and signatory requirements, and ensure that comments, suggestions, and requests are incorporated into Element No. 2.

#### 5.0.1 Element No. 2 – CD-ROMs and Web Page Construction



NASA will provide the NMED Hazardous and Radioactive Materials Bureau with an electronic version of the monthly groundwater activity report. This report is specified by the requirements of a §3008(h) Consent Order. This Consent Order was recently terminated by the EPA, and the requirements of the Order were transferred to NMED. This report will initially be provided on a recordable CD-ROM format, then transferred to the regulatory reporting web page. This CD-ROM will initiate HRMB to the format and benefits of electronic deliverable reporting systems.

NASA will initiate the fabrication of the web-based reporting system with Bureau-specific links. Figure 2.1 provides a flowchart with the proposed links from the web-based system. NASA will provide, if necessary, on-site training for end-users; specifically, the security aspects and general operation of specific links. Preliminary usage will be an upload and beta-testing program, where NMED and EPA can access the reports and associated materials and provide comments and suggestions. The comments, suggestions, and specific requests from each Bureau will be reviewed and incorporated into the system. A security system will be implemented with web-page sections devoted to specific NMED Bureaus and the access procedures will be provided to the appropriate personnel. NASA will provide secure access to cross-media information; therefore, information and resource sharing will be available to personnel from separate Bureaus. Discussions with NMED regulatory personnel have indicated that information sharing between Bureaus could eliminate numerous supplemental information requests and notices of deficiency. This will provide better visualization of site conditions and current projects. The proposal should enhance inter-Bureau communication and provide site-specific, and project-specific, environmental data and associated information.

This element will also incorporate the design and implementation of a secure system for transferring the signatory to permit applications and reports requirements of 40 CFR §270.11 and a electronic return receipt alternative for the submittal of Class I permit modification requests as specified in 40 CFR §270.42(a)(i).

#### 5.0.2 Element No. 3 - Public Access Section

NASA will incorporate a public access section into the web-based information management system. This will encourage public participation in a Federal facility compliance initiative and provide access to site-specific environmental information. This information will include remediation information, current projects and environmental conditions information, community right-to-know facts, NEPA projects' status, recycling effort information, waste minimization work, and personnel contact information. This public access and outreach sections will also be implemented in conjunction with the ISO 14001 certification effort; currently on-going at WSTF and scheduled for registration in May 2000.

Specific web-page links that are reserved for agency-required regulatory reports and compliance documentation will not be directly available in the public access areas. The public access area will provide detailed overviews of each media-specific program and include a contact link for requesting additional specific information and/or regulatory reports by postal mail, facsimile, telephone, or electronic mail. This will ensure that site-specific compliance documentation is provided to the public through the NASA Public Affairs or Environmental Program Manager's Office.

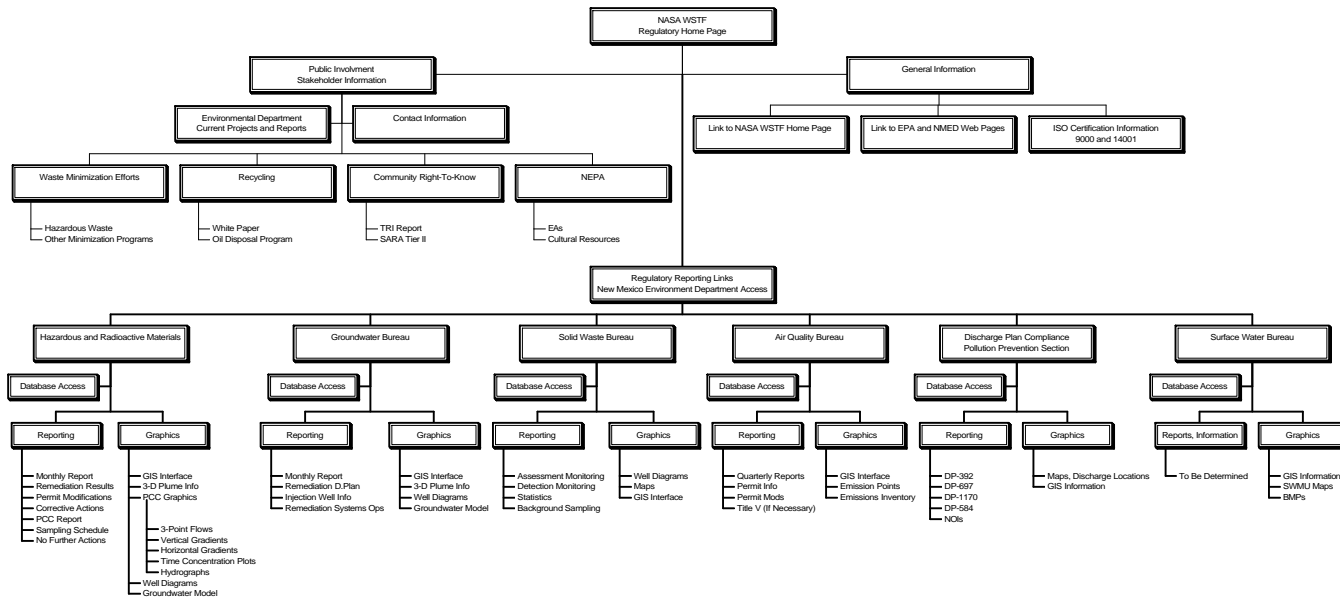
#### 5.0.3 Element No. 4 - Testing and Technical Training

NASA will test the system, incorporate requests and suggestions from the regulatory personnel, and provide on-site technical support to NMED, as necessary, to ensure that each Bureau can access and interpret the environmental reports and supplemental information. Additional comments, suggestions, and requests can also be accommodated at this time.

#### 5.0.4 Element No. 5 - Graphics Interface and Archival Abilities

The web-based system will be upgraded to include graphical interface support, geographic information system (GIS) uploads (when available), historical data and report archives, full database access, complicated plume depictions, concentration time-plots, and other associated compliance information. The historical data archive section will be incorporated using links that are capable of directly accessing the current searchable database system.

# Powerpoint Slide 2.1-Proposed Web Architecture



### 3.0 PROJECT XL CRITERIA

#### 2.1 Superior Environmental Performance

The web-based information management and regulatory reporting system will be equivalent to the current reporting and recordkeeping requirements. NASA proposes that only the format, delivery method, signatory techniques, and data archival procedures will change. The extensive quantity of submitted documentation will be better managed, and extensive archived data will be immediately accessible to regulatory agencies. Paper document reports that will be replaced by an electronic deliverable system are provided in Figure 3.1. This list is not intended to be all-inclusive; it does not include proposals for new projects, on-going permit modification procedures, or frequent requests for supplemental information.

##### 2.1.1 Tier I – Project Equivalency

The proposed project is equivalent to current procedural guidelines written into permits and regulatory documentation. The same information will be provided; only the format, delivery method, and archival procedure will be modified.

For signatory requirements specified in 40 CFR §270.11, a secure system of electronic authentication using digital cryptography coupled with document scanning and Adobe Acrobat files will be utilized. This will provide an equivalent solution to the hard copy signatory and triplicate reproduction requirements currently used.

Submittal schedules will remain identical to current procedures. For example, the groundwater activities report will still be provided monthly, the Post-Closure Care Report will be submitted annually, and discharge plan and air quality reporting will be submitted quarterly and semi-annually as specified by current in-place permits.

**FIGURE 3.1 – List of Electronic Document Submittals**

<b>TABLE 3.1 – LIST OF ELECTRONIC DOCUMENT SUBMITTALS</b>			
Document Submittal Requirement	Regulatory Bureau	Submittal Frequency	Approximate Annual Document Size
Groundwater Activity Report	HRMB and Groundwater	Monthly	>50 Pages
Post-Closure Care Report	HRMB	Annually	>300 Pages
RCRA Permit Modifications	HRMB	As Required	> 25 Pages
No Further Action Proposal	HRMB	As Required	> 200 Pages
Post-Closure Care Permit Modifications	HRMB	As Required	> 25 Pages
Discharge Plan DP-392	Pollution Prevention Section (Groundwater Bureau)	Semi-Annually	>10 Pages
Discharge Plan DP-584	Pollution Prevention Section	Semi-Annually	>5 Pages
Discharge Plan DP-1170	Pollution Prevention Section	Semi-Annually	>5 Pages
Discharge Plan DP-697	Pollution Prevention Section	Quarterly	>5 Pages
Landfill Post-Closure Report	Solid Waste Bureau	Annually	>50 Pages
Landfill Groundwater Report	Solid Waste Bureau	Semi-Annually	>100 Pages
Landfill Statistical Analyses	Solid Waste Bureau	Semi-Annually	>10 Pages
Landfill Background Report	Solid Waste Bureau	Quarterly	> 50 Pages
Remediation System Discharge Plan Reports	Pollution Prevention Section	To Be Determined	To Be Determined
Remediation System Operations Progress Reports	Pollution Prevention Section	To Be Determined	To Be Determined
Fuel Sulfur/Boiler Operations	Air Quality	Quarterly	>5 Pages
NPDES/Stormwater/SWMUs	Surface Water	To Be Determined	To Be Determined

Note: This list does not include numerous requests for supplemental information, notices of deficiency submittals, or general information and proposal submittals.

### 2.1.2 Tier II – Project Performance

The proposal will enhance environmental performance. This proposal's superior environmental performance will be demonstrated as follows:

- Provides real-time desktop access to environmental compliance report deliverables and associated data;
- Consolidates multi-Bureau reporting requirements into one system;
- Multi-bureau access will increase inter-Bureau communication;
- Desktop access will increase intra-Bureau personnel communication;
- Graphical presentations will increase visualization of WSTF conditions and data interpretations;
- Archived data will be easily accessed for determinations of past results and comparisons to current conditions;
- Paper resources are saved by eliminating hard copy reports in triplicate (some documents require five copies);
- Personnel resources will be saved by minimizing hard copy reproduction requirements and extensive data formatting;
- The system will provide public access to encourage participation in Federal facility compliance activities;
- Data archival on recordable CD-ROM disks will eliminate massive hard copy storage requirements;
- Encourages electronic deliverables regardless of signatory requirements (40 CFR §270.11); and
- The proposal will be simple and easily transferable to other Federal facilities and private sector entities throughout the United States.

A table that compares benefits of implementing the Project XL program with current procedures without Project XL program implementation is provided in Figure 3.2.

**Figure 3.2  
Benefits of Project XL Proposal Implementation**

<b>With Project XL Implementation</b>	<b>Without Project XL Implementation</b>
Real-time desktop access	Extensive requests for supplemental information (RSIs)
Desktop availability of facility-specific information	Loss of documents, requests for duplicates, library searches
Better intra-Bureau personnel communication	Extensive RSIs and notices of deficiency (NODs)
Better inter-Bureau communication	Multi-Bureau communication, numerous courtesy copies
Minimization of white paper usage	Extensive white paper usage, triplicate copies, hard copy archival
Easy access to archived groundwater data	Extensive RSIs and notices of deficiency (NODs)
Encourages public involvement with Federal activities	Federal agency appearance of non-disclosure, closed door policy
Increases public/Federal agency goodwill	Possible conflicts during public meetings and after public notices
Easily transferable technology (nationwide adoptability)	Continue to accumulate white paper records facility and agency-wide
Encourages Class I permit modifications (electronic deliverable)	Out-of-date, possibly out-of-compliance permit (better for environment)
Increased visualization of site conditions (graphics)	Confusion about current conditions, extensive RSIs and NODs
Consolidation of multi-media compliance information	No cross-media information available to regulators, confusion
Increases personnel resources for compliance/remediation projects	Personnel utilized for document preparation/copying/formatting
Data archival simplified with CD-ROMs	Continued massive archival of hard copies in storage rooms

## 12.1 Computer Hardware, Software, Server, and Internet Security Issues

### 12.1.1 Hardware

NASA has contacted NMED and EPA representatives to discuss current hardware configurations. NMED, EPA, and NASA have standardized on the Pentium (or equivalent)-compatible desktop computer system coupled with Microsoft (MS) operating systems. This system is compatible with the proposed project's goal of access to the NASA Internet site.

### 12.1.2 Internet Access Capability

EPA and NASA currently have desktop access to the Internet using commercially available browser software such as Netscape Navigator/Communicator and/or Microsoft Internet Explorer (IE). NMED has Internet access and electronic mail capability throughout most Bureaus. However, several "pockets" of NMED personnel are still in the process of receiving upgraded computer systems and Internet and electronic mail capabilities. For example, HRMB is currently anticipating a transfer to new building facilities, and HRMB management has indicated that after moving, a Bureau-wide network with Internet and electronic mail capability will be available.

### 12.1.3 Software

Standard web browser software that is commercially available and currently utilized by the EPA and NMED will be compatible with the NASA Internet site. NASA will provide documents in both HTML format and Adobe Acrobat files. Therefore, documents can be printed directly from the Internet browser software or Adobe Acrobat Reader will be required to view and print documentation and reports from the NASA Internet site. Adobe Acrobat Reader is available for free download from the Adobe Systems web page (<http://www.adobe.com>). Acrobat Reader is also backward compatible when new versions of the software are released. Therefore, historical documentation will be readable if versions of the software are updated. NASA will ensure that all historical documents are maintained, and upgraded if necessary, in a format that is readable with current software configurations.

The EPA, NMED, and NASA are currently standardized with Microsoft Office software. NASA has adopted the Microsoft Access platform for the groundwater monitoring database. This database system will be linked to



specific web page addresses and provide each end-user with detailed search capabilities. It will not be necessary for an end-user to have MS Access and be proficient in database manipulation. The Access database will be “invisible” to the end-users of the data; the access and search commands will be provided using HTML web page links.

#### 12.1.4 Server Security, Signature Authentication, and Document Control

The Internet site security, authentication, data and document appending, and electronic signature issues can be addressed using current cryptography and digital certificate technology. Specifically, public-key cryptography will be utilized; incorporating a pair of related keys to ensure security and the authentication of the preparer’s report or document. This system provides a public key, which is freely distributed and can be seen by all users, and a corresponding unique private key, which is not shared among users of data, reports, and regulatory information. The private key ensures privacy and verifies the identity of the user. Public and private keys are used in tandem to perform inverse operations. If a message is encrypted with the public key, the private key will decrypt it, while a coded message with the private key can be validated with a public key. This “key” technology is provided by using digital certificates (digital IDs). NASA will utilize a commercially available public key infrastructure (PKI) service to ensure secure server operations and control access, provide authentication of senders/recipients of information, provide confidentiality between parties, and attach legally defensible digital signatures to electronic forms, reports, and data. This PKI technology also provides a “hash function” that uses an algorithm to translate a document’s bits into a second smaller set. The hash results will always be identical for a document if it has not been modified. This will provide security that documents are not appended after web page upload and submittal. Additional information on cryptography techniques can be reviewed at

<http://digitalid.verisign.com/server/help/hlpIntroCryp.htm>.

Digital certificates can be obtained commercially by NASA and distributed to the end-users of the regulatory reporting links. This digital certificate technology, coupled with secure server protection (e.g., secure sockets layer (SSL) technology), and on-site, in-place, NASA server security (firewalls), will provide the necessary authentication, access control, confidentiality, data integrity, and non-repudiation services.

NASA proposes to use enterprise PKI managed service solutions including secure server technologies, electronic identification/signature processes (digital certificates), and peripheral support from a private vendor of PKI services.

This certificate technology will be procured and incorporated into the project by NASA. The technology will be “invisible” to the information end-users (NMED, EPA). NASA will distribute the “digital certificates” for secure access to the NMED reporting and information management links and provide training to the affected Bureaus and/or agencies on digital certificate and PKI technology.

NASA has reviewed several applicable technologies to provide secure server and digital identification procedures. NASA selected this technology based on current successful implementations and similar secure web site applications. The PKI technology and digital certificates are currently implemented at several government agencies and are discussed in detail in Digital Signature Guidelines: Legal Infrastructure for Certification Authorities and Secure Electronic Commerce, prepared by the American Bar Association (ISBN 1-57073-250-7). In addition, the Government Paperwork Elimination Act tasked all executive agencies of the Federal government to implement on-line versions of standardized forms, and to accept these forms on-line using digital signatures. Some of the participating agencies that have implemented pilot tests of this PKI technology include the FBI, Energy Department, Patent and Trademark Office, Social Security Administration, Navy, Army, and Air Force. In addition, the Internal Revenue Service (IRS) has implemented this technology for the Electronic Tax Form Filing Project (e-filing). The security requirements inherent during the electronic filing of tax returns are very similar to the NASA proposal; documents must be legitimate, cannot be appended in transit, digital signatures must be authentic, and the process needs to be legally defensible.

This PKI technology and the associated cryptographic procedures were selected to ensure the requirements of secure regulatory reporting are achieved. NASA will review the vendor supplied software and peripheral support and ensure its compatibility with the project objectives. To ensure compatibility with stakeholder computer systems, a meeting will be scheduled after final proposal approval and the preliminary selection of the vendor to ensure all affected parties are capable of receiving the web page information and any applicable training in this system will be provided. After all affected parties are briefed on the vendor selection and the proposed system, and after a consensus is reached regarding its viability, the final procurement will be completed.

## 12.2 Flexibility and Benefits

### 12.2.1 NASA Flexibility

NASA has the resources and flexibility to initiate this proposal and ensure its completion. The contractor Environmental Department is appropriately staffed to initiate the proposal and direct it through the appropriate channels. The WSTF contractor Information Services Section (ISS) is staffed with personnel with extensive expertise in Internet-based systems, web page development, and site security issues. WSTF also has the computer system network, servers, and web hosting capabilities to develop and upload the proposed system. WSTF currently has a functioning, continually updated, web page located at <http://www.wstf.nasa.gov> and an environmental compliance and regulatory reporting home page could easily be developed as an extension of this home page.

### 12.2.2 Technology Upgrades

Technology upgrades to ensure compatibility between systems should not be necessary. As previously indicated, NMED, EPA, and NASA have standardized the computing systems to Pentium (or equivalent) desktop systems equipped with Microsoft operating systems and Microsoft Office Suite products like Excel, Word, PowerPoint, and Access. In addition, standard Internet browser and electronic mail software is currently in use at both agencies. For the interim monthly reports on CD-ROMs, NMED and EPA are equipped with CD-ROM capability on the desktop computer systems.

The majority of NMED Bureaus currently have access to the Internet with electronic mail capability. However, until NASA representatives can meet with each Bureau Chief, or their designee, the exact capabilities of their computer systems and infrastructure are unknown. After completion of the final proposal, NASA will schedule a meeting with each NMED Bureau to identify any hardware, software, or Internet access incompatibles or additional requirements.

### 12.2.3 Paperless Reporting

NASA estimates that several thousand pages of documents, including triplicate reproduction copies, will be eliminated annually using this proposed information management and reporting system. This is an effective way of participation in the Federal government initiatives to reduce white paper usage and recycle paper resources.

Data archival of hard copy deliverables currently occupies a storage area not immediately accessible to NASA and contractor Environmental Department personnel. This document storage is in addition to the large quantity of file cabinets located in the contractor Environmental Department and NASA office areas. The elimination of these written reports into the paper recycling program will preclude extensive storage requirements. The ability to store and utilize archived electronic reports in the work area will minimize file and library searches.

#### 12.2.4 Information Sharing

Bureaus within NMED can access information regarding remediation work or other groundwater monitoring information. For example, HRMB can access remediation system information that is not normally provided in monthly reports, but is provided to the Groundwater Bureau as required by Discharge Plan permits. This will provide supplemental information to HRMB concerning a system they have approved, but is multi-Bureau regulated (e.g., injection well systems regulated by an NMED Discharge Plan).

The general public will have an accessible information repository for site conditions. Public notifications for permit modifications and other projects can include the uniform resource locator (URL) Internet page address for access to information. This will enable the general public to have knowledge of site information prior to public meetings. General overviews of each media-specific program will be provided, and a contact link will be available to request specific regulatory documents through the NASA Public Affairs or Environmental Program Manager's Office.

#### 12.2.5 Real-Time Desktop Data and Information Access

The proposed system will provide immediate access to compliance information from a desktop computer, including historical data and reports. This real-time access could minimize requests for supplemental information (RSIs) and notices of deficiency (NODs). The elimination of these information requests could provide a more time efficient review and approval cycle for submitted documentation. This system will preclude extensive library and file searches when minor discrepancies or data omissions are observed during report or document reviews.

#### 12.2.6 Inter-Bureau Communication

NASA submits information regarding permit compliance, groundwater monitoring activities, descriptions of current conditions, and other miscellaneous information to numerous NMED Bureaus. However, it is increasingly evident, as indicated by historical operations, that inter-Bureau knowledge of NASA activities is limited. For example, HRMB can be reviewing an extensive groundwater pump and treat system proposal and Groundwater Bureau personnel are limited in their information to the submitted Discharge Plan application materials. The web-based system will provide an accessible and simplified information sharing system and will increase regulatory communication between Bureaus.

#### 12.2.7 Intra-Bureau Communication

NASA submits complicated and extensive proposals with associated information to NMED for permit modification packages, remediation proposals, new corrective action programs, and general operational guidance changes. Intra-Bureau communication will improve with the proposal when reviewing these documents. For example, a proposal to HRMB may involve reviews by several different personnel in the Permits, Corrective Action, and Risk Management Sections of a single Bureau. The ability to review detailed site-specific data on the web-based system will minimize requests for supplemental information and notices of deficiency.

#### 12.2.8 Graphical Representations for Visualization and Interpretation

NASA will provide extensive graphical representations of site-specific conditions. These representations could include well diagrams, maps, 3-D plume diagrams, time-concentration plots, groundwater models, hydrographs, GIS information (when available), and other associated graphical information. This will offer superior environmental performance by providing regulatory personnel with tools to better visualize site conditions and interpret submitted data and reports.

### 12.3 Stakeholder Involvement

#### 12.3.1 New Mexico Environment Department

Regulatory personnel from the Groundwater Bureau and HRMB have expressed an interest and willingness to be involved in this proposal; other Bureaus have not been contacted at this time. This proposal would benefit NMED personnel by providing cross-media, real-time desktop access to environmental compliance reports and associated data. In addition, access to

historical data for site-specific research and comparisons to current conditions could provide a more timely review schedule for submitted permit applications and modifications packages.

### 12.3.2 Public Involvement

Public involvement in environmental compliance activities at a Federal facility will be significantly enhanced. Interested parties can access extensive environmental compliance information, and this “full information access” policy will increase goodwill between public and government entities. The ability to access the information by Internet connection could be included in public notifications and during public meetings. For example, notifications of permit modifications for the facility mailing list, or newspaper or radio notices could include the web page address (URL) for further information.

### 12.3.3 Environmental Protection Agency

The EPA will be provided full access to the web-based regulatory reporting and information management system. The proposed system may also be used by the EPA to encourage transferability to other Federal facilities or the private sector. On request, NASA can provide digital certificates and secure access to other interested regulated community representatives. This will allow full access to an example system and further promote the benefits of electronic deliverables and an information management system.

### 12.3.4 Stakeholder Plan

Environmental compliance initiatives and associated issues have been shared with interested stakeholders during public notifications, public meetings, radio announcements, and written notification to individuals on the current facility mailing list. Throughout the hazardous waste and post-closure care permitting process, new source air quality permitting process, plume-front remediation planning phase, and various permit modification proposals, NASA has not generated any public concerns, or significant requests for additional information, during environmental compliance activities.

The current facility mailing list (included as Appendix A) is a comprehensive list of interested parties that includes regulatory personnel, business owners/operators, state-wide public servants (mayors, senators, representatives), newspaper editors, tribal leaders, and the general public. After completion and acceptance of the final proposal, NASA will provide information concerning this proposal to each individual on the facility mailing list.

In addition, stakeholders from the State of New Mexico Land Office, White Sands Missile Range, and the Bureau of Land Management (BLM) will be included in all correspondence.

NASA will provide copies of the proposal, if requested, to each stakeholder and forward the web site address (URL) for initial testing. The web site will provide a link to contact the facility and provide comments, suggestions, and general input. These comments and suggestions can also be mailed, faxed, or telephoned. NASA will review each suggestion and incorporate it if appropriate. If NASA determines the suggestion is not applicable or appropriate, a meeting will be held to discuss this determination with the stakeholder. A public meeting will be held after initial set-up and incorporation of comments and suggestions to discuss the proposal with interested individuals.

NASA will also meet with each affected Bureau after the proposal has been finalized. This meeting will discuss the proposal, determine the computer capabilities at each Bureau, and ensure that training and testing of the system is scheduled and completed in a timely manner. As with the public mailing list notification, any comments, suggestions, or general input received from the regulatory agencies will be incorporated.

#### 12.4 Transferability

The proposed system is easily transferable to other Federal facilities or private sector representatives from the regulated community. With regulatory approval and concurrence, the web-based system can be implemented with a simple system of desktop computers, Internet access, browser software, server or web hosting availability, and associated security systems and technical support.

#### 12.5 Evaluation, Monitoring and Accountability

Milestones have been identified in the project management plan. These milestones are closely correlated with the previously identified elements. NASA will work closely with representatives from the NMED Bureaus to ensure a timely completion of this project. In the event certain elements are not completed as specified, NASA will continue the current system of written deliverables as specified by regulation, permits, and associated documentation.

#### 12.6 Shifting of Risk Burden

The proposal does not shift or minimize any environmental risks. The regulatory flexibility does not request the minimization or elimination of any

reporting or recordkeeping requirements. The requested flexibility only integrates changes in formatting, delivery method, signatory requirements, and data archival procedures.

#### 1.04 REQUESTED REGULATORY RELIEF

NASA requests specific regulatory relief from the signatory to permit applications and reports requirements of 40 CFR §270.11. This request is reiterated as follows:

##### **§270.11 Signatories to permit applications and reports.**

(e) ***Applications.*** All permit applications shall be signed as follows:

(f) ***Reports.*** All reports required by permits and other information requested by the Director shall be signed by a person described in paragraph (a) of this section, or by a duly authorized representative of that person. A person is a duly authorized representative if:

(g) ***Certification.*** Any person signing a document under paragraph (a) or (b) of this section shall make the following certification:

**I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.**

*NASA proposes that this regulation be modified to provide a legal mechanism for the submittal of the applications, reports, and the certification requirements utilizing electronic deliverables and a secure digital signature procedure. The NASA proposal for web-based electronic deliverables and digital signatures is provided in Section 3.4.4.*

NASA will also request regulatory flexibility from permit and compliance document reporting requirements. These requests do not require specific regulatory relief from the EPA. Changes in these requirements will be obtained using the current permit modification procedures, agency-initiated changes to current procedures, and modifications to specific discharge plans and other compliance documents.



## 5.0 COMPLIANCE AND ENFORCEMENT

NASA will remain in compliance with all reporting, recordkeeping, signatory, and archival requirements until approval has been received from each affected Bureau. In addition, a testing phase will be initiated to ensure the regulatory agencies can access and review the data and reports and all security issues are resolved.

## 6.0 IMPLEMENTATION SCHEDULE

The implementation schedule is provided in Figure 6.1. This information is identified in three separate phases: the start-up, approval, and concurrence phase; the web-site and CD-ROM construction and set-up phase; and the system upgrade and training phase. These phases are identified with project specific elements. Each element is assigned to a phase and milestones are identified for progress evaluations.

Figure 6.1  
Timeline

Timeline continued.

## **APPENDIX A**

### **Facility Mailing List**